

*A Presidential Address*

*ON*

**THEN AND NOW, IN SURGERY.**

Delivered before the Medical Society of London on  
Oct. 8<sup>th</sup>, 1906

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GENTLEMEN, - I cannot commence my address without alluding to the great loss which the society has sustained by the sudden death of Mr David Goodsall. Many of us feel his death as a personal loss and all who have taken an active part in the work of our society know how greatly we are indebted to him. Ever since I was elected secretary in 1889 I have been cognisant of his unselfish labours. Much of our present prosperity is due to his influence and sagacity. As a member of the finance committee and as treasurer he for nearly 30 years rendered the society unremitting, unostentatious, and valuable service. The quiet, gentle, and thoughtful manner in which he was wont to impart information and tender advice at the meetings of the council will long be remembered. Well may the Medical Society of London say of Goodsall:-

*Life's race well run,  
Life's work well done."*

This is the 134<sup>th</sup> session of the Medical Society of London. Almost all the more prominent members of the profession in London during this long series of years have belonged to our venerable society. I feel, therefore, that the great honour you have conferred upon me by electing me your President for the coming session entails no mean responsibility, but as I have the good fortune to be associated with experienced and enthusiastic colleagues I trust that the session will be as useful and successful as any of its predecessors.

The aim of our society is the promotion of every branch of medicine and surgery and the cultivation of friendly rivalry in the high cause. Last October my distinguished predecessor spoke of the great changes which had taken place within his own experience in the science and practice of medicine and this naturally suggested to me that, by way of a corollary, I might offer a few remarks on the development of surgery before and within my own experience. An interesting account of the adventures of a Greek surgeon in the fifth century before Christ named Demokedes, referred to by Grote, affords evidence of the intelligence and skill of the Greek surgeons. Darius, King of Persia, in leaping from his horse while following the chase, injured his foot. He was in violent pain for seven days and nights, which the Egyptian physicians who attended him failed to relieve. Demokedes, at that time a prisoner and a slave, succeeded perfectly, though he appears to have required some persuasion to undertake the dangerous task of treating so formidable a patient. Being asked whether he understood surgery he affected ignorance, but Darius, suspecting this to be a mere ruse, ordered out the scourge and the pricking instrument to overcome it. Demokedes now saw that there was no resource, admitted that he had acquired some little skill, and was called upon to do his utmost in the case before him. He alleviated the pain, procured sleep for the exhausted patient, and ultimately restored the foot to a sound

of-Paris; probably then called plaster-of-Athens. Demokedes showed a consideration for his discomfited predecessors well worthy of imitation in the present day, for he interceded for the Egyptian physicians whom Darius proposed to crucify as a mark of his resentment. The history further relates the successful treatment by Demokedes of Atossa, Queen of Persia, for tumour in the breast. The notes of this case have unfortunately been lost and so we are deprived of the chance of tracing in the mind of Demokedes a knowledge of the principles underlying the Halsted operation.

In the days of Hippocrates (B.C. 460) the distinction between medicine and surgery apparently did not exist.

Celsus, writing 50 years before the Christian era, seems, in the following passage, to

perhaps be asked what is the domain of this branch (that is surgery) since surgeons claim for themselves the treatment of many wounds and ulcers of which I have elsewhere spoken. Personally I believe that one man may well undertake the whole but since there are divisions I commend him whose practice embraces the most. I have, however, abandoned to surgery firstly the cases where the practitioner himself makes the wound instead of finding it ready made; secondly, wounds and ulcers for which, I believe, much more may be done by the hand than by drugs, and, lastly, all

constantly increasing number of diseases. In clinical observation Hippocrates was not inferior to the wisest practitioner of the nineteenth century. Sydenham (1650), one of the great founders of modern medicine, has often been called the English Hippocrates and resembled his Greek prototype, who practised 21 centuries before him, in the high

anatomy, physiology, and pathology was necessarily defective. The superstitions entertained by the Greeks respecting the dead precluded him from practising human dissection. He had, however, worked at the skeleton of man and dissected apes and quadrupeds. If the ancient Greeks when they reached the zenith of their culture had studied the anatomy of the human body in health and disease their medical knowledge would have been but little inferior to that of the present day.

Human anatomy is the basis of surgical and medical knowledge. The science of surgery therefore dates from the foundation of the schools of Alexandria by Ptolemy Soter, King of Egypt (B.C. 285), for it was there that by Erasistratus and Herophilus, human anatomy was first systematically studied and taught. All the knowledge thus garnered seems to have been lost in the burning of the Alexandrian libraries (640) and in the wars and tumults of the early centuries after Christ. Gibbon denies this. He  
iscovery in

editor says that since the time of Gibbon several new authorities have been adduced in favour of the opposite view. He mentions, too, that a similar charge of wanton destruction was brought against the Crusaders. The library of Tripoli containing 3,000,000 volumes was, on the capture of the city, ordered to be burnt by Count Bertram of St Gilles because the first room which he entered contained nothing but the Koran

At first sight it is indeed a matter of wonder that we know as much as we do of

that period seems to offer no more secure footing to an historical adventurer than the chaos of Milton, to be in a state of irreclaimable disorder, best described in the

*A dark  
Illimitable ocean, without bound  
Without dimension, where length, breadth, height  
And time and place are lost; where eldest Night  
And Chaos, ancestors of Nature, hold  
Eternal Anarchy, amidst the noise  
Of endless wars, and by confusion stand."*

Certain it is that from the date when the learning of Alexandria was lost the spirit of man was content to occupy its earthly tabernacle for more than 1000 years without anatomical and physiological inquiry, till indeed the rise of the famous

but 38 years since the death of Clot Bey the first public lecturer on Anatomy in Egypt for about seventeen hundred years. So strong are Mussulman prejudice and hatred that a student rushed upon him and stabbed him with a poniard, when he first opened the thorax of a body, although he was under the protection of the Pasha Mehemet Ali. The blade slid over the ribs and Clot Bey, perceiving that he was not seriously hurt, took a piece of plaster from his dressing-case and, applying it to the wound, coolly

and sternum and I now have the opportunity of showing how a blow directed from

Among the names recorded on the walls of the Kasr-el-Aini Hospital it is interesting to note that of an Arabian physician who wrote several books, one of which was entitled, *On the Rarity of Good Doctors and the Abundance of Bad*

described as small and badly ventilated and were too near a large cemetery where the dead were so carelessly buried that the stench was most terrible in the hospital and the patients were kept awake at night by the hyenas fighting over the unearthed corpses.

Every year before this was accomplished 60,000 children died annually from small-pox.

Not least among the benefits of English influence in Egypt is the now flourishing Egyptian school of medicine at Cairo in which several of my friends occupy prominent posts. Most of us are acquainted with the excellent work, begun over 20 years ago, of Sandwith and Milton at the Kasr-el-Aini hospital. Surrounded as we are in this city with every luxury of assistance, it is hardly possible for any one of us to appreciate the immense difficulties successfully overcome by Milton when he commenced work at Cairo. He undertook capital operations without assistants and without nurses. He would sit up all night with cases after serious operations, and Dr Sandwith has told me that on one occasion at the close of an operation the patient being *in extremis* Milton opened a vein in his own arm and performed direct transfusion with his own blood. Thanks to the pioneer workers of the last century in the Egyptian wilderness the present school of medicine in that country is in a flourishing state, and not the least interesting fact I may record is that every Egyptian student on leaving the medical school is required to take an Arabic version of the Hippocratic oath.

## OATH OF THE DOCTORS.

*I swear, in the name of God the most High, and of his sublime prophet Muhammad, whose glory may God increase, to be faithful to the laws of honour, honesty and benevolence in the practice of medicine. I will attend the poor gratuitously, and will never exact too high a fee for my work. Admitted into the privacy of a house, my eyes will not perceive what takes place; my tongue will guard the secrets confided to me. My art shall not serve to corrupt, nor to assist crime, and I will not yield, under any pretext or persuasion, to prescribing any poison to anyone. I will neither give nor prescribe to any pregnant woman dangerous drugs, capable of provoking or producing an abortion. Ever respectful and grateful to my masters I will hand on to their children the instruction which I have received from their fathers.*

*May I be respected by men if I remain faithful to my vow! If not, may I be covered with shame and be despised! God is witness to what I have said: The oath is finished.*

It appears to me that the ancients knew more than we usually give them credit for.

authors due credit for their discoveries or happy imitations, it is none the less just to restore to the ancients what properly

Alexandrian studies was the ligature of arteries with silk or catgut for the arrest of haemorrhage and the cure of aneurysm, but it is not known by whom it was first practised, though Eveltistus is stated to have introduced it into Rome and it is clearly described by Celsus and Galen. Is it conceivable that these great men were wholly ignorant of the physiology of the vascular system? Is it not more likely that as Ambroise Pare rediscovered in 1570 the use of the

-demonstrated to the modern world what had been understood, though perhaps only dimly, by the Alexandrian school? In the Louvre there is a Greek statue of a gladiator brought down by a small wound in the thigh. The marble so vividly recalls the flat sheet of blood which would issue from a transverse wound in the femoral artery as to suggest that some degree of anatomical

Celsus refers to the ligature of vessels, not as a new discovery, but as a matter of

which the blood flows must be seized in the wound, tied in two places, and divided between them, so that they may retract and at the same time have their orifices

Also, when there is much haemorrhage from a place without important muscles and nerves, such as the forehead or the top of the head, the most handy thing to do is to

of a blood current? In another place Celsus advises tying vessels during an operation before dividing them.

pulsate strongly, it is safer for the operator to put a double loop round it and to divide between, and let these ligatures be of a material which will not readily decompose.

Such a material in Rome can be got from the Gaietans who bring it from the country of the Kelts and sell it in the Via Sacra, which leads from the temple of Roma to the markets. This is the easiest thing to get in Rome and it is some very cheaply there; but if you are practising your art in another city prepare for yourself some threads known as silk; rich women have these in many parts of the Roman Empire and especially in large cities. If you cannot get this choose the material least liable to decompose from among those that you can get where you are, such as fine cat-gut, for materials which easily decompose fall quickly out of the vessels, but we wish the knot only to fall out when the vessels have been well covered round with flesh, for the flesh which grows up in the parts of the vessels which have been cut off acts as a covering and stops their mouths, and when this has happened is the time for the ligatures to separate without  
d if it be cicatrised beyond the aneurysm,  
the whole of it should be cut through, and oftentimes that very practice prevents the danger from haemorrhage, for it appears plainly that when a complete transverse division is made both portions of the artery retrace on either side, the one above the

It is related that the use of ligature by Ambroise Pare encountered much opposition from certain of his rivals who did not hesitate to revile both him and it in the coarsest language. To one of these, a certain Dr Gourmelin attached to the Paris Faculty of Medicine, who had compared him to an executioner, the great surgeon replied:

and be more jus to your contemporaries. You made a profession of learning and do not know that ligature of vessels was a familiar practice with the ancients; you meddle with teaching and do not know that almost in our own days, in Germany and in Italy a return to this practice has been made. You write books but they only serve to retard the progress of our art by keeping up the most dangerous errors and by reviling and discouraging those whose endeavours are directed to its advancement. Which of us two do you think most resembles that officer of justice to whom you have not been ashamed to compare me, you who can only talk of boiling oil and hot irons to arrest

During the middle ages, indeed until the time of Hunter, surgery showed no great advance over that of the time of Celsus; even at a later epoch current practice was in some respects by no means better than that advised by Celsus. I remember well enough a woman walk into the hospital when I was a dresser with her intestines in her petticoates a hernial scar having given way. The surgeon washed the intestines with milk and returned them into the abdomen. Celsus directs that intestines protruded through an abdominal wound should be washed with water mixed with a little oil and returned into the abdominal cavity. He gives explicit directions as to enlarging the wound, holding up the edges of the divided peritoneum, suturing a perforation of the intestine, cutting away gangrenous omentum, and finally closing the wound in layers.

When I entered the profession the obstacles to the study of human anatomy had been removed and clinical observation combined with post-mortem study had greatly increased our knowledge of disease. The work of Lebert, Auvert, Cruveilhier, Bright, and Hooper was being carried on by Bristowe, Cornill and Ranvier, Wilks, Fagge, and

commenced to influence the profession. When I was a house surgeon we used the steam spray and carbolic lotion but the surgeons made a point of operating in old

coats bespattered with the blood and pus from many a field day. Prolonged efforts were frequently made to reduce strangulated hernia before operation; the reduction of intussusception was attempted with the kitchen bellows; intestinal and gastro-intestinal anastomosis were unknown. No attempt was made to open brain abscess unless obviously beneath a fracture. Operation for brain tumour was unheard of. The mastoid operation was not performed in any London hospital. No operations were performed on the heart or spleen. Patients with renal and biliary calculi were left to their fate. Appendix operations were not done, though gangrenous appendicitis and its results had been already described and figured by Lebert. The risk of surgical operations was still so considerable that they were often delayed as long as possible.

The place that surgical intervention occupies in the treatment of disease is now quite different; so little is the risk and discomfort attending most operations that surgical intervention has now become the method of choice for those affections amenable thereto. The work of the last 15 years is known to you all and I need not mention in. The rise of modern surgery began with the discoveries of anaesthesia and antiseptics. Had it not been for the genius of Simpson chloroform might still be unknown, and had

processes of fermentation and putrefaction led Lister to make the first and most important application of bacteriology to the prevention of disease pronounce that

No longer hampered by the necessity of sacrificing accuracy of detail to mere rapidity in operating, nor deterred by the risk of death from sepsis, surgeons were able to intervene where before they could only look on. The art of surgery rapidly advanced, our knowledge of disease was greatly increased, and diagnosis by being more often put to the proof was rendered much more accurate. But this very advance, so far from

progress, knowledge that can only be acquired by deliberate experiment on the living animal.

At the present time the surgeon is often obliged to operate with scant assurance of

succeeding is against us, and if we can do nothing better we must not on that account consider the undertaking impossible and unreasonable. Reasonable it will always be if we can do nothing better, and if we employ such sparse means as we may possess to the best

applicable to the warfare against disease. It is not reasonable, however, and we are not employing the means at our disposal to the best advantage if we deliberately try upon man new procedures without first ascertaining their effect by experiments on animals. Celsus referred to human vivisection as if actually practised, or at all events not prohibited, by the legislature. He, however, stigmatised it as not only cruel but unnecessary, as abundant opportunity was afforded for the study of living organs by observation of gladiators in the arena, soldiers wounded in battle, and travellers who had received the attentions of brigands in the neighbourhood of Rome; but though these special means of investigation are not available for London workers the consensus of medical and lay opinion now, not less than in the days of Celsus, is rightly against deliberate experiment on man for the acquisition of knowledge. The study of the effects of disease as seen after death and in the course of surgical operations is a field already reaped and has come to form part of the curriculum of the

student rather than the field of the investigator, though no one would say that important discoveries will not yet be made in this branch of inquiry.

Those who pursued the study of human anatomy even less than a century ago had to encounter physical danger as well as the prejudice and abuse which not falls to the share of those who seek to advance knowledge by experiments on living animals. Among those who are against us in this matter are many who honestly differ from us and whose opinions and conduct are entitled to our respect and consideration, but there is a small class of persons who display a lamentable want of truth and justice and

*whose tongue  
Outvenoms all the worms of Nile."*

Such may well be described in a phrase detached from a famous speech by Disraeli at an interminable and inconsistent series of arguments whereby to glorify themselves

In all ages the search after truth, whether in science or theology, whether by translation of the Bible, by looking at the stars, by following the life-history of pathogenic bacteria in the living animal, or by making an antitoxic serum for the cure of disease, has met with irritated opposition and obstructive prejudice and its supporters have not always escaped calumny. I need not recall to you the invectives that have been applied to some of those most highly esteemed by our profession and by the public. Were Simpson at the present day engaged in chloroforming rabbits he would be subject to the criminal law of our country, and it is well known that Lister had to go to Germany to dissect the bodies of enemies slain in battle because he was forbidden to obtain subjects in Rome.

venom) in London but was stopped by the antivivisection laws in force. But Dr Weir Mitchell and Dr Reichert in Philadelphia undertook experiments on cobra and rattlesnake venom, the cobra poison being furnished, be it observed, by the British Government, whose own laws have prevented investigation for the benefit of its own

Where would the surgery of the intestines and stomach be without the labours of experiments? How could the surgery of the nervous system have advanced without the experiments of Ferrier, Schafer, Beevor and Horsley, Sherrington, Aldren Turner, Risien Russell, and many others? To experimental work on the living animal we are wholly, or in great part, indebted for what we already know about the pathology of bacterial infections, serum therapy, protective vaccines, cerebral localisation, the healing of wounds, the healing of nerves, and the healing of arteries, the transplantation of nerves, the surgery of the nervous system and of the gastrointestinal tract, the effects of removal of organs, organo-therapy, the action of many important drugs, and the means of detecting certain poisons which defy chemical analysis. Fresh from a too brief visit to America I am glad of the opportunity of describing some splendid work which is in progress there by our colleagues in that great country. You will remember that Sir Lauder Brunton suggested long ago that the

surgeon might be able to overcome the effects of mitral stenosis. In one of the splendid laboratories of the Johns Hopkins Hospital at Baltimore I saw the results of some ingenious and successful experiments on mitral stenosis and insufficiency and I do not doubt that in time these will be made useful for such diseases in man. Further, I saw a dog whose thoracic aorta had been successfully obstructed by Professor Halsted which suggests the possibility of dealing successfully with thoracic aneurysm. Thoracic aneurysms have never been able to be cured like aneurysms of the limbs,

site of the aneurysm. In all the experiments at Baltimore exactly the same precautions and care are taken as in operations performed on man.

At Cleveland I saw a wonderful experiment. Dr Crile performed in a most beautiful manner the modern operation of anastomosis of arteries and by its means resuscitated a dog whose heart had ceased to beat for 25 minutes. Two dogs were chloroformed and one bled to death by opening the femoral artery. In both animals one common carotid artery was then exposed and divided, the distal end being ligatured and the proximal end clamped. An anastomosis between the proximal ends of the two vessels was now made. When the clamps were removed the blood flowed from the living dog towards the heart of the dead dog which almost at once recommenced to beat. Dr Crile stated that as soon as the pressure in the coronary arteries reaches from 20 to 30 millimetres of mercury the heart begins to beat again. No leakage whatever took place from the anastomosis. This experiment gives a clue to a method of resuscitation from death by haemorrhage in man. Dr Crile also demonstrated an ingenious method of suture for gastro-intestinal anastomosis. The recent work on the anastomosis of arteries and veins led up to the transplantation of entire organs by Dr Carel who successfully transplanted kidneys from one dog to another. How great are the possibilities opened up by these experimental demonstrations; may we not hope for the time when diseased organs will be got rid of and replaced by healthy ones?

If these results are attained it is to be hoped that the problem of breeding the anthropoid apes in captivity may be solved, or we may see in a future number of the *Times* the advertisement attributed by an American humorist to the man who had  
ges and hospitals desiring assorted tramps for  
scientific purposes by the gross, cord measurement, or per ton will do well to inspect

At Buffalo I spent a day in the Government Cancer Research Laboratory. Here carcinoma is being studied by experimentally communicating it to mice, and several thousand successful inoculations have been made. A proportion of the animals so infected recovered without treatment, demonstrating experimentally what has been inferred from clinical observation- that spontaneous recovery from this disease is possible and that there are certain forces at work in the body antagonistic to the growth of cancer and tending to produce immunity. This has already led to the employment with some success of a vaccine and should serve as an incentive to research directed towards the preparation of a serum for the treatment of malignant disease. In my view it is futile to carry on experimental work on carcinoma unless the hypothesis that it is a microparasitic disease be accepted.

So far-reaching is the influence of experiment on the progress of treatment that no one

alth are clearly understood it is not possible for us fully to understand the changes that occur in the living organs in disease. The knowledge of living processes which is essential for the further progress of surgery and pathology can only be acquired by experiment on the living animal. It seems sto us odd that the Romans who did not hesitate to sacrifice human life for their amusement should refuse the bodies of the dead for anatomical study. To a future generation it will seem equally strange that a certain class of Englishmen of the present day who do not hesitate to rear animals for the mere pleasure of the chase or the palate should consider it criminal to sacrifice animal life for the acquisition of knowledge essential to the relief and cure of disease. On this subject I cannot do better than quote the words used by J F D Jones in his classical work on the Arteries

words to say addressed to men out of the pale of his profession into whose hands this little book may fall whose opinions he esteems and whose sentiments he honours. He regrets the necessity of obtaining even this important knowledge by the sacrifice of brutes. But when we remember the incessant scourge of war which has followed man through all the ages of history, not to mention the consequences of accident and disease, it is not too much to assert that thousands might have been, and may still be saved by a perfect knowledge of these subjects, which can only be directly obtained by experiments on brutes; indirectly, and very slowly, by observations on the injured arteries of man; and even these cannot be made until he has fallen a sacrifice to the want of assistance or to the imperfect knowledbge of the surg

Those who are engaged in the study of physiology, pathology, therapeutics, and surgery on the living animal are, it is well for us to remember, following in the footsteps of Pasteur, of Lister, and of all those who have most contributed to the advan

new fact is a gain, though its practical application may not be immediately apparent. The discovery of new knowledge is ever a laborious task, and those who seek this knowledge wll always have the sympathy and support of our ancient society.

It might be thought needless before this audience to refer to the necessity of

of the present time and in my official position I have felt impelled to take the opprtunity of saying frankly what I hold to be true on this subject. I conclude with a

honour from those vulgar heads that rudely stare about, and with a gross risticity admire His works. Those highly magnify Hm, whose judicious inquiry into His acts, and deliberate research into His creatures, return the duty of a devout and learned admiration. Therefore,

*“Search while thou wilt; and let thy reason go,  
To ransom Truth, e’en to the abyss below;  
Rally the scattered causes; and that line  
Which Nature twists be able to untwine.”*



