culty of procuring the two former, for the purposes of an experimental inquiry of the nature of the present, and the little difference which is to be found between the appearance in a guinea pig and the rabbit, have induced me to leave this out of consideration. In the course of the inquiry, therefore, I have endeavoured to point out, 1*stly*, The general appearance which the *corpora lutea* of different animals present at the different stages of maturity; 2*dly*, The distinguishing marks which characterize them; and 3*dly*, The appearance which false or pseudo *corpora lutea* present, and the manner in which they are to be distinguished from the true bodies, and from the remains of them.

Explanation of the Plate.

Fig. 1. Ordinary appearance of the *corpus luteum* of the cow a short time after its complete formation.

Fig. 2. *Corpus luteum* of the cow at a more advanced period of pregnancy, still retaining its central cavity.

Fig. 1. *a.* Fig. 2. *b.* The ordinary appearance of false *corpora lutea* in this animal.

Fig. 3. External appearance of the ovary of the ewe, showing the nipple-like prominence, the central depression, and inflammatory blush around it.

Fig. 4. Section of the ovary of the ewe, in which two *corpora lutea* were found.

Fig. 5. Ordinary appearance of the *corpus luteum* of this animal.

Fig. 4. *a.* Fig. 5. *b.* Show the ordinary appearance of false *corpora lutea* in this animal.

Fig. 6. External appearance of the ovary of the sow a short time after impregnation.

Fig. 7. Section of the same, showing the central cavity, still communicating with the peritoneum.

Fig. 8. Ordinary appearance of the section of the ovary of this animal during pregnancy.

Fig. 9. 10. 11. Show the appearance of a section of the ovary in the bitch, cat, and rabbit.

Art. VII.—*Case of dangerous Uterine Hemorrhage in which Transfusion was successfully employed, with some observations on the more frequent expediency of that operation.*

By Richard Oliver, M. D.

On the 26th of June 1837, I was called to attend the wife of John Cook, a weaver, living at Eden Place, about a mile from my house. She had been attended by a midwife, and had given birth to a child at its full time in the course of the previous night. The patient was about 42 years of age, and this was her seventh child. I found her at 6 A. M. in an exceedingly exhausted condition. Blanched by a profuse hemorrhage, which no adequate means had been employed to suppress, but which had now ceased, she was lying on her back in a state of imperfect consciousness,

with the pulse at the wrist barely perceptible, now and then moaning lowly, and casting about her arms. About half-a glass of rum with a litle water was immediately given to her, and this, with a few spoonsful of beef-tea, was repeated two or three times at intervals of about twenty or twenty-five minutes. After each dose she appeared to be a little refreshed, but upon the whole the symptoms of collapse were gaining ground. About half-past 7 o'clock brandy was substituted for the rum, and the dose was increased to an ounce and a-half, with the addition of a drachm of aromatic spirit of ammonia and a few drops of tincture of opium to every second or third portion. The same deceitful promises of reaction were succeeded by the same progressive indications of sinking, until at length, about one P. M., she became quite unable to swallow. The pulse at the wrist and in the carotids had not been perceptible for more than two hours and a-half, and the coma was now complete. Under these very unpropitious circumstances I determined upon transfusion, with little hope of success, and with no small compunction for having thus afforded the operation so little fair play. At half-past one P. M. I was provided with the apparatus necessary for performing it; and having obtained a willing supply of blood from three of the patient's kind-hearted neighbours, I opened a vein at the bend of her arm, and, with the assistance of two of my professional friends, Mr Bowman, surgeon of this place, and Dr Henry Lonsdale, now Demonstrator of Anatoty in Queen's College, Edinburgh, I proceeded cautiously and steadily to introduce it.

I had first taken care to see that the instrument was in proper order, and particularly that I should have the syringe and its tubes free from air. After one or two gentle strokes with the piston, made with a view to ascertain this point, I found that the cup attached to the apparatus was so small that it could not be safely used. Unless the piston was elevated very slowly, and the blood was supplied very steadily to the cup, there was great risk of introducing air into the cylinder. But finding that, by taking a common basin to receive the blood, and by drawing it up thence through the bottom of the syringe, I could obviate this danger, I laid the cup aside altogether. With this simpler arrangement I passed syringeful after syringeful into her exhausted veins, pausing from time to time to mark the effects, and anxiously watching for some glimmering promise of the return of energy to her heart. On a moderate computation we had already transfused twelve ounces of blood, and she still lay pulseless and perfectly insensible. The respiration, however, although faint and low, was distinct and regular; so that, however small the amount of blood in her system might be, there was still some undergoing aeration in the lungs; and in gradually augmenting its quantity, we might possibly con-

tribute to raise her vital powers, by enabling a larger portion of it to reach the nervous centres. We could not discern the heart's pulsations, but we might be quite certain that it did beat, and that the general circulation, although thus imperceptible, was still actually carried on. We had yet obtained no assurance of improvement, but it was pretty evident that, by proceeding cautiously, we neither had done, nor could do any harm. Without this expedient the poor woman's death was inevitable, and but too probable, we then thought, even with it; so, disregarding the cautions given upon this point, we determined to go on. Steadily and slowly the blood was introduced as before, until at length we imagined that the pulse became faintly perceptible in the arm; and slight as it was, this intimation of the heart's increased power gave us no small encouragement. After persevering for a few minutes longer, we had the very perfect gratification of witnessing not only the complete restoration of the circulating power, but the return of consciousness, and of the ability to speak.

It is unnecessary to advert to the subsequent details of the treatment and of the recovery, farther than to mention that she went on very favourably, and in a few weeks was moving about in her family as usual. She remained for some time longer rather weak and delicate, but beyond an occasional slight headach, and a tendency to constipation and flatulence, she suffered from none of the more prominent and distressing symptoms which ordinarily ensue after serious losses of blood, and she has long been, and still remains, in very good health.

With respect to the quantity of blood introduced in this case, I am not able to speak with absolute accuracy; but I feel quite certain that I am below the mark in mentioning twenty-two ounces. From each of the three individuals who supplied the blood, we took at the least an average of twelve ounces; and although we did not attempt to measure the amount of it, I am perfectly satisfied that, at all events, not more than one-third of the whole was lost by coagulation, and by being thrown upon the ground in adjusting and preparing the instrument.

In looking over a few of the observations that have been made upon the subject of transfusion, I have been struck with the reasons which are assigned for the directions given as to its performance. Apprehensions are expressed lest the power of the heart should be overwhelmed by too sudden or too copious a supply of the borrowed fluid,* and lest the exhausted system should be unable to appropriate it; and as the first circumstance is not only conceivable, but quite possible,† the apprehension may be to a cer-

* "But if too large a quantity be injected, it may so oppress the right side of the heart, as to impede the circulation."—Mr J. H. Green in Lancet of December 12, 1829. Vol. i. page 372.

† This had been noticed by former observers; but is well attested by Dr John

View of the Stomach after Poisoning by Sulphuric Acid.

G. Aikman, Sc.

tain extent a just one. But there can be no reason for allowing this consideration to deter us from making a fair use of the remedy; and I am very much inclined to think that want of success may have resulted from too highly estimating this supposed hazard; for although cases of its failure may not have been unfrequent, I have not yet been able to meet with any proofs of its ever having been positively injurious. The merits of the operation, I believe, have not yet been fairly tested. The whole of the symptoms immediately consequent upon excessive hemorrhage, whether those which present themselves in cases of leipothymia from any other cause be so or not, are referable, I presume, for the most part, to a diminution in the supply of arterial blood to the cerebro-spinal axis; and, certainly, when the vascular system has thus suffered an enormous draining, it is almost needless to say that there can be no more direct and obvious mode of counteracting the consequent mischief, and of restoring or upholding the supply of nervous influence which is requisite for the sustentation of life, than to refurnish that system with blood. So long as the respiration continues regular, however feeble, and, which I take to be only another form of expression for the same thing, so long as the right cavities of the heart are able to forward blood to the lungs in a corresponding ratio, that blood will be made fit for its office, and every drop added to the arterial current will augment by so much the probabilities of eventual success, provided the symptoms are merely those of inanition, and that no incurable lesion has pre-existed, or has been produced by delay.

Although the persistence for a short time of the heart's power of action, particularly that of the right auricle, after the irritability of the rest of the system has ceased, is such as to have obtained for that viscus the designation of *ultimum moriens;* it is not less certain that the exercise of that power is essentially dependent upon the presence of its natural and appropriate stimulus; and the influence of a vast variety of circumstances in modifying its action completely shuts out the opinion advocated by Haller,* that its motion is solely the result of a property exclusively appertaining to itself, and not in any way dependent upon the condition of the nervous system. In any case, therefore, where the blood is dangerously deficient in quantity, transfusion would appear to be available, not merely in the way of supplying the heart with that direct stimulus which is indispensable for its immediate action, but also by maintaining its contractility through the sustained energy of the nervous centres; and the case which I have

Reid in his article on the Heart in the Cyclopædia of Anatomy and Physiology, Vol. ii. page 608.

* "Is motus est insitus, nec a cerebro advenit, nec ab anima, cum in mortuo animali, cum in corde de pectore avulso supersit, neque a voluntate aut incitari passit aut tardari."—Haller, Primæ Lineæ Physiologiæ, Sect. cii.

just related may serve at least to show from how low a pitch the powers of the system may be effectually raised, when ordinary means have proved unavailing, whilst even thus finely spun, the thread is yet unbroken which connects the inter-dependent functions of the heart, lungs, and brain.

The scepticism which insinuates that recoveries might have taken place in many instances whether the operation had been resorted to or not, expresses but a negative objection to its use; and we have yet to learn that the cautious introduction of blood can lessen the chances of recovery when the balance is thus dubiously wavering between life and death. In those cases where a very small amount of blood has been found sufficient to turn the scale, and where it is not improbable that the patients might have rallied without such assistance, the only philosophical objection that has yet been raised against the practice, viz. the risk of oppressing the enfeebled heart, must well nigh have reached its vanishing point; whilst instances such as that which I have detailed sufficiently attest its value under circumstances of a widely different character.

Believing that a very erroneous estimate has been put upon this operation, and that its alleged risks have been greatly exaggerated, I am anxious to see it placed upon a footing where the advantages which it really presents may be fairly dealt by, and to hear of its being more frequently resorted to in those fearful cases which but too commonly occur, particularly in obstetrical practice, to peril, it may be, some life of more than ordinary moment, and to harass the mind of the medical attendant with an anxiety almost insupportable. I cannot help thinking that if the measure were adopted with less hesitation, and much earlier than has been usual, there would be less of this. But whilst practitioners, on referring to authoritative systematic works for information upon this subject, meet with little more than doubts as to its expediency, or something like a specious pretext for mistrusting it, it is not likely that we shall speedily hear of its coming into anything like general use; unless, indeed, Dr Blundell should resume its advocacy, or Dr Ferguson, or some other practitioner possessing ample opportunities for observation, and proceeding with a reasonable boldness, should determine on data sufficiently complete, the exact amount of credit due to it as a therapeutical agent.

Dr Davis, in his Obstetrical Medicine, states, that "experience appears to sanction the presumption that the capacity of the arterial system, considered in connection with its influences on the nervous and respiratory systems, is much too limited to make it probable that it should ever, by any variations or modifications of future trials, be brought to admit and to adopt for its own purposes, within the period of an hour, or even of some fractional pro-

portion of that time, sufficient quantities of foreign blood to insure the recovery of one woman in a hundred, and so serve eventually to promote the re-establishment of the practice of transfusion."—P. 1066.

Now when we find in a work of this imposing character, where we might expect to meet with something like sound reasoning on a subject of this kind, that a vague presumption is thus put in the place of a legitimate philosophical inference, it cannot be denied that the merits of the remedy have been prejudged.

Mr Lizars, on the other hand, in his System of Practical Surgery, says, after describing the mode of performing the operation, and mentioning one or two drachms as the quantity to be introduced, " the blood thus propelled into the exhausted circulating system re-excites the heart, and puts the springs of life into action. It is only necessary to inject a few drops of blood to stimulate the heart; and probably the saline solution, which was so extensively and so beneficially used in cholera, is preferable to human blood."—P. 126.

This is, no doubt, a more encouraging view of the matter; but if it were found on proof that " a few drops of blood" did not generally " stimulate the heart," and that even " a drachm or two" very frequently failed " to put the springs of life into action," the reputation of the remedy would be more apt to suffer eventually from the false expectations which such an inconsiderate assertion is calculated to excite, than from any direct hostility to its employment.

If I should ever again have occasion to resort to this operation, I would use a much simpler instrument than that which is termed the transfusing apparatus, and one which might very conveniently be in the hands of every practitioner. A small curved silver tube for insertion into the vein, having a transverse flat collar to keep it steady, is of course indispensable. To this a light, straight, brass stop-cock should be adapted; and, when required, a soft bladder tied upon the end of the stop-cock would serve for the reception of the blood. Mr Syme, I believe, recommends something like this in his Elements of Surgery. In this way the blood could readily be pressed downwards into the vein, without any risk of introducing air. The advantage of a pocket instrument of this kind over the more cumbrous and elaborate machinery which very few people are in possession of, and which is not unlikely to be at an inconvenient distance when most urgently wanted, is sufficiently obvious; more particularly as its constant readiness would very probably lead to its more frequent use.

Carlisle, June 12, 1840.