judging from the condition of the artery at the cardiac ligature, the injury done to the vessel at the outset by tight tying seems to lead to changes which increase its power of resistance, which was certainly severely tested in the present instance.

It appears, then, that by applying a ligature of animal tissue antiseptically upon an artery, whether tightly or gently, we virtually surround it with a ring of living tissue, and strengthen the vessel where we obstruct it. The surgeon, therefore, may now tie an arterial trunk in its continuity close to a large branch, secure alike against secondary hæmorrhage and deep-seated suppuration,—provided always that he has so studied the principles of the antiseptic system, and so carefully considered the details of the mode of dressing best adapted to the particular case in hand, that he can feel certain of avoiding putrefaction in the wound. For my own part I should now, without hesitation, undertake ligature of the innominate, believing that it would prove a very safe procedure.

Catgut, manufactured from the small intestine of the sheep,* may be had at a very low price, from the thickness of a horse-hair upwards. In the dry state it is objectionable from its rigidity, and also from a tendency of the first half of the knot to slip before the second half is secured. Water renders it perfectly supple, and as little liable to slip as waxed silk. But if a watery solution of carbolic acid is used for the purpose of making it antiseptic, the protracted immersion requisite to ensure completeness of the effect makes the finer kinds too weak and the stouter too clumsy. The method which I have found to answer best is to keep the gut steeping in a solution of carbolic acid in five parts of olive oil, with a very small quantity of water diffused through it. A larger proportion of the acid would impair the tenacity of the thread. If a mere oily solution is employed, the gut remains rigid, the oil not entering at all into its substance. But a very small quantity of water, such as the acid enables the oil to dissolve, renders the gut supple without making it materially weaker or thicker. And, curiously enough, the presence of this small amount of water in the oily solution gradually brings about a change in the gut, indicated by a deep-brown colour; after which it may be placed in a watery solution for a long time without swelling, as a portion prepared in a simple oily solution does. This is a great convenience; for an oily solution is unpleasant to work with during an operation, and exposure to the air soon renders gut supplied with water rigid from drying. But when it has been treated in the way above recommended, it may be transferred to a watery solution at the commencement of an operation, and so kept supple without having its strength or thickness altered.

For tying an arterial trunk in its continuity, catgut as thick when dry as ordinary purse-silk, will be found best. But for ordinary wounds, where, if one ligature happens to break, another can be easily applied, much finer kinds may be employed, and are convenient from their smaller bulk. For every-day use, a small oil-tight capsule may be carried in the pocket-case, and this can be replenished from a larger stock as may be necessary. I have had a small silver bottle, with well-fitting screwed top, adapted to my caustic-case, and this contains two little rods of wood, with gut of two sizes wound upon them, with a few drops of the antiseptic oil; and now that torsion has almost entirely superseded the ligature in ordinary wounds, this small supply will probably last me for months.

Glasgow, March, 1869.

* I need hardly remark that catgut is of a totally different nature from so-called silk-worm's gut, which is in reality unspun silk.

ACCIDENTS ON PRUSSIAN RAILWAYS.—In the year 1867, these railways carried 38,766,866 people. The persons employed on the lines, including labourers, numbered 73,190. Five travellers were wounded by accidents to trains, 2 killed, and 4 met with wounds through their own imprudence. Among the persons employed, and the labourers, 157 were killed, and 244 wounded. Of people not actually employed on the lines, but working for them, 7 were killed, and 19 wounded. Of persons quite unconnected with the railways, 46 were killed, and 30 wounded by incautiously crossing the lines. Suicide occurred 18 times, and 3 persons were badly wounded while attempting self-destruction on the metals. Altogether, 230 were killed, and 305 wounded.

PULMONARY EMPHYSEMA IN CONNEXION WITH GOUT.

By E. HEADLAM GREENHOW, M.D., F.R.C.P.

In a clinical lecture which appeared in *THE LANCET* in 1867 I expressed the opinion that degeneration of the tissue of the lungs, resulting from some constitutional vice, not unfrequently leads to the spontaneous development of extensive pulmonary emphysema, and I adduced several cases in support of that opinion.

This form of the disease, however, which I then termed constitutional or substantive emphysema, for the most part advances very gradually, and is attended in its earlier stages by very slight inconvenience. It therefore seldom comes under medical observation until an attack of bronchitis, to which it strongly predisposes, has aroused the patient to a sense of his condition, by aggravating the shortness of breath, which had crept on so imperceptibly as to have been previously overlooked. As a natural consequence of these facts, cases of constitutional or substantive emphysema may be, as I believe they are, not rare in themselves, and yet very rarely observed or recorded. And hence, although an exclusively mechanical theory has of late years been generally considered insufficient to account for the origin of pulmonary emphysema, the existence of cough is, at the same time, still generally regarded as necessary to its causation. Additional experience, however, only serves to confirm the opinion I expressed two years ago, and to convince me that in a hitherto unsuspected number of cases neither cough nor any other extraordinary cause of mechanical distension of the air-cells has been in action; but that the emphysema has resulted simply from the incompetency of the degenerated tissues of the air-cells to resist the ordinary pressure incidental to many of the occasions of daily life.

This view appears to me to be one of great importance in its therapeutical bearings; for when cases of bronchitis associated with emphysema come under treatment, the ulterior management of such cases will be materially guided by the opinion we may hold with reference to the cause of the emphysema. If it be regarded as a mere secondary result of the bronchitis, then our efforts will be exclusively devoted towards curing the existing attack of that disease, and warding off future attacks. But if, on the contrary, the emphysema be regarded as a substantive ailment, due to loss of tone and elasticity of the lung-tissues, arising from some constitutional cause, we shall then aim further at retarding, by special constitutional treatment, the process of degeneration from which the emphysema has resulted. A brief record of a case of substantive emphysema, which has recently been under my care, may therefore, perhaps, be considered as not devoid of practical interest.

Francis Y—, aged fifty-six, a bricklayer by trade, was admitted into the Middlesex Hospital for acute gout, in November, 1868, under the care of my colleague, Dr. Thompson, who found, on examining his chest, that he was the subject of general pulmonary emphysema. As the patient positively stated that he had never had bronchitis, nor illness of any kind attended by cough, Dr. Thompson invited me to examine him, and then transferred him to my care. I found no evidence of gout in his family history, but his mother and one sister had died of phthisis and a brother of psoas abscess. The patient himself was a tall, stout man, of florid complexion, and frankly admitted that he had for many years been a hard drinker, especially of porter. He had, nevertheless, been a perfectly healthy man until his first attack of gout, four years before his admission. He was now suffering from his fifth attack of regular gout, and he had also had sciatica and frequent flying pains in the lower limbs.

At the time of his admission he had acute gout in the ball of the right great toe and in the right index finger, besides which several joints in both hands were chronically enlarged and tender on pressure. The chest was broad and deep, and markedly hyper-resonant over both its anterior and posterior aspects; a perfectly clear note being elicited by percussion even over the præcordial region. The breath-sounds were feeble, and quite as audible below and around the left mamma as over any other part of the thorax. The

vocal vibration was also very feeble. The impulse of the heart could neither be seen nor felt in the normal situation, but it was seen beating feebly in the epigastrium, where its sounds were also faintly audible. There was no cardiac murmur. The pulse was 80, weak and compressible; the respirations were 16 in the minute. The urine was acid, of low specific gravity, and perfectly free from albumen.

The patient was not himself conscious of any dyspnoea, and declared that he had never at any time suffered from cough; but I elicited from him that he sometimes raised, without trouble, a little frothy mucus after rising in the morning. He was discharged in December, when the gout had been relieved, and has not since been seen.

I have already, in the lecture referred to at the commencement of this communication, called attention to the large proportion of cases in which I have found a gouty diathesis subsisting in connexion with substantive emphysema: a proportion so large, in fact, that I have been led to the conclusion that an intimate relation often exists between the gouty dyscrasia and the loss of tone and elasticity in the lung-tissues, which leads to the development of pulmonary emphysema. The case just related is another example of this connexion; and although the gouty dyscrasia in this patient appears to have been acquired and not inherited, there is no reason to suppose that gout is less likely to predispose its subject to emphysema when it has resulted from long intemperance, than when it has been transmitted by hereditary descent.

Upper Berkeley-street, March, 1869.

OBSERVATIONS

ON SOME

CASES IN WHICH ARTIFICIAL TEETH WERE DISLODGED AND SWALLOWED, OR IMPACTED IN THE PHARYNX.

By GEORGE POLLOCK, F.R.C.S.,

SURGEON TO ST. GEORGE'S HOSPITAL.

THE accidental and sudden dislodgement of an artificial tooth-plate from its proper bed, and the subsequent misfortune of such a mass falling into the pharynx, is by no means a very rare occurrence. It is always an event of sufficient interest to the practitioner; sometimes one of imminent danger to the patient; occasionally, though more rarely, immediately fatal in its results. For these reasons, I have thought the notes of the following cases, with some general remarks on the results and treatment of such accidents, may be worthy of record.

CASE 1.—A lady, while attempting to swallow some pills, dislodged her artificial teeth, fixed to a small gold plate. The teeth consisted merely of the two central incisors. She had used the plate for some time, and it was rather the worse for wear, and fitted loosely. The mass dropped into the pharynx as soon as it became dislodged. The patient almost immediately felt pain “down the throat,” and shortly afterwards, on attempting to take food, experienced difficulty in swallowing it; the greater portion of it returned almost as soon as swallowed. It was evident that the rejected food had not passed into the stomach. The pain was referred to the median line, rather low down in the chest, and to a point above the epigastrium; it was fixed and persistent, sometimes sharp, and always increased on any attempt to take solid food or fluid.

She was very soon seen by Mr. J. Blackstone, of Gloucester-place, Regent's-park, who prudently watched the case for some days; nor did he make any attempt to interfere with instruments, as the plate was evidently out of the reach of forceps. Finding, however, that the pain continued, and that there was not only difficulty in taking nourishment, but that it was chiefly obliged to be taken in a fluid form, and always with great aggravation of pain, he requested me to see the patient. This was on the tenth day after the accident. There was still much discomfort, and an inability to swallow food without pain; it could only be taken in small quantities, and that chiefly in the

fluid form. The pain was described to be low down in the median line, and referred to a spot corresponding to the lower extremity of the œsophagus.

At our request the patient made an attempt to swallow a little fluid in our presence, when it became quite evident that some positive partial obstruction existed in the œsophagus. The fluid was taken with caution, in small quantities, and slowly, otherwise a sensation of choking was produced; nor did the small quantity pass into the stomach as freely as it should have done.

No attempt was made on this occasion to pass any instrument. As the pain was referred to so low a position, it was considered just possible that, as the foreign body was probably far down, solid food persistently taken might propel the mass into the stomach. The patient was therefore recommended to try the effect of swallowing large pellets of well-masticated bread; with the hope that, if the œsophagus could thus be slightly distended, the foreign body might be pushed into the stomach by the food. Another reason for avoiding instrumental interference was, that the plate was described to be rough at its edges, with one or two sharp points projecting therefrom. It was considered that, with such a mass, fixed by sharp points to the walls of the œsophagus, forcible attempts to push it onwards might probably be followed by serious mischief. It was therefore decided to wait a few days longer, with rather a forlorn hope that some favourable change in the position of the foreign body might take place; all aperient medicine to be avoided in the mean time.

On the 4th of January the local symptoms were unchanged, but the patient was evidently thinner and weaker, for she had not been able to take much solid food since the day of the accident. She was also very anxious about herself, and was becoming very nervous and desponding. An œsophagus tube was now passed very slowly and gently through the mouth and pharynx into the œsophagus: when more than half way down, and near the cardiac orifice, the extremity of the instrument came in contact with some solid resisting body. With very slight continued pressure the latter appeared to be almost immediately dislodged, and the end of the tube then readily passed into the stomach; nor was anything felt to rub against it or resist it on its withdrawal. The patient immediately expressed herself relieved from the pain, and was now able to swallow solids and liquids without difficulty.

In a few days, however, this lady again began to complain of pain, but it was now at a different spot. The pain was referred more to the right side, and somewhat lower than before—apparently about the neighbourhood of the pyloric extremity of the stomach.

This new symptom persisted more or less without relief, and without alteration of position; but the patient was able to take food, and she generally improved in condition. The treatment laid down was, to avoid aperient medicine, and to attend generally to the state of the health.

Thus the patient continued, without any perceptible alteration, until the 11th of April. On that day she had been ordered to take two pills. While in the act of swallowing them she vomited, and brought up a quantity of fluid from the stomach. In the act of vomiting she heard something strike against the basin, and on more carefully examining the contents, found, to her great delight, that she had brought up the artificial teeth and plate, as perfect and as bright in condition as on the day the mass had been swallowed.

This foreign body was nineteen days in the œsophagus, was then dislodged, and remained ninety-seven days in the stomach.

Fig. 1 is an accurate representation of the artificial teeth and plate. The longest diameter is three-quarters of an inch across from point to point.

It will, however, be hereafter shown, that when once a foreign body is introduced into the pharynx, its *shape* is, to some extent, of more importance than its *size*. Its easy and safe progress onwards through the alimentary canal will greatly depend on the former.

CASE 2.—Fig. 2 is an exact representation of some artificial teeth and gold plate swallowed by a lady while at her dinner. For the notes of the case I am indebted to my friend Mr. Theophilus Taylor, of Ebury-street.

“I was called,” he says, “to see Mrs. — between two and three o'clock P.M. on Feb. 25th, and was told by her