it is a common fault nowadays to try and agree with everybody, to have too little courage of one's convictions, and to be afraid to speak out. We need a little more friction. This would be good for us. I make bold to urge it.

A CASE OF PNEUMONECTOMY.

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There are, perhaps, few to whom the removal of a portion of lung for disease has not occurred as a vague possibility; and from various hints and suggestions scattered throughout our clinical records, some seem to have duly weighed and considered the chances of success; but of practical result I know of but one case by Tilman, of Munich, and the short record I have seen gives no detail of procedure. (Since writing I find Tuffill has performed pneumonectomy by a small opening; and Zakharevitch, in Russia, has done many on the lower animals.)

To myself it has for a very long time been the subject of the greatest interest, so much so that many years ago I performed what, I regret to say, I could not at the present time venture upon without cutting myself to the lowest penalties—a couple of vivisection experiments. These, together with numerous other experiments on the dead body and a considerable experience in abdominal surgery, at last gave me sufficient knowledge, and, with the latter, sufficient courage to operate on the human lung when a suitable case presented itself.

My first vivisection experiment was on a rabbit. Under chloroform I opened the right pleural cavity by dividing the second and third ribs, and put a ligature round the upper half of the lung. In these small animals, however, the lung is so friable that the ligature cuts its way through. This operation was therefore a failure, but, nevertheless, through it I got to know several facts which were previously unknown to me, the deepest being that the air driven out, but in great measure the blood as well, for there was no hemorrhage, though half the lung was practically amputated.

Finding the lung so friable in the case of the rabbit, I went to a butcher's shop, and tried various forms of ligatures on young and old lungs of different species of animal, and found all those usually sold by butchers have lungs sufficiently tough to bear an ordinary No. 6 plaited silk ligature without cutting or tearing muscle. These being therefore tough enough to bear ligation, I thought I should find a dog's lung equally so.

Accordingly I procured a young and healthy animal, and, having placed him under the influence of chloroform, I opened the right pleural cavity by an incision over the anterior part of the second rib, and, having cleared the bone from the intercostal muscles, I detached from its inner surface the parietal layer of the pleura and removed a considerable piece of cartilage and bone. I then pinched up the external pleura and pricked it, so that the lung might collapse slowly. As a matter of fact it collapsed rather rapidly, as could be seen through the transparent membrane, so I opened it freely, pulled out the apex, tied it firmly, cut off about half of the upper lobe, and dropped the stump in. In closing the incision I thought it impossible to bring the pleura together, at which I was rather disappointed, as I was then under the influence of Wells's dictum that in operations on the peritoneum the serous surfaces must in all cases be brought together. There was however, no problem, as the pleural membrane was firmly attached to the ribs above and below, and was not elastic enough to allow of the edges being approximated, so I united the rest of the thickness of the wound, dressed it antiseptically, and having made a soft bed for the patient, left him to recover from the anaesthetic. Fifteen minutes after I looked in upon him to see how he was, and was received with waving tail and other evident signs of recognition. For the rest of the day he was nursed on a soft rug before the fire; next day he was quite lively, and on the second morning I was surprised to find him outside chasing another dog at full speed. From this forward he continued well, and I determined to retain him as a companion for the rest of his life. For a month he remained with me, all the time in splendid condition, and, being a well-bred dog, he was much admired. This quality, however, lost me my companion. He was stolen, and, in spite of every effort to recover him, I have never seen him since. I have still part of his right lung in my possession. His subsequent master would little suspect the mutilation his dog had sustained.

Coming next to the dead human subject, I found some modification would have to be made in the mode of ligation on account of the size of the rib; and, putting off to the region of the second rib as regards external incision, as most room can be got there, the intercostal spaces being widest in that situation. It was easy in the dead body to separate the intercostal muscles, and with a periosteal elevator to peel the parietal pleura off the interior of the rib, and, on incising the membrane, the lung was seen to collapse, though slowly. On including part of the upper lobe in a ligature, and tying with all my strength, it did not satisfactorily compress the lung. This was for the most part due to the fact that which had preceded death and in all subsequent ligations on the dead this cleseme interfered with the formation of a correct estimate of the amount of compression likely to be exerted by a single ligature on the living human lung; nor had I now an opportunity of trying the effect on the living animal of transfixion, which the Autovivisection Act had come into force. It is to be regretted that what would apply very properly to the indiscriminate practice of cruelty should stand in the way of the evolution of surgical science.

The following difficulty was also made apparent by those post-mortem experiments. The height to which the pleural cavity extends into the neck—to a level with the cricoid cartilage—is too great to allow of the fingers alone separating adhesions in that region. If, therefore, such should exist, a piece of the third rib would have to be removed in order to allow of the entrance of the hand for purposes of detachment. I also noticed that, as in the dog, the edges of the wound in the pleura could not be approximated, but this did not trouble me now, as all went well in the dog's case, though a deep and healthy muscle lay exposed in the anterior wall of the pleural cavity.

I had now collected all the experimental knowledge within my reach, though to my mind incomplete in many ways. 1. For example, I was ignorant of the effect of transition, though having ascertained that the collapsed lung is practically bloodless, I did not feel much afraid of any harm resulting from that.

2. I was very much afraid of the effect of a pneumothorax more or less suddenly developed. Still one lung did the work well, and for some time, in the case of the dog; and, besides, the physical conditions in collapse with open chest wall are different from those of the ordinary clinical pneumothorax, where hyperdistension has probably a great deal to do with the incision. 3. The thought haunted me also that even if the ligature were well and firmly applied, a rapid absorption of the air, or at least of the oxygen part of it, might follow closure of the external incision, and, expansion of the lung resulting, it might slip its collar (ligature), and hemorrhage and perhaps pneumothorax follow. 4. This at the same time raised the question of extra- and intrapleural treatment of the stump. Should it be dropped in after disinfection of the surface, or should it be fixed in the external incision? The latter could not be done in all cases, and if the former plan were adopted the doubt would arise whether the stump could be rendered thoroughly aseptic, where each air cell opened might be a source of sepsis. 5. Another fear had reference to adhesions; I was especially afraid that if such existed over the superior cava or innominate veins, their detachment might involve the fatal risk of tearing of the venous walls in spite of the intervention of a complete auriculoplasty. 6. Serious difficulty and danger might also arise through injury of vagus or phrenic nerves; or unknown and uncontrollable effects might follow injury to the upper dorsal outflow of the sympathetic.

Many of these doubts and questions might have been answered by the prosecution of vivisection experiments, but in this direction, as I have already said, I was barred. All
these reasons prevented my immediately carrying out my intentions in a case of disease in man, and I had plenty of time for reflection before a case that seemed to me suitable turned up.

Mrs. F., aged 34, first consulted me in August, 1892. She had been married thirteen years, but had no children. She had suffered for fifteen years from dyspepsia, but for twelve months had much pain over the top of the right lung striking through to the back, and had lost much flesh. She frequently perceived at night with herself breathing so strongly that her pulse was quickened, averaging 112, and the temperature in the evening was frequently 3° to 3° above normal.

There was distinct retraction below the right clavicle when compared with the left side. Dulness was also marked as far as the second space, and the voice sounds were much more loudly conducted on the affected side. The exaggeration of the vocal tremens was very distinct when the two sides were compared. The family history was good. She had herself been a weakly girl, and had suffered from a suppurating gland on the right side of the neck. She was under observation from August 21st until February 14th, and during that time the symptoms became gradually worse. The loss of flesh was manifest to her friends, and the cough and perspirations continued to trouble her, though there was little expectoration and never any hemoptysis.

I now came to the conclusion that, as far as one could judge by physical signs, the disease was probably confined to the right apex. The patient also, though evidently losing ground, was not very ill. Here, therefore, was a case suitable for operation, if a case could be. In addition, she was in poor condition, and the patient was evidently choosing the wrong time for convalescence. I explained everything to the patient, and, as she felt she was getting worse, she raised no objection. The operation was performed on February 14th. I was assisted by Dr. Close, and Dr. Robinson kindly undertook what I hoped might need to be done in the case of any accidents. The wound was prepared as for a chest operation, and the costal margins of the acromio-thoracic and intercostals. The external intercostal muscles were next separated above and below from the ribs, and with a periosteal elevator the pleura was divided, and stripped off from the inner side of the ribs. We saw the ribs were divided, through the cartilage internally and through the bone externally near the outer angle of the incision. Pinching up the pleura, I passed in a trocar, the cannula of which was connected by tubing with a Junker’s bottle and bellows, and air, which was passed through a hot strong solution of carbolic acid, was slowly pumped into the pleural cavity. The lung could be partially seen sinking slowly from the chest wall, but no dyspnoea or cyanosis followed. I therefore laid open the external layer of the pleura the length of the external incision, and found the lung completely collapsed and moving up and down rhythmically with the diaphragm.

There were extensive adhesions along the face of the upper lobe, which took a considerable time to tear through, but gradually, and with patience, I got rid of all the adhesions, and without edge, and with an eye big enough to take in a large twisted silk thread, which had been boiled, and had long lain soaking in an ethereal solution of iodine. With this needle I transected the lung some distance below the disease, tied firmly in two pieces after the Staffordshire method, and cut off the upper diseased portion. The portion removed was the size of half a fist, and contained a dense tuberculous mass with discrete granulations around it. Into the stump iodoform powder was rubbed, the cavity was sponged out, and the mutilated lung dropped back. In the course of the operation I had palpated the whole lung, for other collections that I thought might be present were not found. When I did the operation there was no disease in the right lower lobe, but at no time did the respiration get troublesome, so that neither the oxygen nor electric apparatus was wanted. The patient was now put to bed and carefully watched. The temperature was 99° and pulse 84, respirations 32.

February 18th. Morning temperature 99°. Pulse 88, respiration 32; evening temperature 99.4°, pulse 88, respiration 38. For the next three days matters went on in a similar way, and all seemed going on well. On the night of the 19th (that is, fourth day), however, there was a sudden development of a limited patch of erythema on the left side (opposite which gave her much pain, and greatly crippled the respiration, which increased in frequency to 46 per minute. The pulse also went up to 108, but the temperature stood at 99.6°. Warm fomentations and mustard were applied. I gave her a powerful phosphine draught, which relieved her greatly, and the trouble gradually disappeared, and the respirations fell to 28.

The next difficulty rose at the end of the second week, when the temperature began to rise. Every night going up till it reached 101.6°. At first I looked upon it as a fresh eruption of tubercle. The breathing became a little quicker (32), but the pulse was quiet (88 to 96). I found some dulness posteriorly, and, as some black blood had appeared at the apex, I made a sudden scan, and found no blood in the pleura, and it was this that was causing the rise of temperature, just as in cases of hematocoele of the broad ligament, where we have often rise of temperature, and very high temperature, too, and yet the extravasation all goes away, and is absorbed as quickly as if there had been no such extravasation at all. The patient speaking of the change said that her heart had been on fire, and that she had been unable to sleep. The temperature now dropped to normal, and respirations to 24. I was afraid the lung would now become an empyema, and this was, in fact, what happened. The brown colour gradually changed to yellow, but at the same time the quantity diminished very much, and remained perfectly sweet. At the present time I think she is doing very well, and is taking her food well, and has been up on several occasions. The temperature has been normal for a long time, and the respirations averaged 22. On the left side only healthy signs are discoverable; on the right side clearness posteriorly except in the upper scapular region, and in front clear below and hyper-resonant on gentle percussion over the part where the ribs were excised. Air seems to enter the lung well in the lower parts, and ordinary respiratory sounds are also heard in the suprascapular fossa. In the subclavicular fossa the sounds produced by the air entering the small opening in the chest wall.

It would have, I think, saved much trouble in this case if I had introduced a drainage tube for a couple of days, as is frequently done in abdominal sections, but I did not think the disease was then nearly so serious as it turned out to be, and I also thought it was not quite safe to take the patient. I am inclined to think it was safe to introduce the tube, and I should have done so had not the opportunity offered.

May 2nd. The patient has improved rapidly during the past week, both in appetite and flesh. She is walking about the room, and is preparing to go to her own home on Thursday (4th). The discharge is very slight.

There is a large question, which I forbear to discuss—namely, whether many cases occur that are fit for pneumonectomy. I may say, however, that in the living collapsed
lung it would be very easy to ligature and cut off many portions of lung, if the disease were found scattered in patches.

DISEASES PROBABLY CAUSED BY FLIES.

BY SURGEON-GENERAL SR. WILLIAM MOORE, K.C.I.E.,
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During my Indian service I had to frequently comment on the necessity of protection from flies, which at some seasons of the year, especially in the interior of the country, and more particularly in the sandy districts of Western India, occur in vast numbers. They backed the effective precaution of protecting the food from flies, both before and after cooking, in barrack cookhouses. On many other occasions I had to draw attention to the proximity of public shambles and of public latrines, between which flies were constantly passing; also to the proximity of latrines and cookhouses; also to the manner in which food was prepared in the bazaars, where I have seen flies chopped up with the meat being made into sausages or "kolitos." On another occasion I mentioned the insecticidal prevalence of flies among animals in certain Indian cities, scarcely any animal being free from the disease, which I believe was as often conveyed by flies as by direct contact.

When mentioning the necessity of protecting food from flies, I urged the probability of flies coming fresh from the evacuations of a cholera-stricken person, and so conveying the cholera poison to the articles of food they might next investigate. My impression, long held, that flies convey cholera poison receives corroboration from the researches of Savitschekno. This observer states that the specific bacillus could be demonstrated as late as the fourth day after feeding flies with pure culture. Flies were fed on sterilised broth after bacilli had been supplied to them; preparations from these flies showed immense quantities of bacilli which had multiplied on the tissue on which the flies had fed. The bowels of these flies killed guinea-pigs as quickly as the original culture. In connection with the matter it may be mentioned that cholera chiefly prevails when flies are most numerous.

If cholera may be thus spread, it is certainly probable that other diseases may be disseminated in a similar manner—Enteric fever, phthisis, anthrax, leprosy, for example; especially in a country where, outside hospitals, no care is taken to the disposal or disinfection of excreta, or to the disinfection and washing of soiled clothing. Flies seize every opportunity of investigating all kinds of filth. They take every opportunity of examining sores and eyes, whether healthy or diseased. Flies in the East and North-East fly to infected articles stained with excreta, to food, cooked and uncooked. They have a less distance to go from a diseased eye to a healthy one. And they have not far to proceed from a leprous sore, of which so many are exposed in the streets by mendicants, to some accidental sore or abrasion of the skin of a healthy person; probably of the skin of the feet, which so frequently occur to natives. That syphilis is not frequently communicated by flies is explainable from the parts affected being less exposed. That flies in the East cause "peenash" or maggots in the nose, both in animals and of human beings, is not doubted; also maggots in neglected wounds. It therefore appears that much greater care should be given to protection from flies. The occurrence of isolated cases of cholera and of enteric fever, also of ophthalmia, may be explained by the conveyance of the germs of these diseases by flies.

THE EFFECTS OF KOCH'S TUBERCULIN COMBINED WITH SURGICAL MEASURES IN THE TREATMENT OF LUPUS.

BY MALCOLM MORRIS, F.R.C.S.Ed., Surgeon to the Skin Department, St. Mary's Hospital.

The exaggerated hopes to which the premature announcement of the discovery of a remedy for tuberculosis by Professor Koch gave rise were followed by so great a reaction that there is now a danger of the real therapeutic virtue of the remedy being lost sight of in the disappointment caused by its failure as a specific. The disease does not seem at first to be fully justified by the fact that Koch's method had been applied in strict accordance with his own directions, the last state of the patient was in too many cases worse than the first. It appears to me, however, that in absolutely condemning tuberculin as useless, or worse than useless, we do not take sufficiently into account the generally unsatisfactory nature of the results of other methods of treatment in cases of tuberculous disease, and notably in cases of lupus.

After having practically dismissed tuberculin from my mind as a possible remedy for lupus in view of its apparent failure to produce any permanent effect, I have since seen reason to modify my opinion to some extent. In following the after-course of cases in which it had been tried, I have been struck by the fact that they were decidedly more amenable to surgical treatment than they had ever been before. Although the tuberculin itself was powerless to cure the disease, the intense inflammatory reaction stirred up by the injections seemed to have modified the morbid process in such a way that although recurrence took place in all the cases under my observation, when the fresh growth had been effectually dealt with by local treatment, the tendency to recurrence seems to be kept in check for a considerable time, if not definitively abolished. In illustration of this result of Koch's method I subjoin the following brief notice of two cases under my own care.

Case 1.—This was one of the earliest cases treated by Professor Bergmann at the time of the great rush to Berlin in 1890. The case was fully reported by Dr. Pringle and myself in the British Medical Journal of January 10th, 1891, p. 72. The patient was a man at that time aged 22, suffering from typical lupus of the nose, palate, and gums; the disease had been repeatedly scraped and cauterised, and masses of caseous glands had been removed on several occasions. The improvement immediately following Koch's treatment was very remarkable, but within a few weeks of the patient's return to England the disease showed signs of renewed activity. In February, 1891, the patient went to sea. When he returned in the following May the disease had made such progress that a most extensive removal of lupus tissue with extirpation of several glands was necessary. In February, 1893, some small isolated nodules of lupus were removed; there was no enlargement of glands. In April, 1893, the