nonabsorbable material, on the ground that they are nearly always extruded. They use kangaroo tendon almost exclusively, and their reports of cases in which silk was used show that a number of them suppurated. My experience with silk has been quite different. I now use nothing else. I tried kangaroo tendon, but was not satisfied with it. The individual tendons vary a good deal in breadth, the knot does not bite like silk, and one always has the impression that it may yield, neither has it the lasting power of the latter, although it is said it will remain two months before becoming absorbed.

During the past year I have performed in all 60 operations for the radical cure in the Nottingham General Hospital, using silk in every instance, and have not had one of them suppurate. It is said, however, that suppuration may occur in connection with buried silk sutures months, or even years, after their introduction, and those who hold this opinion would not be prepared to accept its non-occurrence in these cases as finally established. To this I would reply that the great bulk of these cases belong to the city and district, that they are all told to attend afterwards as out-patients, and that the majority of them do so, and, finally, they are requested to return at once if the rupture reappears or if anything goes wrong with the wound.

I have never had a case return with late suppuration, nor have I ever seen it occur in a case of radical cure after the sixth week. I consider silk to be the best material for the purpose of the operation if carefully sterilised.

THE USE OF A TRUSS AFTER OPERATION.

I never order a truss after this operation; on the contrary, patients are always advised not to wear one. So far from being productive of good, the continuous pressure of even a light truss would only tend to produce absorption of the firm scar on which the safety of the case depends, and so do more harm than good; and in addition, its pressure on the cord, lying as it does between the skin and muscles, might cause serious inconvenience.

THE QUESTION OF OPERATING ON YOUNG CHILDREN.

This is another debated point. The objections raised to the performance of the radical cure in young children are founded on the belief that almost every case can be cured by means of a truss or other form of support, and that the operation at this period of life is attended with greater risk, and is less certain in its results. My own experience is not quite in accordance with these views. I have seen at the Nottingham General Hospital a great deal of the truss treatment in infancy and childhood, the numbers of patients being no doubt due to the institution supplying them with trusses free of charge from the proceeds of a truss fund, the calls on which are now rapidly diminishing year by year. I have found it very difficult, in cases of scrotal hernia with a large ring, to cure hospital children of their herniæ by such means. I have seen case after case come time after time to be fitted with fresh instruments. This continues, although on a much smaller scale, for in well-marked examples, the children of all but timid mothers are now operated on and cured in a fortnight. The results in quite young children have been most encouraging. Suppuration of the wound and stitch abscess are practically unknown, contrary to what might have been expected, as the wound is often soiled with urine. I am now speaking of operation in children under 4 years of age.

What percentage of ruptured persons having had herniæ in childhood remain uncured after they reach adult life? This is an interesting question, and I think the percentage would turn out to be larger than many of us expect, but I do not know that any figures have been brought before the profession which enable us to answer it with accuracy. Coley collected the cases occurring at the New York Hospital for the ruptured during a period of four years that had a history of hernia in early life treated by instrumental support without success, and met with upwards of 400 cases. Respecting the death-rate, the same observer has collected 832 cases of operation on young children, which in the hands of various surgeons showed a mortality of less than the half of 1 per cent.¹

It may be said, "Your failures were due to ill-fitting and improperly-applied trusses," and possibly such a suggestion would be correct for the greater part of the time during which

they are worn. To begin with, there is the constantly-increasing growth of the child to be taken into account, and the circumstance that neither the patient nor his attendants can tell from hour to hour or from day to day whether the hernia is properly reduced, or whether the pad is in proper position over the inguinal canal. It is no doubt more difficult to ensure accurate truss-fitting than is generally supposed, especially among the children of the poor. Let it be freely conceded, however, that the period of childhood is the most favourable for Nature to effect a cure by the aid of a truss. But in relying on it to accomplish this object every case must be treated on its merits. Thus the child of a well-to-do person, who can receive due attention, and in whom the local condition shows a tendency to rupture only, or a bubonocoele, will probably be cured by external pressure. Even in these surroundings, if there be a complete scrotal hernia and a large ring, cure by means of a truss is quite doubtful. In such cases, and in the children of the poor where cleanliness and good truss management cannot be obtained, I should not hesitate to advise operation in children under 4 years of age who are otherwise healthy. One may give this advice fearlessly on account of the absence of risk to life and the certainty of the cure, for childhood is undoubtedly the period that furnishes the most favourable conditions for success in operations for the radical cure of hernia.

REFERENCE.

¹ *Annals of Surgery*, vol. XXV.

CARCINOMA OF THE LIVER AT THE AGE OF 24 YEARS.

By DAN MCKENZIE, M.D.,
Leytonstone.

THE remarkable feature of the following case is the youth of the patient—24 years, when the illness commenced. The diagnosis of carcinoma as opposed to sarcoma was arrived at upon consideration of the chronic afebrile character of the illness and the bony, hard, and general enlargement of the liver.

A. E., a married woman, consulted me in November, 1899, for severe persistent pain in the epigastrium and right hypochondrium, associated with almost continuous sickness and vomiting, obstinate constipation, and some emaciation. A uterine tumour of the sixth or seventh month of pregnancy prevented satisfactory physical examination of the abdomen, but considerable tenderness on pressure over the hepatic area could be made out. Her condition remained unaltered until the birth of the child on March 4th, 1900, when in the act of compressing the uterus after the expulsion of the placenta I touched what I took at first to be the lower margin of the costal arch somewhat unduly depressed. Further examination revealed the fact that this hard edge was the lower margin of the liver, greatly enlarged, irregular in outline, nodulated, and tender to the touch. A hasty search over the rest of the abdomen failed to reveal any other abnormality. During the week immediately following the delivery the bowels were unloaded by purgatives and enemata, of a great collection of hard scybala masses, and disappearance of nausea and vomiting followed, with the result that during the next three or four weeks the patient gained flesh and strength so rapidly as to throw doubt upon the conclusion formed that this was a case of cancer of the liver. The possibility of syphilis was met by treatment with mercury perchloride and potassium iodide. On March 28th Dr. C. O. Hawthorne saw the patient with me, and was distinctly of opinion that the enlargement was malignant. The antisyphilitic treatment was however, *faute de mieux*, persevered in for the next two months. By April 12th emaciation was again distinct, and in addition to the enlargement of the liver a hard nodular mass, tender on pressure, about the size of a small orange, was discovered in the left lumbar region. A further swelling, suggesting enlarged glands to the touch, was perceptible in the right iliac fossa, close to Poupart's ligament. The temperature, normal until April 3rd, rose on that date, and continued from 99° to 99.6° F. On April 17th Dr. Kingston Fowler saw the patient with me, and agreed with the diagnosis of malignant disease. From April 20th to April 27th there were symptoms of peritonitis centering round the lump in the left lumbar region—acute abdominal pain and tenderness, tympanites, thready pulse, and temperature running from 102° to 103.8°. On April 27th the temperature fell to 99° F., and the acute symptoms vanished. The dimensions of the hepatic dullness on May 20th were—in the middle line 7 ins., in the nipple line 8½ ins., in the mid-axillary line 8½ ins. Several of the larger nodules in the liver were visible through the skin, moving up and down with respiration. In July the pain in the right hypochondrium, hitherto most distressing and constant, requiring the daily use of morphine and atropine hypodermically, gradually diminished and ultimately disappeared, while the temperatures sank to normal again. Emaciation was proceeding rapidly.

On August 1st a slight icteric tinge of the skin and conjunctivæ was observed for the first time. On August 6th evidence of "curling up" of the omentum was found in a nodular elongated tumour lying across the abdomen, immediately below the umbilicus, and separated from the liver dullness by a clear area. The right arm had become exceedingly

painful and the seat of numbness and "pins and needles;" a certain amount of paresis and anaesthesia existed, signs suggesting neuritis,¹ which might be attributed to the long-continued use of morphine hypodermically. Constipation, always troublesome, was now almost insuperable. There was continual vomiting of bile-coloured fluid. At no time was ascites or oedema of the feet observed. The patient died on August 16th.

Permission to perform a *post-mortem* examination was refused.

The absence of ascites is not uncommon in cancer of the liver. According to Frerichs² it was present only in about half the number of his cases—18 out of 31. He quotes 60 cases recorded by other authors, in 30 of which ascites was present, in 19 it was absent, and in 11 cases no mention was made of this symptom. Jaundice also is often absent, its presence, like that of ascites, depending upon the situation of the new growths in the liver. "When only a few branches of the hepatic ducts are destroyed, or when the compression is incomplete," the icterus is slight,³ as in this case. Murchison asserts⁴ that if the ducts are not compressed, almost the whole of the secreting surface of the liver may be destroyed without jaundice. The disappearance of pain during the course of the illness is usual.⁵

Cancer of the liver is secondary four times out of five,⁶ and in many cases the primary seat of the disease is not discovered during life, but in this case the unconfirmed surmise was that the hepatic cancer was secondary to the tumours, probably intestinal, in the left lumbar region. The general characters of the hepatic enlargement also were not those of primary cancer, of the liver,⁷ consequently this case was looked upon as one of secondary carcinoma of the liver. Murchison⁸ says that primary cancer of the liver is "exceedingly rare" before the age of 35 or 40, but that secondary cancer may occur "at any age."⁹ Budd¹⁰ likewise says that secondary cancer may occur "at any age," but that it is "rare" under 30. Frerichs¹¹ observed only two cases of "cancer" under 30, and these secondary to (1) eyeball and (2) testis. Leichtenstern, quoted by Langenbuch,¹² gives a table compiled from several authors dealing with this point, from which it is seen that 7.8 per cent. occur between 20 and 30, 12.9 per cent. between 30 and 40, 53 per cent. between 40 and 60, 19.3 per cent. between 60 and 70, 6.9 per cent. over 70.

According to Clifford Allbutt's *System of Medicine*,¹³ it is all but unknown under 20. A case of primary cancer has been reported in a boy aged 12 years,¹⁴ but doubt has been thrown upon it.¹⁵ It is remarkable and unfortunate that the authors who have written upon this point do not discriminate, where it is possible, between sarcomatous and carcinomatous growths of the liver. One is not so surprised at the occurrence of sarcoma running an acute course in childhood or youth, but the frequency in young persons of carcinoma of the liver, primary or secondary, must be less marked than the foregoing tables would lead us to believe.

NOTES AND REFERENCES.

- ¹ Frerichs, *Clinical Treatise on Diseases of the Liver*, New Sydenham Society translation, 1861, p. 373, narrates a case of cancer of the liver, with "paralysis of the right arm," etc. ² *Loc. cit.*, p. 303. ³ Frerichs, *loc. cit.*, p. 303. ⁴ Murchison, *Diseases of Liver*, 1868, p. 190. ⁵ Frerichs, *loc. cit.*, p. 302. ⁶ Leichtenstern, quoted by Langenbuch, *Chirurgie der Leber und Gallenblase*, 2 Hefte; Stuttgart, 1897, p. 52. ⁷ Langenbuch, *loc. cit.*, p. 52, etc. ⁸ *Loc. cit.*, p. 192. ⁹ All cases reported in his book are over 30. ¹⁰ Budd's *Diseases of Liver*, 1852, p. 391. ¹¹ *Loc. cit.*, p. 299. ¹² *Loc. cit.*, p. 58. ¹³ Vol. iv, p. 237. ¹⁴ Pye-Smith, *Pathological Transactions*, vol. xxxi, p. 125. ¹⁵ Clifford Allbutt's *System of Medicine*, vol. iv, p. 206.

REMARKS ON ANEURYSM OF THE CORONARY ARTERIES OF THE HEART;

WITH NOTES OF TWO CASES.*

By T. WARDROP GRIFFITH, M.D.,
Senior Assistant Physician, General Infirmary, Leeds.

ANEURYSMAL dilatations in the course of the coronary arteries of the heart are so uncommon that the experience which fell to my lot lately of seeing two examples in two successive *post-mortem* examinations in one afternoon must, I should think, be unique. These two examples I shall describe, and any remarks I have to make afterwards will spring chiefly from their consideration.

* Read before the Leeds and West Riding Medico-Chirurgical Society.

CASE I.

F. S., a young woman, aged 19, was admitted on July 18th, 1900, when I was on temporary duty during the absence of Dr. Chadwick.

History.—She gave a history of rheumatic pains in both knees twelve months previously, which soon disappeared under treatment. Symptoms of nephritis supervened about nine months afterwards. Mitral disease, with right and left-sided hypertrophy, was diagnosed; there was albuminuria and hæmaturia, but no casts in the urine. Shortly after admission symptoms of acute endocarditis became very obvious, and she died on August 31st.

Necropsy.—At the necropsy the pericardial sac was found to contain about 3 ounces of clear fluid. The heart, much enlarged, weighed 15 ounces. The mitral orifice admitted the passage of three fingers: its segments and chordæ tendineæ were much thickened. Superadded to this, which was manifestly an old lesion, was a recent vegetative endocarditis of the usual type affecting the auricular aspect of the segments near their free edges and extending up the posterior wall of the auricle. The aortic valve also showed the changes produced by slight vegetative endocarditis. A small aneurysm was found on that branch of the right coronary artery which passes down the posterior interventricular groove. It was situated two inches from the auriculo-ventricular furrow, was about the size of a small pea, and had tough fibrous walls. The opening into the sac, which had smooth margins and would readily admit the passage of a crow quill, was situated at a point where a branch came off, and in such a way that the wall of the sac was formed partly by the parent stem and partly by this branch. The continuation of the main artery was pervious, while the branch became impervious shortly beyond the sac, though no plug was found. Elsewhere the coronary arteries were quite free from disease, being soft, smooth, and elastic. The spleen and the kidneys did not present any evidences of infarction; the latter were good examples of the large white kidney.

The second case presented many features of marked similarity with that just described.

CASE II.

History.—A. M., a woman aged 45, had had rheumatism when 14 years old, and Dr. Churton, whose patient she was, summed up the clinical condition at the time of her death as "old mitral disease with heart-muscle failure."

Necropsy.—At the necropsy 3 ounces of clear fluid were found in the pericardial sac. There was great cardiac enlargement, dilatation rather than hypertrophy predominating. Some clot, manifestly of *ante-mortem* formation, was found in the right auricular appendix. The mitral valve presented signs of old disease in great thickening of its flaps and chordæ tendineæ, while extensive recent changes, due to vegetative endocarditis, were found along the free margins of the segments and on the chordæ, and also extending up the posterior wall of the auricle to cover an area the size of a crown piece. A fringe of recent vegetations was found close to the free margin of the aortic segments. An aneurysm was found on the same branch of the right coronary artery as in the former case, but 1 inch nearer the auriculo-ventricular furrow. Its external dimensions were about those of an orange pip, its walls were thick, and it was almost filled with firm laminated, moderately adherent clot. Both coronary arteries presented patches of atheroma and were slightly tortuous, but the branch with the aneurysm was free from atheroma. On the margo obtusus was a firm scar in the substance of the heart, into which I traced a vessel which became impervious. The aorta was healthy. The spleen showed signs of old infarction, and the kidneys, which were markedly granular, had depressed areas, which I attribute to infarction from embolism of ancient date. The lungs were indurated from back pressure, and there was *ante-mortem* clotting of the blood in many branches of the pulmonary artery.

COLLECTED CASES.

Most of the textbooks on general medicine and on diseases of the heart do not refer to the subject of aneurysm of the coronary arteries. Dr. Walshe, in the fourth edition of his work, makes brief reference to it, as also does Dr. Cutler in Pepper's *System*. Sir R. Douglas Powell, in Reynolds's *System*, refers to examples as museum curiosities and mentions two specimens, while the same writer in Allbutt's *System* contents himself with saying that the secondary effects on the cardiac muscle of aneurysm of the coronary arteries are of less importance than those of thrombosis or embolism, a statement which is doubtless accurate.

I have therefore made a careful search through the literature of the subject, getting my references from many different sources, but endeavouring as far as possible, and in most cases with success, to get access to the original papers. This latter proceeding has led me to discard several of the examples mentioned in the primary references, which, in my opinion, should not strictly be included in the category of aneurysm of the coronary artery. I have thus thought it right to classify as doubtful cases three examples noted in Crisp's list, namely, his own case of dilatation of the orifices of the arteries, a condition which, as I have found it absolutely unassociated with any disease in the vascular wall, I do not regard as truly aneurysmal, but more allied to those dilatations of the pulmonary artery which are probably congenital, and Stevenson's and Ward's cases, which I regard as aneurysms of the sinus of Valsalva, involving the coronary artery. A specimen in St. Bartholomew's Hospital, formerly described as coronary aneurysm, has since been correctly de-