pression which may be a type of many ideas, but a distinct picture of none.

I have ventured to bring the subject of a teaching university before you, because I hope the Victoria University will extend its sympathy to London teachers, and seeing that they are striving for what it has already attained, it may unselfishly assist by its influence and example what is obviously for the good of the community and in the interest of learning. An attempt is being made to engraft a teaching side on the present University of London. Whether it will succeed eventually or not, with the present diversity of interests involved, it is impossible to say. I am one of those, who, in view of all the circumstances, think a separate teaching university would be best, but I am agreed, that seeing all the difficulties, it may be well to give the scheme of the Cowper Commission a fair trial, if none of the colleges included be put in a less favourable position than at present.

PASTEURISM IN DOMESTIC ECONOMY.

In conclusion, may I be permitted to say a few words to the ladies who have graced this assembly with their presence to-day? On them I would urge that there are certain branches of science, particularly in their modern developments, which are quite within their reach, and even a limited knowledge of which would greatly conduce to the well-being of their domestic circles. It is not necessary to be a medical student, nor even a "new darn on an old blue-stocking" which has been given as a definition of the "new woman," to learn so much of what modern science has revealed to us as may assist to ward off preventable diseases, and largely to conduce to the comfort of the household. It is a deplorable fact, that, mainly as the result of ignorance, one child in every three dies before the completion of the fifth year, and it is not less painful to witness disease and death overwhelming adults, be they rich or poor, because everywhere there is a lack of that sanitary knowledge which is necessary to ensure health. And let me assure my hearers, that such knowledge is not limited to the study of imperfect drains and unsavoury areas, important as these may be, but as recent investigators have taught us, it extends into a most fascinating new realm of organic life, which may be cultivated as a branch of botany, but which requires a microscope for its elucidation. It has quite recently been discovered that not only are many diseases which afflict the human body, such as diphtheria, consumption, typhoid fever, and lock-jaw, produced by certain low but active forms of vegetation, but that the deterioration and spoiling of our food and drink are due to the same causes.

The putrescence of meat, fish and eggs, the sourness of milk, the rottenness of apples, and the mould of bread, are all produced by the attacks of microbes, as they are called, which are always present in the air, and only require suitable conditions for their development. Each one of these has a definite form and shape, and can be differentiated by the expert as one plant can be distinguished by the botanist from another. There is no need to be alarmed in recognising their presence, and making their acquaintance, for most of them are benign and harmless, and serve the most useful purposes in Nature. They act as scavengers, and produce decomposition in useless and effete materials, resolving them into elements which may be used in building up new forms of organic life. Those which produce fatal diseases are quite different, and are always derived from some pre-existing form of the same species, probably directly or indirectly from the body of some victim who has suffered from their attack.

Now it is not necessary for every woman to be so learned that she can tell one form of microbe from another, any more than she can be expected to have an expert's knowledge of botany, but sufficient knowledge of the conditions which favour their invasion and development, and how to prevent waste and disaster, is within the compass of every one. The principles which guided Sir Joseph Lister in his antiseptic treatment of surgical wounds may be applied in the domestic economy of every household. If, for example, all mothers grasped the fact that the choleraic attacks so fatal to many young children during the first year of life are caused not so much by faulty secretion from the cow as by the germ-laden air of impure larders and dwelling rooms in which the milk

is kept after entering the house, many precious young lives might be saved, for the mischief is easily prevented by proper precautions.

I think the time is not far distant when housekeeping will be taught on a basis of science in every schoolroom instead of being entirely ignored, as at present. I venture to predict that it would conduce much more to utility in the future if this were included in every girl's advanced education, instead of some of the so-called accomplishments for which she has little aptitude, and which are discarded as soon as she is married. A little applied science in the household—even if it did not go beyond first principles—would render homes both healthier and happier. The British builder, the joiner, and the plumber may, in a perfunctory way and in accordance with stereotyped rules, think he is doing everything necessary to provide sanitary conditions in a dwelling, but the feminine head of the household, with a little requisite knowledge, and particularly if she has studied the excellent little book called *Dangers to Health*, by Mr. Teale, of Leeds, can, in the interests of those near and dear to her, appreciate how important it is that such work is thoroughly done and how necessary it is to have some competent supervisor who shall see that no loophole is left for the entrance of the germs of disease. With but little trouble she may so inform herself that she can be confident in the safety of the drains, in the unpolluted character of the drinking water and of milk, in the salubrity of the atmospheric air, in the purity of her larders, her kitchen and her scullery, and in this knowledge she would be vigilant to prevent the accumulation of refuse in obscure corners and dustbins, which brings nothing but mischief when overlooked. Not only may wives and daughters thus do good in their own households, but by disseminating even some smattering of knowledge concerning the laws of health among the poor and ignorant they may find an outlet for that sympathy for poverty and suffering which exists in every woman's heart, and they may thus render greater service to the State than if they were admitted to the franchise and were allowed to take part in sending members to Parliament.

I trust I shall not be regarded as taking a liberty in drawing the attention of ladies to these considerations, and I may take my leave, expressing all good wishes for University College, Liverpool.

A LECTURE ON SIR JOHN ERICHSEN AND THE ART OF SURGERY.

Delivered at University College Hospital.

By CHRISTOPHER HEATH, F.R.C.S.,

Holme Professor of Clinical Surgery, University College.

GENTLEMEN,—I could not begin the work of the session to-day without making some allusion to the loss we have all sustained in the death of the President of University College and my immediate predecessor in this chair. I think it will be best to give you a short sketch of this hospital and its connection with Sir John Erichsen. Being here as students in 1896, you are not likely to know what happened sixty years ago, and it will be interesting for you to learn something of the previous history of this institution.

UNIVERSITY COLLEGE AND THE HOSPITAL.

Let me remind you first that University College was originally called the London University. That institution was the outcome of the superabundant activity of the late Lord Brougham. It was proposed at first to teach everything there, but in 1828, when it was opened as a teaching institution, arts and laws formed one department at one end and medicine another department at the other end of the building; for in those days there was merely one straight block of buildings without any wings. The science of medicine was taught in a way in which it never had been taught before in any London school, by the professors who

then held the several chairs in what a few years later became University College; but a difficulty arose in regard to the practical teaching of medicine and surgery, which could not be carried out without beds and a hospital. It was at first proposed that Middlesex Hospital should be the teaching place for the practical work, and accordingly Sir Charles Bell, who was one of the surgeons at Middlesex Hospital, was made professor of surgery here, and Dr. (afterwards Sir Thomas) Watson was the first professor of clinical medicine. That arrangement worked for a year or two, but it was soon found necessary that there should be a separate hospital, and accordingly this building was erected on a piece of ground which fortunately had been secured at the time the College was built, and in the year 1836 this hospital was opened. You can judge very well what it was like then, for it is not much changed. This theatre, for instance, is exactly the same as it was then, and it was here that Robert Liston, one of the first surgeons of the hospital, did all his great operations. The professor of surgery who succeeded Sir Charles Bell was Mr. Samuel Cooper, and I may here say that this surgeon must not be confused with Astley Cooper, or Bransby Cooper, who were both surgeons of Guy's Hospital. Mr. Samuel Cooper was an old army surgeon who had seen much service in the Peninsula, and who after the war had become attached to a private medical school, as was the custom in those days. In this hospital he was appointed one of the surgeons, and communications were opened with Robert Liston of Edinburgh, who had made a reputation there as an anatomical teacher and surgeon, and who, though he was surgeon to the infirmary, had not been appointed professor of clinical surgery, Syme holding that position. Liston gladly accepted the offer to come to London, and became the first professor of clinical surgery here, and also one of the surgeons of the hospital. Thus on opening the surgeons were Cooper and Liston, and Richard Quain was the assistant-surgeon.

LISTON.

Liston soon made his mark here, and if you look back at the contemporary press of that day you will see that his operations attracted large classes and many visitors, and he, in fact, inaugurated a new phase, so as to speak, of operative surgery. I believe that up to that time many of the operations which he did had never been performed in London, and he particularly distinguished himself by his operations on large tumours which had been allowed to develop, partly by the neglect of the patient and partly because surgeons of that day rather eschewed interference with them. Now, nothing was too large or too desperate for Liston to undertake. He was over 6 feet in height, handsome, as you can see from the marble bust in our museum, with large powerful hands, which enabled him to undertake and to perform the very largest operation with rapidity and skill. Let me remind you that this was in the days before anaesthetics, and therefore rapidity was of considerable importance. It is said of Liston that in amputating a thigh, such was the rapidity of his manipulation of the knife and saw that it almost seemed like a flash of lightning. We do not pride ourselves nowadays on our speed; with anaesthesia the patient is insensible and the surgeon can take his time; whether this occasionally leads to over-deliberation and perhaps waste of time, and exposure of the patient to too much anaesthetic, is another matter. At all events, this hospital started as regards surgery under good auspices, and there was a large class of students who "walked the hospital," as it was then termed, and did not do much else. They followed Liston round, and if he did not teach very much they looked at his cases, and with the few crumbs of knowledge thus procured they and the examiners of that day were satisfied.

SYME.

The hospital continued in this way till 1847, and then unfortunately Liston died quite suddenly from aneurysm of the aorta. Cooper had got somewhat past his work when Liston died, and there was of course the difficulty of filling his place. Mr. Quain was then assistant-surgeon, and so also was Thomas Morton, who had married the daughter of Samuel Cooper. But the Council thought that it would not be wise to promote either of these gentlemen, and they therefore applied again to Edinburgh for another surgeon, and James Syme, the eminent surgeon of Edinburgh, was persuaded

with some difficulty to abandon that city and come to London. This surgeon began his work here on February 14th, 1848, Liston having died in November, 1847, and he was received with somewhat mixed feelings. On the one hand, there was a good deal of feeling against him because it was thought that Quain and Morton had not been fairly treated. On the other hand, there was much enthusiasm on his account because of his reputation, and he himself in his written statements, which I have lately looked up, makes no complaint whatever of his reception here. But he found on the whole that the place was not an easy one to fill, and he was here for only three months, for in May, 1848, he sent in his resignation and returned to Edinburgh. Fortunately the chair which he had vacated there had not been filled up, and he therefore dropped into his old position, and there he remained distinguished and beloved till he retired from that position because of age.

ERICHSEN.

Syme having left, there was again a difficulty in filling up the appointment, and I may say that party feeling ran exceedingly high, and—if all accounts are to be believed—there was a good deal of misplaced enthusiasm displayed by the students, so much so that it led on some occasions to the interference of the police. Another complication now arose because Mr. Cooper, feeling that his son-in-law, Mr. Morton, had been unfairly treated, resigned his chair of surgery, and therefore for the moment the hospital was practically bereft of both surgeons. Mr. Quain was, however, promoted to the office of surgeon, and then came the question who should become the professor of surgery. In 1848 the Council solved the difficulty by asking Mr. Arnott, senior surgeon of the Middlesex Hospital, to be Professor of Surgery, and at the same time they selected two new assistant surgeons, Mr. Erichsen and Mr. Marshall, who were appointed on the same day in 1848. Things now quieted down a little, though disaffection yet simmered, and there were occasional outbreaks; but still, as far as I can learn, affairs went smoothly till Mr. Arnott again found that the position was not quite satisfactory to him, and at the end of two years he resigned his post, and gave up the professorship of surgery and the surgeoncy at the hospital. The Council was now again in difficulty, but I am glad to say that it had the wisdom to appoint Mr. Erichsen to the office. He was appointed surgeon to the hospital, and also made professor of surgery. Order was restored, and the school began again to prosper. That appointment was not made, of course, without some trouble, and the fact was commented on that Mr. Erichsen was only 32, and therefore his experience was but limited. Mr. Quain, Professor of Anatomy for many years, thought the post ought to have been given to him, and therefore for the next fifteen years he revenged himself by never speaking to Erichsen at all. This seems a very small matter, but I have heard Sir John Erichsen himself say that he felt his isolation very much. There was no one about the hospital from whom he could take advice or consult with, and he had to depend entirely on himself—in fact, to play off his own bat. That was certainly somewhat trying, but it just shows what the man was, that he was able to overcome all the difficulties and to outlive all the trouble and all opposition, because before Mr. Quain gave up his post, on one memorable day, to everyone's great astonishment, Mr. Quain and Mr. Erichsen walked into this hospital arm-in-arm! How the *rapprochement* came about I do not know, but from that day forward those two men were friends.

THE FIRST ADMINISTRATION OF ETHER IN EUROPE.

We have so far traced the history of the hospital up to the appointment of Mr. Erichsen; let me pause to remind you of another great event which had taken place in the year 1847. On the December 21st, ether was administered in this theatre for the first time in Europe, and two operations were performed by Liston, amputation of the thigh and removal of a toe-nail, and from that time the use of anaesthesia spread rapidly to other hospitals and became universal throughout the world.

The introduction of ether as an anaesthetic dates from October 30th, 1846. A Dr. Morton, a dentist of Boston in America, who had been led to investigate and experiment on himself and others, found that with ether he could produce complete anaesthesia,

as we now call it—for the word was not known then. He spoke to Mr. Warren, the chief surgeon of the Massachusetts General Hospital and offered to give the anæsthetic for him there, and on October 16th, in the same year, ether was administered by Dr. Morton to two patients of Mr. Warren's, and that was the first public administration of an anæsthetic in the world. I have here in my hand a paper recently sent me, inviting me to the commemoration of the fiftieth anniversary of that occasion at the Massachusetts Hospital on October 16th, 1896, and it is an interesting historical document. From Boston the news of this entire reformation of surgical practice was sent to England by letter, which came into the hands of a Dr. Boott, who lived in this city. He spoke to Mr. Liston about it, and here, in this theatre, on December 21st, 1846, ether was for the first time administered in Europe. It is a curious fact, that in the last edition of *Erichsen's Surgery* the 22nd is the date mentioned, but I have found the correct date by referring to letters of the period. That introduction of anæsthetics in this theatre was the beginning of anæsthesia in Europe, and I was only waiting for Sir John Erichsen to return to town from his holiday to suggest to him to come here on the 50th anniversary of that day, and address you all on the subject. Unfortunately that is now impossible, but I think you ought to remember that he was present was ether was first given, and that from that date anæsthesia was introduced into general surgery.

AN EPOCH IN ENGLISH SURGERY.

Erichsen's lectures on surgery were highly appreciated, and in 1853, three years after his appointment, he brought out the first edition on his well-known work on surgery. Now that book made, I may say, an epoch in English surgery. I was a student at the time it appeared, and we were then as students obliged to get up our surgery as we could. There was no book really which was quite satisfactory; there were some lectures by Astley Cooper, and by Bransby Cooper. There was *The First Lines of Surgery* by Samuel Cooper; there was Cooper's *Surgical Dictionary*, and there was a dreadful book by Miller of Edinburgh, in two volumes, one on the principles and the other on the practice of surgery—as if it was possible to separate the two things. There was also a little book called *Druitt's Surgeon's Vade-mecum*, which was then quite a new work. When Erichsen's book first came out it was a perfect godsend to the student, we could get what we wanted, written in good English, easily understood, and thoroughly well illustrated and up-to-date, and I can well remember the gratification which became general on the appearance of the work. The proof of its excellence is that the book has gone through ten editions and that whereas the first edition, which I show you, consisted of 951 pages and contained 262 woodcuts, the tenth edition, published last year, consists of two volumes together making 2,500 pages with 972 woodcuts; and as is mentioned in the preface, over 40,000 copies have been issued previous to the tenth edition in this country. Editions have appeared in every European language, and in America it has been not merely reprinted, but the American Government, during the War of Secession had a special edition printed and sent to every surgeon in its army, that every surgeon might have a good guide as to surgical practice. I am sorry to say they entirely forgot to remunerate the author, though he took pains to bring the fact under the notice of that Government.

ERICHSEN AS A TEACHER.

Sir John Erichsen filled the Chair of Surgery here for 15 years, and during those years he taught a large number of students, and I am quite sure that every one of them will say that his teaching was good and to the point. Of course new editions of the book came out, and if you think what the subjects are that Erichsen had to get up in order to keep his book up-to-date, you can estimate the ability of the man. We are apt to look on surgery at the present time as being almost perfect, every surgeon thinks that perhaps of his generation, and yet what improvements and alterations have been made since the time when this book of Sir John Erichsen's was first published! The whole of the surgery of the head has been altered, we know now more of the anatomy and of the physiology of the brain, and we are able, therefore, to bring surgery to bear much more on that organ; we have localised

the centres of the different functions, and are able to say exactly where mischief may be. Not only in cases of head injury, but in tumours of the brain, we do not hesitate to open the cranium in a way that was impossible before the days of antiseptics, and with comparatively favourable results. The surgery of the chest is quite a different thing to what it was ten years ago. The surgery of the abdomen has made enormous progress during the last 40 years. Why, in my student days such a thing as ovariectomy was never heard of, and, though a few ovariectomies had been done, any surgeon who proposed to remove a diseased ovary would have almost been thought guilty of manslaughter. Now we open the abdomen for tumours, and to undo twists of the intestine, and to evacuate abscesses; in fact, to make not merely a diagnosis, but to carry out any treatment which may be necessary. The whole of abdominal surgery has been altered, and with it the surgery of the liver and kidneys. No one would have ventured to cut down on a kidney 20 years ago, and it is quite a recent thing that renal stones should be removed and the kidney operated on. Liston was a great lithotomist, he was also a good lithotritist. As to lithotomy, I will undertake to say there is no student here who has ever seen an operation of the kind Liston performed. He always preferred the lateral perineal operation. He was exceedingly dextrous, he could cut rapidly into the bladder, and with his powerful hands extract large stones with astonishing celerity and with a fair amount of success. Now we have entirely altered matters as regards this class of cases. In the first place the lithotrity which used to be done in many sittings with great pain to the patient, is now done in one sitting under an anæsthetic, and the whole stone is washed out; and even if we open the bladder now we most of us adopt the simple method of the suprapubic operation.

THE ANTISEPTIC SYSTEM.

All these things are improvements which have grown up since the first edition of Erichsen's book, and then comes the greatest improvement of all, brought about by an old student of this hospital, Sir Joseph Lister,—the introduction of the antiseptic or aseptic treatment. When Sir Joseph Lister first began to experiment on antiseptics, the details were so disagreeable and so complicated that really I do not wonder at the hospital surgeons of that day being inclined to pooch-pooch the whole thing. Carbolic acid was used from the beginning, and it was first of all mixed with putty. One can hardly conceive nowadays using such horrible stuff, and yet it gave fair results, which improved when Sir Joseph Lister altered his method, and took to the gauze and its modifications. There was another difficulty, and that was the use of the spray. The spray was without exception the most irritating thing the surgeon had to deal with. To be operating under a fizzling spray which wetted you completely, which whistled, and which gave out every now and then, worried everybody and made life unbearable, and rendered antiseptic surgery of those days anything but a comfortable proceeding. Now we have left off the spray, and with more cleanly methods we do with less carbolic acid, avoiding thereby many dangers which carbolic acid gave rise to.

I merely want to point out to you that the whole of the antiseptic system has grown up since the days when Erichsen was professor of surgery here. At the end of fifteen years Sir John gave up the professorship of surgery and succeeded Mr. Quain in the professorship of clinical surgery, and in 1875, having held the same wards which I have now the honour to hold for a quarter of a century, he gave up the position which he had occupied to the satisfaction of all and with great benefit to the school and the patients, and retired into private life. Now, gentlemen, I think you will, from what I have said, be able to appreciate a little more fully than you have hitherto done the difficulties which arose, and which must necessarily arise in any new establishment, how they were overcome, and what a large part our dear friend Sir John Erichsen took in the work. I am quite sure that those who held office under him will agree with me that all found in him a kind friend and one who was always ready to lend a helping hand, and I know and feel that all his old pupils deeply regret that we have been deprived of his presence by death.