is distended by the forcible propulsion of a large volume of blood from a dilated and hypertrophied left ventricle, while the speedy collapse of the pulse is explained by the reflux of blood through the unclosed aortic orifice into the ventricle during its diastole.

The venous murmur of anæmia—the *bruit de diable*—they affirm to be arterial, and not venous. It is difficult, they say, “to believe that the continuous murmur occurs in the veins where the current is so feeble, and the walls of which have too little tension to vibrate.” Dr. Ogier Ward was the first to demonstrate that the *bruit de diable* is a venous murmur. We refer those who are sceptical upon this point to the unanswerable arguments in favour of the venous origin of the murmur set forth in Dr. Walshe’s work on *Diseases of the Heart* (third edition, p. 143.)

The writer of the article in the *British and Foreign Medico-Chirurgical Review*, to which I have already referred, has done me the honour to notice approvingly my own labours in the field of arterial pathology, for which I feel grateful. In return for the criticism with which he favours me, I venture to intimate to him that he has himself fallen into one serious error. In proof of the doctrine that the arteries alone suffice by their contractions to carry on the circulation, he refers to the case of an acardiac foetus published by Sir Benjamin Brodie, of which the reviewer says that it “lived several days after birth”. Startled by this seemingly incredible statement, I referred to the paper in the *Philosophical Transactions* (1809, p. 161), where it is stated that “both foetuses were born dead”. It is a well established fact that an acardiac foetus has never been known to occur except in association with a twin foetus perfectly developed; and Sir Astley Cooper, describing a case of the kind (*Guy’s Hospital Reports*, vol. i), first clearly demonstrated that, by means of the communication between the arteries and veins of the two foetuses at the junction of the umbilical cord with the placenta, the heart of the perfect foetus drives the blood through the vessels of its acardiac companion. In the words of Sir Astley Cooper, “the heart of the developed child impelled the blood into the other which was appended to it in the same way as it caused that fluid to circulate through the vessels of one of its own limbs.” Appended to Sir A. Cooper’s paper is a note from Sir B. Brodie, accepting Sir Astley’s explanation of the facts, and admitting his former error in supposing that the circulation in an acardiac foetus was carried on independently. It is evident that no proof of the independent propulsive influence of the arteries upon the blood is afforded by the case of an acardiac foetus; and it is surprising that a learned writer on physiology in a scientific journal should suppose it possible that such a monstrosity, not only heartless, but headless, could live for several days after its birth and consequent separation from its hearty companion.

With reference to my discovery and interpretation of hypertrophy of the muscular walls of the minute arteries in chronic Bright’s disease, the reviewer, while he accepts the facts, disputes my interpretation of them. He doubts (1) whether hypertrophy of muscle results from over-action, and (2) whether “abnormal increase in bulk implies an increased power of action”. Obviously, then, he doubts, for example, whether the increased action of the heart which is associated with an ossified aorta leads to hypertrophy of the left ventricle, and whether the hypertrophied ventricle propels the blood with greater force than a ventricle of the normal thickness. His scepticism upon this point is as surprising as his credulity with respect to the viability of an acardiac foetus.

As an antidote to the novel doctrines of this writer, I would suggest a careful study of Mr. Paget’s philosophical account of hypertrophy and its conservative tendency in his *Surgical Pathology*. With reference to a specimen of hypertrophy of the walls of the bladder, Mr. Paget quotes the following characteristic passage from John Hunter. “The bladder in such cases [of obstruction to the passage of urine], having more to do than common, is almost in a constant state of irritation and action, by which, according to a property in all muscles, it becomes stronger and stronger in its muscular coats; and I suspect that this disposition to become stronger from repeated action is greater in the involuntary muscles than the voluntary; and the reason why it should be so is, I think, very evident; for in the involuntary muscles the former should be in all cases capable of overcoming the resistance, as the power is always performing some natural and necessary action; for whenever a disease produces an uncommon resistance in the involuntary parts, if the power is not proportionately increased, the disease becomes very formidable; whereas in the voluntary muscles there is not that necessity, because the will can stop whenever the muscles cannot follow; and, if the will is so diseased as not to stop, the power in voluntary muscles should not increase in proportion.” Upon this extract from Hunter, Mr. Paget remarks: “Nothing, surely, could more appositely or more exactly express the truth concerning hypertrophy of muscle.”

ON THE SELECTION OF CASES FOR THE OPERATION OF SUBCUTANEOUS DIVISION OF THE NECK OF THE THIGH-BONE.*

By WILLIAM ADAMS, F.R.C.S.,
Surgeon to the Royal Orthopædic and Great Northern Hospitals.

SINCE I brought under the notice of this Society, on April 25th, 1870, the operation of the subcutaneous division of the neck of the thigh-bone—an operation which I had performed for the first time in the annals of surgery on December 1st, 1869, and it may be remembered that I exhibited the man in this room, able to stand and walk without any assistance—the operation has excited a great deal of attention, and been successfully performed four times by different provincial hospital surgeons—viz., twice by Mr. T. R. Jessop of Leeds, once by Mr. Furneaux Jordan of Birmingham, and once by Mr. F. W. Jowers of Brighton. The operation has been only once performed in London, by Mr. J. Croft of St. Thomas’s Hospital, on March 4th, 1871, on a boy aged eight years, who had fibrous anchylosis of the left hip-joint, with the limb in a deformed position, the femur being flexed at a right angle and considerably adducted. There had been abscesses in the neighbourhood of the joint, but for five years all suppuration was said to have ceased, and the hip-joint disease was said to have commenced when the child was about two years old. I was present at this operation, and concurred in the advisability of its performance, in consequence of the extreme deformity, which rendered the success of any other method of treatment very doubtful; as well as of the length of time which had elapsed since the closing of the abscesses, although the case belonged to a class altogether different from that for which I had originally proposed the operation. In this case, extensive suppuration followed the operation, and the child died of pyæmia on March 30th. The *post mortem* examination showed that the neck of the bone had been divided. The head of the bone had been, to a great extent, destroyed by caries, and the fibrous anchylosis broken up by the suppurative process, and perhaps partly by some attempts at forcible extension, which had been employed a week previously, when the contracted muscles in the neighbourhood of the joint had been divided.

The general result, therefore, is, up to the present time, that this operation has been performed in six cases: in five cases for bony anchylosis, successfully; and once for fibrous anchylosis in a child, unsuccessfully; and in the first class of cases, either no suppuration, or very little suppuration followed the operation; whilst, in the latter, acute suppuration set in and terminated fatally.

Amongst the various questions which have arisen in connection with this operation, two of the most important refer to the particular class of cases to which the operation is applicable, and to those in which the operation cannot be performed; and the object of the present paper will be to define these cases, for practical purposes, with as much accuracy as possible.

Bony anchylosis of the hip-joint is known to take place as the result of several morbid conditions and diseases, which, in their general pathology and progress, especially in reference to their destructive or non-destructive character, as affecting the bones, are essentially different. For example, when bony anchylosis has taken place as the result of strumous disease of long standing, and accompanied with suppuration, destruction of the head of the bone from caries and necrosis, and sometimes also of the neck, to a greater or less extent, generally occurs, the disease itself being essentially of a destructive character, tending to caries and necrosis of bone. In these cases, displacement and fusion of parts in abnormal positions frequently take place.

On the other hand, when bony anchylosis has been the result of acute rheumatic inflammation, in its more severe form, as we not infrequently see it in the so-called gonorrhœal rheumatism, when it is generally localised in one joint, no disposition whatever exists either to the destruction of bone, or to dislocation: acute rheumatic inflammation not being of a destructive character, but tending to the effusion of plastic lymph, and organisation of adhesions, without any disposition to suppuration, to ulceration, or to caries in the bones. Rheumatic inflammation will, therefore, produce adhesions within the joint, and a kind of fibrous anchylosis, which, after a slow disintegration of the articular cartilage, terminates in true bony anchylosis, but without any loss of bone-structure; so that, in such cases, the head and neck of the thigh-bone invariably remain of their full natural proportions.

It is equally true that the head and neck of the thigh-bone remain unaltered in size in cases of bony anchylosis after pyæmic inflammation, especially in its subacute form, from which patients generally recover,

* Read at the Medical Society of London, April 24th, 1871.

and to which gonorrhoeal rheumatism is by some thought to belong. In this class of cases, the soft structures of the joint, including the cartilage, are destroyed, and bony ankylosis results; but there is no fear of progressive caries, or necrosis of bone, so that ankylosis is produced without loss of bone-substance.

In some other classes of cases the soft structures of the joint are destroyed by acute inflammation, and bony ankylosis is produced without loss of bone-substance. This occurs, for example, after traumatic inflammation in healthy adults, such as that which follows wounds of the joints, and gun-shot wounds in the neighbourhood of the joints, when the joint itself has escaped injury, and, in some cases of ankylosis, chiefly from long-retained position.

This is an important pathological law; and, as the case upon which I operated was one of bony ankylosis after acute rheumatism seven years previously, I had no fear of meeting with any loss of substance or dislocation. It is of great importance, however, to bear in mind the fact that there are some cases of bony ankylosis of the hip-joint, and especially those resulting from the long continuance of strumous disease, in which the head and neck of the thigh-bone are so much destroyed that, for practical purposes, in reference to this operation, the neck of the bone may be said not to exist, although, correctly speaking, it more frequently happens that the head of the bone is destroyed, and the neck, somewhat diminished in size from deficient growth, remains embedded in the acetabulum.

It is a grave pathological error to imagine that because the head and neck of the bone are more or less destroyed in some, this must necessarily be so in all cases of bony ankylosis. This error has, however, been recently committed by Mr. Brodhurst, who, in the course of a correspondence in reference to this operation, has, in the *BRITISH MEDICAL JOURNAL* for April 1st, 1871, adduced and figured from St. George's Hospital Museum, 3rd Series, No. 3, a case of bony ankylosis of the hip-joint, in which the head and neck of the thigh-bone have been destroyed by strumous disease; and this he assumes to be the ordinary condition of bony ankylosis; for, referring to a diagram of a healthy thigh-bone which I had figured in my paper, merely to show the situation and direction of the subcutaneous division I proposed, Mr. Brodhurst observes—"Thus it will be seen that Mr. Adams made his section, as shown in the diagram, when little or no alteration had taken place in the neck of the thigh-bone. If bony ankylosis had taken place, the section could not have been made as it is described and represented by Mr. Adams, for the sufficient reason that the parts are not there." Pathological inquiry, however, teaches us that the existence of the head and neck of the thigh-bone, in their natural proportions, is quite compatible with true bony ankylosis of the hip-joint; and also in what cases the head and neck of the bone are preserved in their natural proportions, and in what cases the head and neck are destroyed, to a greater or less extent.

In confirmation of the opinion which I have above expressed, that in many cases of bony ankylosis of the hip-joint, the head and neck of the thigh-bone remain of their full natural proportions, whilst in other cases they are more or less destroyed—but only in some instances to such an extent as to prevent the operation of the subcutaneous division of the neck of the thigh-bone being performed—I need only refer to the specimens in the various museums of London, where many typical examples of both these classes of cases are to be found.

For instance: in the Museum of the Royal College of Surgeons there are four specimens of bony ankylosis at the hip-joint, Nos. 3325, 3326, 3327, and 3327b. In two of these specimens (Nos. 3327 and 3327b), the head and neck of the thigh-bone are of their full natural size, the ankylosis probably being the result of rheumatism; and in these cases, the division of the neck of the thigh-bone could have been easily accomplished; whilst in the other two specimens, Nos. 3325 and 3326, the head and neck of the thigh-bone have been completely destroyed, evidently by strumous disease; and in these cases, the operation could not have been performed.

In the Museum of St. Thomas's Hospital, there are eight specimens of bony ankylosis of the hip-joint; and in these, the operation of dividing the neck of the thigh-bone could be performed in five cases, Nos. D 51, D 52, D 53, D 53', and in a new specimen not in catalogue; but in the remaining three specimens, Nos. D 48, D 51', and D 53', the destruction of the head and neck of the thigh-bone has been so considerable as to prevent the possibility of the operation being performed.

As the eight specimens in this old and valuable collection may be taken as fairly representing the condition exhibited in bony ankylosis of the hip-joint, in the different classes of cases in which it occurs, I thought it would be interesting to have drawings made of all the specimens, for the purpose of exhibiting these to the members of the Medical Society, and now have the pleasure of submitting for inspection this

series of drawings, made by Mr. Dalton, an artist of well-known reputation, and for the truthfulness of the representations, the drawings may be compared with the specimens in the Museum.

In the Museum of Guy's Hospital, there are twelve specimens of bony ankylosis of the hip-joint, and in these the operation of dividing the neck of the thigh-bone could be performed in eight cases, Nos. 1318^{2a}, 1318^{2b}, 1318⁵¹, 1318⁵³, 1318⁵⁵, 1318⁶⁰, 1318⁶⁵, and 1318⁷⁰. But, in the remaining four specimens, Nos. 1318⁴⁰, 1318⁴⁶, 1318⁴⁸, and 1318⁵⁰, the destruction of the head and neck of the thigh-bone has been so considerable as to prevent the possibility of the operation being performed.

In the Museum of St. Bartholomew's Hospital, there are six specimens of bony ankylosis of the hip-joint, and in these the operation of dividing the neck of the thigh-bone could be performed in four cases, Nos. (sub-series) B², B⁴, B⁵, and B⁶; but in the remaining two specimens, Nos. (sub-series) B¹, and another specimen, B³, not described in catalogue, the destruction of the head and neck of the thigh-bone has been so considerable as to prevent the possibility of the operation being performed.

In the Museum of St. George's Hospital, there are three specimens of bony ankylosis of the hip-joint, and in these the operation of dividing the neck of the thigh-bone could be performed in one case, 3rd Series, Nos. 106 and 107; but in the remaining two specimens (3rd Series, No. 3 and No. 3a), the destruction of the head and neck of the thigh-bone has been so considerable as to prevent the possibility of the operation being performed.

In the Museum of the Royal Free Hospital, there is one specimen of bony ankylosis of the hip-joint, which I have now the opportunity of exhibiting to the Society; and in this case it will be seen that

the division of the neck of the thigh-bone could be accomplished without difficulty, although it is an undoubted example of true bony ankylosis. (See Figure.)

Thus it appears that, out of thirty-four specimens referred to, division of the neck of the thigh-bone could be performed in twenty-one cases.

From the facts shown by the specimens above referred to, with regard to the neck of the thigh-bone, it becomes of great practical importance to be able to diagnose:—1. The class of cases of bony ankylosis of the hip-joint in which the neck of the thigh-bone remains of its normal length; 2. Those in which the neck of the bone is shortened, but remains of sufficient length to admit of the operation being performed; and 3. Those in which the neck has been so far destroyed as to prevent the operation being performed. There can be no doubt that, in a large proportion of cases, this diagnosis can be made with absolute certainty, and must be based upon the nature of the disease, or morbid conditions producing the ankylosis—viz., whether rheumatic, pyæmic, or traumatic inflammation; or whether it is the result of strumous disease of the joint.

Now, in reference to these points, the following are the conclusions at which I have arrived.

1. In rheumatic ankylosis, no destruction of bone ever exists, and the head and neck of the thigh-bone, therefore, always remain of their full natural size.

2. In ankylosis after pyæmic inflammation, more especially in its subacute form, from which the patient frequently recovers, destruction of bone rarely if ever exists, the soft structures only being destroyed.

3. In ankylosis after traumatic inflammation in healthy adults, such as that which occurs after wounds of the joints, and gun-shot wounds in the neighbourhood of the joints, when the joint itself has escaped injury; and in some cases of ankylosis, chiefly from long-retained position, occurs, as a general rule, no destruction of bone even after acute suppurative inflammation, the soft tissues only being involved.

4. In ankylosis after strumous disease of the joint, when arrested in the early stage, without the occurrence of suppuration, or, at least, of abscess bursting externally, there is generally only a superficial caries of the head of the bone; and the destruction being thus limited in extent, the neck of the thigh-bone remains of its natural length, although practically somewhat shortened by being depressed, or sunk into the acetabulum. In this class of cases, however, the operation can generally be performed.

5. In ankylosis following the more severe forms of strumous disease, in which there has been evidence of caries and necrosis of bone, with abscesses bursting externally, and remaining open a considerable time, generally giving exit to small particles of bone, destruction of the head and neck of the thigh-bone, to a greater or less extent, may be diagnosed; and in all such cases, the operation cannot be performed.

Thus it will be seen that, out of the five classes of bony ankylosis above described, in three classes the head and neck of the thigh-bone remain of their full natural proportions. In the fourth class, although some difficulty may occasionally be met with, the operation can generally be performed; and it is only in the fifth class of cases that the operation is decidedly negatived.

A CASE OF POISONING BY NITRATE OF SILVER.

By THOMAS SCATTERGOOD, Esq.,
Lecturer on Forensic Medicine at the Leeds School of Medicine.

POISONING by nitrate of silver is of rare occurrence. It is not mentioned by Casper, Tardieu ("Étude"), nor Wormley. Orfila describes the symptoms, but mentions no case. Beck refers to two cases: one related by Metzger, in which the most imminent danger followed from a surgeon letting a piece drop into the throat of a patient; the other taken from Boerhaave, which is also alluded to in Pereira's *Materia Medica*. Dr. A. S. Taylor, in his work on *Poisons*, states that there are at least two cases recorded, and that one of them, the particulars of which are unknown, occurred in 1837-8; but he gives no references. It seems, therefore, desirable to place on record the following case, which occurred in February of the present year.

A medical pupil, while touching a small ulcer beneath the tongue of a child aged 15 months, with a stick of nitrate of silver three-quarters of an inch long, which he held in his fingers by one end wrapped in paper, had the misfortune to let it slip down the child's throat. The following notes of the symptoms were kindly furnished to me by the practitioner in whose surgery the occurrence took place, and who himself saw the child immediately after it. "Almost immediately the child vomited some oily matter, supposed to be cod-liver oil and milk, the oil having been taken shortly after breakfast. When the vomiting had ceased, and within a few minutes of the caustic being swallowed, common salt was given in considerable quantity, after which the child was slightly convulsed. Again vomiting took place, and now the matter ejected had a white curdy appearance, and no doubt was principally chloride of silver. The administration of salt was repeated frequently. Vomiting and convulsions occurred at short intervals till 11.30." [The caustic had been swallowed at 9.30.] "At that time there was a copious liquid stool, containing a quantity of the white curdy substance. At 1 P.M., the child fell into a composed sleep, which lasted for half an hour; after which convulsions returned with increased violence, and continued until 3. The extremities then became cold, the face pinched, the skin clammy, and the pulse almost imperceptible; and child died in violent convulsions at 3.30 P.M., six hours after swallowing the poison."

By the direction of the coroner, I made a *post mortem* examination, which took place twenty-five hours and a half after death.

The child was well nourished, and appeared to have been in good health; cadaveric rigidity was well marked; the expression of countenance was placid. Under the tongue was a small hard swelling, ulcerated on the surface, corresponding to the orifice of the Whartonian duct. There were no marks of nitrate of silver in the mouth, but in the cesophagus two or three small patches of corrosion. The stomach contained two ounces and a half of inodorous fluid. Its mucous membrane was pale in colour, except one small point of ecchymosis, and exhibited a large patch of corrosion, interrupted transversely in several places, but extending from the cardiac opening along the

greater curvature for four inches. It was half an inch wide at the cardiac end, and one and a half inches at the end nearest the pylorus, and was of a brilliant white colour. In the duodenum, and the first twelve inches of the jejunum, the valvulæ conniventes presented a similar corrosion over nearly their whole surface, but of a greyer colour. This was not washed off by a gentle stream of water, nor by rubbing with the finger, by which, however, loose white particles were removed. There were no morbid appearances in the other parts of the alimentary canal, in which about three ounces of fluid were contained. The other viscera were healthy. The heart was empty and contracted. The mucous membrane of the trachea was normal. The contents of the stomach, ilium, and rectum, were separately analysed. In each there was a considerable quantity of chloride of sodium, most in the stomach, and least in the rectum; and of course, therefore, in none of them was there any nitrate of silver. The white particles rubbed off the corroded patches in the stomach, and off the valvulæ conniventes, were proved to be chloride of silver.

It appeared that, although the antidote was administered promptly and in sufficient excess to neutralise the whole of the poison, yet probably much mischief had already been done before the administration commenced; and the solid stick of nitrate of silver, retained by its weight in contact with the most depending part of the stomach, continued to destroy its mucous membrane even while its own upper surface was undergoing decomposition by the chloride of sodium; and meanwhile a sufficient quantity of strong solution of the caustic flowed through the pyloric orifice, to damage the mucous surface of a considerable part of the small intestine before it was reached by the chloride. I think that the free administration of albumen or of milk should be combined in such a case with the use of the chemical antidote.

Since writing the above, my attention has been called to a case of poisoning by solution of nitrate of silver related by Devergie (*Médecine Légale*, vol. iii) on the authority of M. Pommarède. The quantity taken was uncertain; the patient estimated it at 8 grammes (an ounce). The patient was twenty-one years of age. On his admission to hospital, there were insensibility, convulsive movements of the upper limbs and face, forcible closure of the jaw, dilatation and insensibility of the pupils; pulse 70, full and natural. The treatment consisted in the administration of solution of common salt at intervals of a quarter of an hour. Under this treatment, he improved; but the next day the symptoms reappeared, and again improved in the evening, when, after taking some barley-water, he vomited abundantly. In a few days, he was discharged well, having for several days suffered from pains in the epigastrium, which, however, were never very intense.

RECOLLECTIONS OF THE MEDICAL SCHOOL OF BERLIN.

By H. ROSBOROUGH SWANZY, M.B. Dub.,

Ophthalmic Surgeon to the Adelaide Hospital; late Assistant at the late Professor von Graefe's Hospital, Berlin.

As a pendant to Dr. Payne's interesting papers on the Medical School of Vienna, the present contribution may be acceptable to some of the readers of the JOURNAL.

From experience, I am ready to endorse all that Dr. Payne has advanced in favour of Vienna as a place of study for the English student, but fear that some may have been led, by his glowing descriptions, to think that it is the only place worth going to, and the place for everyone to go to. The Vienna School has, indeed, the great charm of being eminently practical; but, when the British student has completed his term of professional education at home, and obtained his diploma, he is, as a general rule, as well versed in practical clinical medicine and surgery as it is possible he should be in the time, with all the advantages of good teachers and abundant opportunities at hand. I imagine, therefore, that when he then visits a foreign school, his primary object is not to obtain additional practical knowledge of these branches—for this might be attained by a longer course of study at home—but rather to gain new modes of thinking on facts already secured, and to study those branches of the profession for which he has had imperfect or no advantages in England.

Berlin supplies these desiderata in some subjects better, in others equally well, and, again, in others not so well as Vienna. The student should know what he wants, and go where he can get it best.

In the first place, with regard to clinical medicine: the two great teachers of this subject in Berlin, are Professors Frerichs and Traube. The *clinique* of the former is probably the best attended. It is conducted in one of the theatres of the Charité, three or four times a week,