the result, for, although his pulse was very good, still his respiration was not so; and, looking to the fact of his having been a drinker, I was the more inclined to try the effect of alcohol. He began to improve directly. The temperature, which had risen to 102°, sank to 99° in fourteen hours, and never again rose to 100°, except on the morning of April 1st.

April 2nd. All stitches were now out, and the carotid wound had healed, whereas the subclavian one was inclined to suppurate. The cough was abating, and there were much less sputa. The skin over the sternum was shrunken somewhat, and the inclination to redness was less. The general condition was satisfactory, and mental excitement gone. He slept well last night, but he was sweating profusely, and this profuse diaphoresis had, I think, relieved the circulation.

April 3rd. He was doing well. He passed a good night, but sweated profusely. There was now some pulsation in the right neck behind the subclavian artery. The pupils were to-day as they were before the atropin was given. He had a fair appetite. The brandy was reduced.

April 4th. There was now no purulent sputa, and that which came up consisted of a little froth and mucus. He had less pain in the chest, and there was much less pulsation over the sternum. The cardiac impulse was less; pulse 112. The night-sweats continued.

April 5th. Constipation gave trouble. The amount of milk was lessened, and an aperient ordered. There was, perhaps, less dullness over the aneurysm. The subclavian wound was discharging less.

April 6th. The bowels were relieved. He passed a good night; had much less cough, and there was no huskiness with it. The skin was cool; the pulse quiet.

April 7th. The pupils were of almost equal size.

April 8th. There was some thickening felt in the neck, at the seat of the carotid ligature.

April 9th. Pulsation was easily felt in the right brachial artery. The sputa were diminishing.

April 10th. He had slight giddiness.

April 16th. The subclavian wound was superficial (seen after four days' absence from home). There was less cough. He slept sometimes on the back, and sometimes on the left side. The right radial artery gained strength daily.

April 18th. There was occasional irregularity in the heart's action. The pulsation over the aneurysm had a more consolidated feel. He was eating meat-diet.

April 23rd. There was some prominence to note to-day over the sternal end of the right clavicle, a heaving pulsation, and a double *bruit*. He had no pain, but a sensation of tightness. There were no symptoms of renewed pressure upon the trachea, but there was certainly increased pulsation beneath the origin of the sternal and clavicular fibres of the sterno-mastoid on the right side. He was ordered ten grains of iodide of potassium thrice daily.

April 24th. The swelling over the inner end of the right collar-bone fluctuated, and appeared to be effusion into the joint. There was now only a trace of albumen in the urine.

April 26th. The swelling over the inner end of the collar-bone was going down.

I now lost sight of my patient until May 24th, when I was much pleased to find him looking healthy and well in all respects. He was up, and had made a large patchwork quilt. The subclavian wound had scabbed over, and there was a depressed scar. There was no dyspnoea, cough, or pain. The aneurysm had not increased in any way, and was apparently much consolidated and shrunken. The tendency to forward growth dreaded was in abeyance. The radial pulses were almost of the same strength, and the weakness in the right arm gone. The patient was much pleased with his condition, and was resting less than was thought desirable. The aortic valves were in the same condition, and the heart acting well, with no increased hypertrophy. There was no sign of aneurysm elsewhere.

The patient then was lost to my observation from the end of April; and, saving a visit to him on May 24th, I have not seen him again; but my former colleague Mr. John Hopkins, the present medical superintendent, writes to me thus.

"May 27th. A very severe attack of dyspnoea, lasting two hours, relieved by chloroform and ether inhalation.

"May 29th. An attack of dyspnoea, one hour fifty minutes, relieved as before.

"June 2nd. Severe attack of palpitation, some dyspnoea, and a rise of temperature to 104° Fahr.

"October 15th. He has been up for four months, enjoying excellent health; has constantly descended to the recreation-ground without any difficulty. During this time, he has had only slight attacks of palpitation. For the past week, he has been suffering from pains of shooting

and stabbing character between the blade-bones. The heaving of the upper thoracic walls, which had become almost imperceptible, is now marked. Pulsation is strong in the first intercostal space of the right side. The sterno-clavicular articulation of the right side contains a little fluid again. He had a short attack of dyspnoea of a slight character a few nights ago; otherwise, is in good health."

This, then, is the condition of the patient at the present time, *i.e.*, nearly seven months after operation; and the testimony of a perfectly independent observer, to whom I am much indebted, and who will, I have no doubt, enable me to publish any sequel to the case that there may be.

I have little doubt in my own mind that life has been prolonged by the operation in this instance, the growth of the aneurysm checked, and the man's existence rendered far more tolerable. I do not think that very much was to be expected, seeing that there was disease of the aortic valves, a condition which Mr. Barwell considers unfavourable in treating thoracic aneurysm by ligature; and, therefore, I think the result all the more satisfactory. For the first few days after operation, there can be no question that the patient's life was in great jeopardy; so that it behoves the surgeon to select his case well, and to prepare his patient's mind for the serious nature of such an operation.

As to the flat ligature (as far as my experience in this case only goes), I think it will be found very useful, and I shall certainly use this material on the next occasion when I require to tie an artery in its continuity. Those surgeons who hold that the division of the internal coats of an artery is a necessary part of the deligation of a vessel, will be loth to try this method introduced by Mr. Barwell, seeing that, in using the flat ligature, it is only essential to tighten the knot, so as to check the circulation, or a little more.

It may be asked, And what becomes of the ligature? My answer to this would be simply, that it is never seen again, but that it unquestionably permanently constricts the vessel, as if it had been cut across with a knife.

I am aware that there is much that is unsatisfactory in the treatment of thoracic aneurysm; some put their trust in medicines, such as iodide of potassium; others are in favour of galvano-puncture. I do not at present advocate the indiscriminate use of the ligature. In recording this case, which I think is an encouraging one, I do so with a view of plainly stating what I have done, and the results that followed. The facts may be interpreted differently; but, were my patient to die to-morrow, I should hold that we had given him six months longer to live than if he had been let alone on March 26th, when the operation was performed.

Lastly, those interested in this subject will find much that is interesting and instructive in the little work *On Aneurism*, recently published by Mr. Barwell.

[I have no doubt that my friend Mr. Hopkins would enable any physician or surgeon in London to see the patient at the Infirmary in Cleveland Street, if desired.]

ANEURISM AT ROOT OF NECK: LIGATURE OF RIGHT CAROTID AND SUBCLAVIAN ARTERIES.

By KELBURNE KING, F.R.C.S.,
Surgeon to the Hull General Infirmary.

W. H., a labourer, aged 40, was admitted into the Hull General Infirmary on July 24th, 1880. The patient was born in Sheerness, and had worked all his life as a labourer on the river-side, lifting heavy weights, and doing other hard labour. For the last eleven years, he had resided in Hull, following similar employment. He had had gonorrhoea, but not syphilis. (His wife had had one living child, and one miscarriage.) The patient had had no previous illness since childhood, and never met with any accident. About eight months previous to admission, the patient began to suffer pain in the right shoulder and right side of the neck, with numbness of the arm and forearm of the same side. These were shortly afterwards followed by catarrh and irritable cough, without expectoration. For these latter, and for slight dyspnoea, he attended for some time as an out-patient at the Hull Dispensary, but without obtaining any relief. The symptoms increased; and he became unable to walk or to lie down in bed. On stooping down, he experienced dizziness and muscrae volitantes. The veins of the right side of the chest also enlarged very considerably.

On admission into the infirmary, the patient was fairly well nourished, but was much cyanosed; and the veins of the right side of the chest and neck were greatly distended. On the slightest exertion, he had dyspnoea. The cardiac apex-beat was felt two inches below and one to

the inner side of the nipple. The suprasternal notch was obliterated; and, on palpation, a strong pulsation was felt in it. The pulse in the left carotid artery was apparently somewhat more forcible than in the right. A further pulsation was felt in the right supraclavicular fossa. The radial pulses were apparently equal. Over the inner end of the right clavicle there was considerable tenderness on pressure. A rasping systolic *bruit* was heard in the right supraclavicular fossa; a very faint *bruit* being heard in the corresponding left.

The operation was performed on July 28th, antiseptically. The carotid artery was tied first, and then the subclavian. Both vessels were tied with carbolised silk. In tying the carotid, some delay took place, owing to the great venous distension, one of the thyroid veins, especially, bleeding quite fiercely. At one time during the operation (which was done under ether), the patient became extremely blue; but this disappeared, to a great extent, on raising the head. No very immediate effect followed the ligature, beyond a slight diminution in the pulsation above the sternum. The operation lasted about one hour, including the administration of ether. On the patient regaining consciousness, he stated that the pain in his right arm had quite disappeared. On the evening of the operation, the temperature ran up to 101°. The right arm remained decidedly cold for some hours, but by midnight the temperature of the two limbs was about equal.

July 29th. The patient slept well after taking twenty grains of bromide of potassium and twenty minims of tincture of opium every three hours.

July 30th. During the night, he passed a large quantity of dark fluid blood *per anum*. He had been complaining of pain in the abdomen for some hours previously.

July 31st. The antiseptic dressing was removed under the spray. The wounds were already healed by first intention. There was no blush, or signs of tension. The patient complained very much of the irksomeness of lying quiet, and of pain in the forehead. His eyesight had improved. The left pupil remained larger than the right, as it was previously to the operation. The right arm was rather cyanosed, but quite warm. There was no numbness.

August 31st. The carotid ligature came away.

September 4th. The subclavian ligature came away.

September 23rd. The patient left the hospital to-day, being free from pain. He is of a restless disposition, and was very averse to the confinement of the hospital.

The aneurysmal swelling is much diminished; and, as long as he remains at rest, he is free from dyspnoea, pain, or other uneasiness.

CASE OF AXILLARY ANEURISM CURED BY LIGATURE OF THE SUBCLAVIAN ARTERY.

By W. C. ARNISON, M.D.,
Surgeon to the Newcastle-on-Tyne Infirmary.

L. G., AGED 50, shoemaker, was admitted February 23rd, 1878. Two days before Christmas, he felt a sudden pain over the tip of the left shoulder; four days afterwards, he noticed a lump, about the size of a nut, below the middle of the left clavicle. This slowly enlarged, and "ticked like a clock". By the advice of a surgeon in Sunderland, he applied cold wet cloths, after which the "ticking" became less; but he then began to feel pain shooting down the arm, and numbness of the fingers.

On admission, there was a tumour, of the size of an orange, situated directly below the middle of the left clavicle; expansile pulsation was felt above and below the clavicle, and in the axilla; thrill was felt, most marked at the lower portion. The clavicle was arched upwards. The veins over the tumour and down the arm were engorged. The radial pulse was faintly perceptible. With the stethoscope, a loud aneurysmal murmur was heard all over the tumour. There was also noted an apparent aortic systolic murmur, and slight intermittent action of the heart. The sphygmograph tracings, which Dr. Byrom Bramwell kindly took, showed, on the right side, a perpendicular up-stroke, terminating in a sharp point, with the down-stroke notched, as indicating atheromatous vessels; on the left side, a very short sloping up-stroke, forming a wide curve, with an unnotched down-stroke.

The patient was a thin spare man, looking older than his age, and with faint arcus senilis. For the last two months, he had been much out of work, and had been exposed to great privation. He was a free drinker when he could get it. He denied syphilis; but two or three depressed cicatrices were seen on the glans and corona.

For a fortnight, treatment was directed solely to his general condition. During that time, his health and appetite improved, but the tumour

increased. An attempt was then made to apply pressure by means of a wedge of wood, with the thin end rounded and padded with India-rubber. Chloroform was given, and anaesthesia was then kept up by ether. I was assisted by Mr. Dixon, House-Surgeon, and Mr. Dodd, a student. The brachial artery was first compressed, so as to fill the aneurism, and pressure was then applied above the clavicle; but we found it impossible to control the pulsation so completely as to allow a clot to form, and, after nearly two hours' pressure, during which cold was applied by ice-bags, and occasionally ether-spray, the tumour was scarcely at all either smaller or firmer, and in a day or two it was as large as before. The patient was now transferred, for a time, to the care of Dr. Bramwell, who tried the effect of iodide of potassium in half-drachm doses, three times a day, with rest; no effect was produced. The aneurism was increasing in size, and pressure-signs were fully developed. He had oedema of the hand, and complete paralysis of motion, without much pain, in the whole arm and hand; sensation was not impaired.

On April 3rd, he left the hospital, refusing any operation.

On April 10th, he was readmitted, the tumour having in the interval enlarged considerably; the skin over its inner side visibly thinning, and the clavicle being more arched.

The patient now gave a reluctant consent to operation, and on April 15th, after consultation with my colleagues, a ligature was placed on the subclavian. The patient was placed under the influence of chloroform, as it was found, on the former occasion, that ether kept up a continued cough. An incision was made over the clavicle, dividing the skin, platysma, and the external jugular and a cutaneous vein, which could not be avoided. After a little careful dissection, the posterior belly of the omo-hyoid muscle was seen and held aside; and, much more readily than I had expected, the artery was reached. The cords of the brachial plexus were held aside, the sheath was opened, and an aneurism-needle passed carefully round the vessel. An attempt was made to tie the vessel with catgut, but the ligature broke twice. Carbolised silk was therefore used, and held firmly, and the vessel was secured with a double-knotted silk ligature and two single-knotted catgut ligatures. The divided veins were then tied at both ends, sutures were applied, and a drainage-tube inserted. The operation and dressing were done antiseptically, and under a steam spray.

The following morning, April 16th, the radial pulse was faintly but distinctly felt. He had passed a good night. Oedema had nearly disappeared, but paralysis continued.

On April 17th, the radial pulse was more distinctly felt. The limb was warm; the cotton-wool covering was removed.

Up to the 21st, the case progressed favourably. The wound healed rapidly; but the radial pulse became fainter, though the limb remained warm.

On the 22nd, the temperature rose, and redness and oedema appeared over the tumour, which had increased in size, without pulsation or pain.

On the 23rd, the sac was evidently suppurating; and in the evening it burst through the wound, discharging about three ounces of pus and blood-clot; but no hæmorrhage took place. Discharge continued, with relief to the feverish symptoms, until the 27th, when the tumour appeared to be pointing at the part where the skin was thinning before the operation. An incision was made into it, giving exit to a quantity of most offensive pus and blood-clot; the sac was well washed out with carbolised water; and a drainage-tube inserted. From this time, his recovery was rapid. By the 8th May, the wounds were healed, and he was walking about; and he is now, as regards the aneurism, perfectly well; but, unfortunately, the whole arm remains paralysed, with atrophy of the whole of the muscles. The supposed aortic systolic murmur has disappeared.

REMARKS.—There is nothing in the case calling for special remark, except the kind of ligature employed. The thick catgut twice broke, compelling me to use silk; but the result was not in any way influenced. The silk, equally with the two partially secured knots of catgut, were included in the healing wound, and caused no trouble.

I must, in conclusion, express my great obligation to Mr. J. D. Dixon, M.B., House-Surgeon, for the anxious and watchful care which he bestowed upon the case.

BEQUESTS.—The late Miss Jessie Landseer, sister of the late Sir Edwin Landseer, R.A., has bequeathed £100 each to the British Home for Incurables, Clapham Rise; the Royal Hospital for Incurables, Putney; St. Mary's Hospital; the Brompton Consumption Hospital; the Middlesex Hospital; the Metropolitan Free Hospital; and £50 each to the Hospital for Sick Children, Great Ormond Street; the Blind School; the Home Teaching Society for the Blind; the West London Hospital; the Westminster Hospital; the London Fever Hospital; and the National Hospital for the Paralysed and Epileptic.