I may here state that I used the modified Stricker's stage (above noticed) whilst investigating the action of gases on these bodies. When a rhythmically pulsating corpuscle is placed in a current of pure oxygen gas, its contractions are rapidly rendered slow, and after ten minutes' exposure, cease altogether. The pulsations cannot subsequently be renewed by the admission of air; in other words, death has taken place coincidently with the cessation of motion.

The Action of Pure Oxygen on Actinia.—An actinia mesembryanthemum in a contracted state was submitted to the action of a stream of pure oxygen gas for about ten minutes.* This experiment was performed by placing the animal in a glass tube, two inches in calibre, and closed at each extremity by corks, with the exception of a small perforation large enough to admit a quill, one at each end. Into these openings glass tubes were tightly fitted, one of which was connected with an apparatus for generating the gas. Upon using the apparatus, a continuous current of oxygen gas was readily made to pass over the surface of the animal. At the termination of the experiment, the anemone was observed to have changed colour from a brownish-green to a dead yellow, but its shape was unaltered. Upon touching the creature with a style, shreds of tenacious muciform fluid were easily detached; these had no distinct reaction with litmus, and under the microscope were seen to be mostly composed of bacillar corpuscles, with a few spheroidal ones intermixed. Upon replacing the creature in sea-water, and after carefully removing the adherent mucosity, I noticed that the subtegumentary tissue was bared in many places, and that the outer layers were disintegrated at those spots. The animal remained in a contracted state for many days afterwards. In a subsequent experiment, the anemone was partially expanded when the investigation began; it however speedily contracted itself under the influence of the oxygen, and the integument became somewhat corrugated after seven minutes' exposure. In both cases the tentacular ring was extremely contracted. The evolution of mucous shreds was much less in the second animal than in the first; this I ascribe partly to the greater vitality of the earlier specimen, the second one being evidently very feeble when operated upon. Contrary to what we might expect from the preceding experiments with carbonic acid gas and chloroform, the action of oxygen upon actinia appears in some respects to resemble these agents. It induces slowing of the corpuscular pulsations; but the contraction with the tegumentary corrugations of the entire animal is far more marked in the oxygen gas than in the two preceding cases; and in this respect the last agent resembles in its effects rather those due to a high temperature than such as result from an exposure to either of the above-named fluids.

The Operation of Ammonia on the Pulsating Corpuscles.—Gaseous ammonia acts with great violence on the pulsating corpuscles of actinia. When these bodies are exposed to the influence of this gas, their pulsations immediately cease. When an atmosphere containing only one-eighth part of the gas was brought into contact with them, their pulsations were greatly increased in rapidity, and in some cases they became irregular. To obtain a mixed atmosphere containing a known volume of any special gas, I used a graduated glass syringe, which was filled with air to a graduation. The known space left was next filled with the gas required in the mixture by inserting the nozzle of the syringe into the gas-generator: the mixed gases were then forced in a gentle stream through the Stricker's stage, as in other cases.

The Operation of Ammonia on Actinia.—Upon exposing two specimens of actinoloba dianthus to an atmosphere of gaseous ammonia after removal from the tank, they immediately contracted, partially; subsequently (in the course of a few minutes), slight œdema of the tentacular rings occurred, with the evolution of a large quantity of alkaline mucosity. After repeated washings with sea-water, the mucosity still retained a strong alkalinity. On the following day, the smaller of the two animals (pedicle about a quarter of an inch in diameter) was dead and partially disintegrated; the other (pedicle half an inch in diameter at base) was covered with a tenacious alkaline mucosity, the pedicle much contracted and corrugated, tentacles somewhat expanded. The sensibility, which immediately after the experiment was much impaired, if not entirely lost, in this animal, had somewhat returned, although its reaction to stimuli was sluggish. Its colour, which had been a pink, became a yellowish-white. The œdema about the tentacles continued to a slight extent. The pedicular contraction lasted for many days. Ammonia in its effects more nearly resembles a high temperature than even oxygen does, for in small quantities it increases the rapidity of the corpuscular pulsations, whilst the latter gas renders them slow. Its operation on the body of the animal is also closely similar to that of a temperature of about 30 deg. centigrade—namely, great shrinking and

corrugation of the pedicle. The slight œdema of the tentacular rings observed when the animals are exposed to this gas serves possibly to distinguish the effects of the two agents from one another.

A CASE OF POST PARTUM HÆMORRHAGE : TRANSFUSION.

By THOMAS SAVAGE, M.D., F.R.C.S.,
Surgeon to the Hospital for Women, and to the Lying-in Charity, Birmingham.

MRS. J., aged 38, in her third confinement, was attended by Mr. Turner, of this town, on December 30th. The child was born at 8 P.M., after a natural labour, and about 8.30 the placenta had to be removed. She was left, but Mr. Turner was sent for shortly afterwards, as she was very faint and ill. He found her about 10 P.M. very faint, and sent for the nearest local surgeon, who saw her, said her case was a hopeless one, and prescribed a diffusible stimulant. As she was now growing worse, I was sent for. I saw her at 11 P.M. She was very faint and restless; lips blanched, and countenance anxious. I suggested internal hæmorrhage as a probable cause of her condition, as Mr. Turner told me there had been very little external loss during the labour. Externally, I felt a soft swelling extending to just above the umbilicus. Here she complained of constant pain. The vagina was full of blood-clot. I introduced my left hand and arm, and, with my right on the abdomen, I extracted a quantity of clots, together with a piece of placenta, perhaps one-twelfth in size of a normal placenta. I then passed a long tube and injected into the anterior of the uterus a pint of cold water, in which had been mixed an ounce of the stronger solution of perchloride of iron. This immediately caused uterine contraction, and no more bleeding followed.

As she did not rally, but appeared to be gradually sinking, I suggested transfusion. Her condition was now as follows: pulse quite imperceptible, pupils dilated, breath cold, skin clammy; and she was moaning and jactitating about the bed. I sent for the assistance of my friend Mr. Thomas. We then placed her on her back, with dry clothes round her, and an abdominal bandage, on the left side of the bed. The only available blood-donor was a young woman, a shop-assistant, who volunteered it; she was small, thin, but healthy. She sat upright in the chair, to the left of the patient, and eighteen inches from the side of the bed, with her back to the bed's head. I exposed the median basilic vein of the patient's left arm, by transfixing the vein and passing a probe under the vein. Mr. Thomas then made an ordinary venesection incision into the median cephalic vein of the donor, and with Aveling's syringe tried to insert the nozzle, but it did not seem to go in very easily, and the blood also did not flow out readily. I then exposed the median basilic in the same way that I had done in the patient, punctured it, and inserted the nozzle. The contrast between the distended vein of the donor, and the flaccid perfectly empty vein of the patient, was very remarkable. The syringe had been previously filled with lukewarm water. I then punctured the patient's exposed vein, and easily inserted the other nozzle. I sat by the patient's head and took charge of the expanded portion of the syringe. Mr. Thomas sat opposite to me, the syringe being between us, and worked the valve action with his fingers. Mr. Turner guarded the nozzle in the donor's vein. Mr. Thomas and I worked in concert, and we pumped in fifteen syringes full of blood, or about five ounces; when, as the donor was becoming faint, the apparatus was removed. The patient was now very restless, throwing herself about, declaring herself to be sinking, and rubbing her chest, where, she said, the oppression was greatest. We thought her dying; the respirations were very hurried; in a few minutes, the pulse at the wrist was felt feebly beating, and we fancied the carotids and brachials were beating with more force; the heart-sounds were very feeble, especially the first, and at times seemed scarcely audible on account of the hurried breathing sounds; the breath was cold, and also the extremities, back, and chest. She very slowly rallied; we gave her brandy and ammonia. The operation was done about 12.30, and I stayed with her until 4 A.M., when she was decidedly better, she said so herself; her voice returned, and the pulse was felt. She gradually improved, became quite cheerful, and took abundance of nourishment. On the sixth day, there were evident signs of septicæmia, which terminated fatally on the 9th instant, i.e., ten days after transfusion.

The operation of transfusion by means of Aveling's syringe is all that can be desired; its great simplicity being its chief recommendation. There is no doubt at all in the minds of myself and of the two gentlemen who assisted me, that the operation, *per se*, was a complete success.

* I reckon from the time when oxygen gas commenced to pass through the whole apparatus.