been much changed by the deadly gas. In such cases, the only hope lies in removing the poisoned blood, and replacing it by healthy.

This does not by any means always succeed; but occasionally the recovery from impending death is almost miraculous, as in a case where it was employed by Dr. Hueter (*Berlin. Klin. Wochensh.*, 1870, p. 341). The patient, who was a strong young man, was living in a hotel, and one night had a fire lighted in the stove of his room. Next morning, he was found perfectly unconscious; his iris and cornea quite insensible, and his pulse small and rapid. His respiration was weak and intermitting. Just as everything was ready, and transfusion of blood was begun, it failed altogether. Notwithstanding this, fresh blood was allowed to stream into the patient's radial artery; the poisoned blood was drawn from a vein; and respiration was kept up artificially. Gradually the pulse became stronger, spontaneous respiratory movements again began, and the cornea became sensitive. In about five hours, consciousness returned; and in a few days, health was completely restored. Excepting the veritable resurrection of which Legallois speaks, what can be more wonderful than the recovery from impending death just related? And, if the joint use of artificial respiration and transfusion is so successful in one case of poisoning, there seems to be no reason why it should not be so in all. In strychnia-poisoning, for instance, where the quantity absorbed has been too great, and death is impending, notwithstanding the use either of chloroform or of artificial respiration, part of the poison might be removed by abstracting some of the blood in which it was circulating, and fresh blood supplied. If convulsions were occurring constantly, transfusion would be nearly impossible, but they might be stopped either by much chloroform or by woorara. I have already mentioned that woorara is excreted rather quickly by the kidneys; and, consequently, artificial respiration for a few hours is usually sufficient to restore animals which have been poisoned by it.

Let us suppose it, however, to be slowly excreted. Many hours or even days might then elapse before the whole of it could be got rid of; and the maintenance of artificial respiration for such a length of time might be impossible. In such a case as this, the obvious plan of treatment would be, of course, to remove the poison along with the blood in which it was circulating, instead of waiting for its slow removal by the emunctories.

Now it appears to me that this is the treatment which must be adopted in cases of poisoning by the bites of snakes. We must combine artificial respiration with transfusion. The experiments of Dr. Fayrer show that the poison of the cobra is circulating in the blood of an animal which has been bitten by it; for this blood will kill another animal when injected into it. From those of Fontana, it would seem that the poison of the viper is eliminated from the body; for pigeons did not die if a ligature were placed on the bitten limb above the place where the wound had been inflicted, and removed after some time. Fontana thought that the poison had been destroyed in the limb, but was evidently puzzled about it, for some of his other experiments had shown him that mixing it with blood did not destroy its virulence. He imagined that he had completely stopped the circulation in the injured limb; but it is more probable that he had only partially done so, and that the poison was thus slowly absorbed from the limb, and, being excreted equally quickly, did the creature no harm. If this explanation of his experiments be not correct, it is difficult to understand why poisoning did not occur when the ligature was removed, as Waterton found to be the case in some similar experiments which he had tried with woorara. So long as the ligature was tight, the woorara remained confined to the limb; but as soon as the circulation was allowed to go on, the poison was absorbed, and the animal died. This may seem to be in direct contradiction to what I have already said regarding the probable comparative slowness of the excretion of snake-poison to that of woorara; but it must be observed that Fontana waited a much longer time before he untied the ligatures than Waterton did, and would thus allow a much larger proportion of the poison to be excreted. It must be noted also that the poison with which he experimented was that of the viper and not of the cobra, and there may be considerable differences in the facility with which they are excreted. It is, however, possible that I am mistaken in supposing that cobra-poison is more slowly excreted than woorara, as the facts on which I base the supposition are simply, that the poison of cobra, introduced into the stomach, seems to produce death more readily than woorara would do; and that animals may be kept alive for a longer time by artificial respiration without ultimately recovering. The poison of the viper, on the other hand, according to Fontana, may be swallowed in moderate quantity at least with impunity, though it also occasionally kills when taken in this manner, as woorara likewise does when the quantity is great and the stomach empty, so that absorption is rapid.

Enough has now been said to show the possible use of transfusion, combined with artificial respiration, not only in poisoning by carbonic oxide, but by strychnia and other poisons. Its employment in collapse from hæmorrhage requires no remarks at present. But, in order to make such a method serviceable, it must be easily performed, and a supply of blood easily got. Now I believe that a very simple apparatus indeed will serve the purpose of transfusing defibrinated blood. But how is a sufficient supply to be got? for it is evident that a considerable quantity may be required. The requisite quantity of human blood in most cases can hardly be obtained; but it has been experimentally shown that the blood of lambs and calves may be transfused into the blood-vessels of man without doing him any harm.

Two hundred years ago, an objection was raised to this method of proceeding by Laury (*Revue des Deux Mondes*, Jan. 1870, p. 393), who said that, as the blood of a calf or of any other animal whatever is composed of several different particles fitted to nourish the different parts of the body, what is to become of the particles which were destined to produce horns? And, if the blood of a calf be transfused into the veins of a man, as the disposition and habits usually accord with the temperament, will the blood of the calf not give the man the stupidity and brutal inclinations of this animal? Here we almost seem to have Darwin's theory of pangenesis; and, if this theory be true, are not Laury's objections well founded? As far as man is concerned, it may be difficult to give a positive answer either in the affirmative or the negative; but the experiments which Mr. Galton has made on rabbits, for the express purpose of testing Darwin's theory, show that in these animals transfusion has no effect either on the animals themselves or on their progeny. We may therefore, I think, safely conclude that the risk of injuring a man's character, or that of his descendants, by transfusion of an animal's blood, is not for an instant to be weighed in the balance against the chance of saving his life in those cases where alone the operation would be performed.

UNUSUAL CASE OF PARACENTESIS ABDOMINIS.

By WILLIAM B. HUNTER, M.D., C.M.Glas., Matlock.

THE following case presents circumstances which I have not hitherto met with, or seen referred to in the literature of the subject.

Mrs. M., middle-aged, and somewhat plethoric, suffered from ascites, with contracted liver and feeble heart. There was dropsy of the lower extremities, but the urine was non-albuminous. She had been tapped about two weeks before coming under my care, but the abdomen had rapidly refilled. Nothing unusual had been experienced (to my knowledge) in the operation; and it had been performed in the linea semilunaris about two and a half inches below the umbilicus. After treatment, which succeeded in improving the action of the liver and heart, and led to the disappearance of the dropsy of the lower limbs, but without any diminution in the ascites, I tapped in the linea alba, about two inches below the umbilicus, and, with the usual facility, removed about fourteen pints of fluid. Towards the end of the operation, a little abdominal pain was felt in the neighbourhood of the cannula, which afterwards gradually increased for forty-eight hours, accompanied by tenderness and some vomiting, but no increase of temperature, and as gradually subsided. In nine weeks the fluid had again accumulated to such an extent as to call for renewed interference, through uneasiness and inability to eat on the part of the patient. This time the puncture, though two inches below the umbilicus as before, was about an inch and a half above the cicatrix of the former operation, through the greater distension of the abdominal parietes on this occasion. Only a few ounces had escaped before there occurred an almost complete arrest of the stream, which, on introducing a probe through the cannula, was found to proceed from a solid body impinging on its internal opening. This was, to the feel, smooth, dense, and resisting; and, on carrying the probe laterally along its surface, was found to extend for an inch or more on each side. After consultation with a medical friend assisting (Dr. Meniert of Dresden), it was decided not to make a fresh puncture, but to remove as much fluid as could be obtained through the side openings in the cannula, and repeat the operation only so soon as the symptoms called for it again. Three quarts came away in the course of an hour or so; and, the flow having all but ceased, the cannula was removed, and a towel simply laid over the opening. The patient was quite comfortable, the tension having been relieved; and no abdominal pains supervened as before. For forty-eight hours fluid oozed from the opening and drenched the night-clothes, bed, and bedding; requiring repeated relays of material to absorb it, and even dropping from a waterproof covering into an utensil on the floor. Latterly, a pad two inches square, and secured by six

diverging tapes and elastic ribbons, was kept over the opening to avoid the possibility of air obtaining admission in the final stages of this process, and shortly after this the opening closed. The abdomen was then found to be free from fluid to the extent usual after tapping, and no trace of any solid body could be obtained by palpation or percussion in the neighbourhood of the site of the puncture. There was dulness over the lower abdomen, extending into each iliac fossa, but too remote from the puncture to throw any light on the obstruction. The cervix uteri was found, on vaginal examination, to be in its normal situation. I should have remarked, that the patient was kept on her side and somewhat prone during the flow. I can only suggest an unusually fatty omentum as having been the obstructing body, and would be glad to have any light thrown on the matter by others, not merely for the solution of the problem, but with a view to the avoidance in future of an awkward contingency in what is usually a simple operation.

CLINICAL MEMORANDA.

BRAWN POISONING.

IN my practice, a similar instance to that recorded in the last number of the JOURNAL, of urgent symptoms of poisoning after eating brawn, occurred in this place on the 1st instant. A gentleman, his wife, and servant, having partaken of brawn, suffered the most distressing vomiting, purging, and pain, which at length, after much difficulty, subsided. The butcher declared the ingredients perfectly healthy, nor could I discover anything poisonous connected with it. The fatty portion had somewhat a spongy appearance, and the mass generally decomposed earlier than usual.

As three, if not four similar cases, have occurred, in widely different parts of England and Wales, the question is, is there any epidemic or disease among pigs, at the present time? or are we to owe it to the *old* odds and ends that sometimes form portion of the brawn? or to decomposition? or to what? This matter requires serious investigation.

EDWARD W. S. DAVIS, Medical Officer of Health, Mountain Ash.

MARKS OF SUCCESSFUL VACCINATION.

THE other day a public vaccinator was reprimanded by a vaccination inspector for giving a certificate of successful vaccination immediately after the operation. Of course this was a very improper thing to do, and its repetition ought not to be detected without censure. But the question suggests itself, can a medical practitioner, soon after performing the operation, *i.e.*, before the little patient leaves the consulting room, declare, with any probability of being correct, that the lymph will take effect? To be able to do this must be of advantage to practitioners who have few vaccinations, and who have to depend on points and glasses of doubtful age, for their supply of lymph.

I believe that the question may be answered in the affirmative. I have noticed, for some years, that by about the time it takes for the lymph and blood to dry over the puncture, or scratch, the skin in the vicinity has become red, and the margin of the puncture elevated, and capped by a white "wheal." If the lymph be washed off, the white elevation about the wound is still seen, so it is not lymph which causes this appearance. I have never known a case of vaccination to fail in which this "mark" was noticed.

I have not seen in print, or heard any allusion to this little matter; I therefore think it worth while to publish my observation, that my professional brethren may test its value.

THOS. B. BOTT, M.D., Bury, Lancashire.

CASE OF COMPOUND COMMINUTED FRACTURE OF THE SCAPULA.

THE subject of this injury was a man thirty-five years of age, muscular and healthy. On July 16th, 1872, he was engaged in his usual occupation of wood-cutting. A fir-tree having been partly sawn through, and about to fall, he struck his axe into the back, near the point of section, in order to prevent "splitting up." At the same moment the tree fell, and came in its descent across some poles, whereby its lower end was tilted up some distance, carrying the axe with it. The heavy axe, in coming to the ground, struck the man with one of its corners, just over the scapula. On examination, a clean cut wound was seen, extending for about three inches over the spine of the scapula, in an oblique direction from above downwards. The finger passed through this came to the broken edges of the scapula, finding to the inside the angle at the inner end of the spine separated, and broken into two fragments of nearly equal size, and to the outside the body of the scapula. The

inner fragments were drawn towards the median line, so that the finger passed easily to the under surface of the scapula. The wound was brought together by means of silk thread, a small opening being left at the most dependent position. By bringing the shoulders well back, the loose fragments of bone could be pressed into position; a pad was therefore placed to the inside and over the fragments, and a figure-of-eight bandage applied. In two days the wound had united, except at the lowest part, and the bones were in good position. The bandage and pad were applied every second day, as a rule, for a month, and a sling for some time longer. He recommenced work at the end of seven weeks, dating from the accident, without any inconvenience, and no deformity can be detected.

WALTER ROSSER, M.D., Trinity College, Glensalmond, Perth.

THERAPEUTIC MEMORANDA.

ARTIFICIAL FIBRIN AS A DIETETIC SUBSTANCE.

As a member of the British Medical Association, and in the common interests of humanity, I have much pleasure in calling attention to my discovery of this new dietetic substance. So far as I have employed it, it promises fair to be invaluable in medical practice, especially in cases of feeble alimentation and deficient nutrition, and second to none in those cases where rejection of food forms a prominent feature, or where the appetite and digestive powers are reduced to a minimum. As fibrinous material, it is of course highly nutritious, and eminently adapted to all cases where there is a deficiency of fibrin in the blood. It is, perhaps, unparalleled in its qualities of lightness and digestibility, and is moreover a great delicacy. In many urgent cases of rejection of food, etc., it not only remains where an egg otherwise cooked would not be tolerated, but its presence in the stomach has been found to create a feeling of want rather than of superfluity, and to promote rather than decrease the appetite for food.

The production of this substance is within the reach of every sick room, and is effected with great facility. It is formed by exposing albuminous material to the operation or influence of cold water, for a given period; and on account of its great plenteousness we employ the ordinary hen's egg for its production. When the shell is broken and removed, and its contents are immersed in cold water for twelve hours or so, they are found to undergo a chemico-molecular change, and to become solid and insoluble. This change is indicated by the assumption by the transparent white of the egg of an opaque and snowy white appearance, which far surpasses that of an ordinary boiled egg. The product, and the fluid in which it is immersed, must now be submitted to the action of heat to the boiling point, when the fibrin will be ready for use.

JOHN GOODMAN, M.D., Southport.

OBSTETRIC MEMORANDA.

CASE OF BREECH-PRESENTATION WITH THE LEGS EXTENDED.

ON the morning of February 15th, 1873, I was summoned to Mrs. George L., the wife of a farmer residing in the neighbourhood of Chippenham. On my arrival, I found her in labour, at full term, with her first child. The pains were neither severe nor frequent. The os uteri was dilated to the size of a florin; and the liquor amnii was stated to have escaped half an hour before my visit. The position of the child was dorso-anterior; and the breech was presenting in the left oblique diameter. I cleared out the rectum with an enema of warm water, and emptied the bladder by catheterism. The os dilated tardily, and the breech descended very gradually into the pelvic cavity. In the early part of the afternoon the left buttock came under the pubic arch. After reaching thus far, it would proceed no further; and in proportion to the pains, so the breech became more and more jammed into the pelvic cavity. I now decided to place my patient under chloroform, push up the breech, and try podalic version. Early in the evening, Messrs. Spencer and Briscoe lent me their kind assistance. The latter gave chloroform to the surgical degree; and, the contents of the bladder having been drawn off with a catheter, and the vagina nearly filled with lard, I supported the uterus externally with my right hand, while with my left I pushed up the breech, and passed the same hand on the inner and posterior surface of the child's legs to the fundus of the uterus, where the feet lay close to the child's face. I then seized the left instep and brought it down into the vagina. That being done, the labour proceeded as an ordinary footling case. In its later stages the patient