Though four weeks had elapsed since menstruation commenced, there was still hæmorrhage, the blood being bright in colour, but thin and watery-looking. The uterus was larger than normal—perhaps $3\frac{1}{2}$ to 4 inches long. The portio vaginalis was conical, with a small os. I suggested enlarging the os by incision, so as to allow the immediate application of styptics to the seat of the hæmorrhage. This was done, the strong solution of perchloride of iron being applied on a bit of lint, which was thrust well up into the uterus, the cavity of which was sufficiently dilated to make this feasible. The hæmorrhage stopped completely for the time, but returned slightly in about twenty-four hours; and the patient's general condition continued unimproved. Her husband was very anxious that transfusion should be tried, as he said that everything else seemed useless. Accordingly, five days later, on November 22nd, assisted by Dr. Robertson and Dr. Inkster of Sheffield, I performed transfusion. The husband allowed himself to be bled, and about eight ounces of blood were drawn off, during which he fainted. The blood was received in a warm vessel, whipped, defibrinated, and strained into the apparatus figured below. Meanwhile, I had laid bare about one inch of the median cephalic vein of the patient, and tied it with carbolised gut. Having made an incision into the vein above the ligature, I then introduced the nozzle of the transfuser, and the blood readily gravitated into the vein; but I only allowed it to flow into it very slowly. The patient soon remarked that she felt a warm glow throughout the body; which, however, quickly changed to a sensation of fulness in her throat and choking. All at once her breathing stopped, she became livid, her jaw fell, and a loud "rattle" in her throat announced the speedy approach of death. I instantly injected subcutaneously a drachm of ether, which I had ready for an emergency, and commenced artificial respiration; and shortly I had the satisfaction of seeing the patient rally. The transfusion was soon completed without further mishap, and the wound dressed with thymol gauze, etc. For a day or two she felt poorly (previously her condition was complete apathy), and complained of being nervous and having distressing dreams; but four days later she was decidedly stronger, and in a fortnight she was up, but complained of her feet "going asleep" if she stood for long. Within a few hours after the transfusion, the uterine hæmorrhage ceased. At the end of four weeks, she menstruated during three days; and then, after ceasing for three days, there was a slight "show", which soon stopped. At the present date, Dr. Robertson writes to me, she is "greatly improved in appearance; the colour has returned to her cheeks and lips; and she has evidently gained flesh considerably". She menstruates normally in every respect, and is becoming strong, but is hysterical. Dr. Robertson considers "the transfusion proved quite a success", and he has watched the progress of the case daily.

The apparatus figured below is one of my own device, and is

the same I exhibited at the annual meeting of the Association some years since, when it was figured in the catalogue. I believe it offers many advantages. It is made of tin, except the inner receptacle for the blood, which is silver-plated. This inner receptacle is surrounded by warm water, to maintain the temperature of the blood; and a thermometer fixed to it enables the temperature of the water to be ascertained. It is essential that the blood be of a proper temperature for the injection. A tap in the side enables the water to be drawn off, and one in the bottom lets the blood flow through the elastic tube. A short piece of glass tube inserted into the elastic tube enables the operator to see if the blood is flowing. By raising or lowering the apparatus, the pressure and consequently the rate of flow of the blood can be increased or lessened (or stopped); and, should a block occur, the piston can be employed to clear out the tube, or even, if need be, to gently force the blood into the vein. This is rarely necessary or advisable, gravity being usually sufficient to overcome such obstacles as prevent the flow of the blood. The outer receptacle of the apparatus being filled with water at about 100° Fahr., the blood is to be

drawn, whipped, and poured into the inner receptacle, the bottom tap having previously been closed. The vein of the patient having been laid bare, a double ligature is to be passed underneath it, and cut in two. With one of the ligatures thus placed in position, the vein is tied, to prevent escape of blood when the vein is opened for the introduction of the nozzle of the transfuser. With the other ligature the nozzle is secured after its introduction into the vein, by which means all escape of blood backwards is prevented. The patient need lose little more blood throughout than what escapes when the skin is divided. The bottom tap is then to be turned, and the blood allowed to flow; the elastic tube being held between the finger and thumb near the nozzle. When the whole tube is full of blood (so as to prevent air contained in the tube escaping into the vein), the nozzle is to be inserted into the vein, and tied into it by the gut or silk ligature previously passed under the vein. While the ligature is being applied, the elastic tube is to be kept squeezed by the fingers and thumb. The transfuser is then to be raised from four to six inches, the pressure taken off the tube, and the blood allowed to run into the vein. The finger and thumb being kept on the elastic tube between the nozzle and the glass tube will enable the current to be instantly stopped, should an air-bubble or clot, etc., be observed in the glass tube. Should such an accident occur, the nozzle must then be withdrawn; the air-bubbles, etc., be allowed to escape; and the nozzle be then reintroduced. Anyone can use this apparatus; and, as there is nothing to get out of order, it is always ready for use. It can be made for a few shillings.* The metallic part measures seven inches in height and five in diameter.

This is not the place to debate the comparative merits of direct and indirect transfusion. I consider the latter the preferable method. But, however done, the operation being one of the most salutary, and essentially "conservative" in surgery, it is not evident why it is so rarely resorted to. It need not be dreaded on the ground of difficulty, for it is much easier of performance than drawing a crooked-pronged molar tooth. Like most operations of capital importance, it is one requiring careful attention to minute details; but it is one which, with a simple apparatus such as the one described, can be done by anyone. I feel satisfied, too, that were the performance of transfusion not looked on as a terrible affair, and usually put off until the patient is beyond salvation, it would be found to be attended with much less real risk than is commonly supposed. One of the greatest difficulties usually is to get a person to give the blood. People have become very selfish, and have outgrown the belief in "bleeding" even more than medical men. It is painful to hear the excuses offered when the proposal is made to try to save a life at the sacrifice of a little blood; even the closest of kin begin then to feel they "are not very strong". A man recently told me he would gladly supply the blood, only he had a bad cold! Some years ago, I had to give half a pint of my own blood to transfuse into a poor woman, whose husband, after agreeing to give his own blood, became frightened at the last moment. Though a little weakened for a few days, I have felt no subsequent ill effects.

SIX CARDIAC AND VASCULAR CASES: WITH REMARKS AND ENGRAVINGS.

By EDWIN RICKARDS, M.A., M.D.,
Physician to the General Hospital, Birmingham.

CASE IV. *Aneurysm of the Aorta, projecting into the Pulmonary Artery and Right Ventricle.*—George F., aged 38, a military engineer, was admitted into the General Hospital on December 20th, 1878. His history told of intemperance and syphilis. He said, that, for ten months, he had suffered from shortness of breath, and a dull aching pain in his chest; he placed his hand over the middle of his sternum to show the locality of the pain. His dyspnoea, which, though persistent, was variable, prevented his sleeping—inspiration especially was difficult. His respirations were thirty per minute; the vesicular murmur over both lungs was the same; it was very weak, and unaccompanied by any adventitious sounds. He had an occasional dry cough. His lips, ears, hands, and feet were livid. His jugular veins were distended, and, when emptied, slowly filled from below. The cardiac dulness extended up to the second rib and to two inches to the right of the sternum. The apex-beat was diffused, and was felt one inch below the nipple, in the vertical nipple-line. The impulse was feeble; no thrill was anywhere to be felt. The first sound of the heart was of a ringing character; the second sound was subdued, almost to suppression. Synchronous

* The nozzle in use is the same as that employed by my esteemed friend and former teacher Dr. R. M'Donnell, F.R.S., of Dublin, to whom I am indebted for more than a knowledge of this useful article. Dr. M'Donnell has described his apparatus and some cases in the *Dublin Quarterly Journal of Medical Science*, November 1870.

with the first sound was heard, over a wide area, a loud coarse murmur, which was audible in the carotid arteries, in the left axilla, and over the back, and which seemed to have its maximum intensity over the sternum, between the third costal cartilages. Midway between the left nipple and the sternum was heard a short high-pitched, local, invariable diastolic murmur. The radial pulses were equal, regular, rather small, of low tension, 88 per minute. The pupils of the eyes were equal. He had no difficulty in swallowing, though he took little from want of appetite. There was no tracheal, bronchial, or laryngeal stridor. For a week the treatment consisted of rest in bed, a dry diet, a mixture of iodide of potassium, and a nightly hypnotic. On December 27th, not being relieved, he commenced a course of digitalis, seven drops of the tincture every four hours. On December 31st, his dyspnoea and lividity were increased; he complained of more pain in the cardiac region; and said he could feel a something inside his chest, which, if not taken out, would suffocate him. His legs and trunk had become oedematous. His arterial pulse was noticed by several observers to have fallen from 88 beats per minute to 44, without any other alteration of its previous character. On examining the heart, it was found to beat at the rate of 88 per minute, and regularly, but differently from its previous manner of beating—two beats in rapid succession were followed by a long pause; the two impulses could be seen and felt; the two sounds of the heart and the two murmurs were heard with each beat; the pulse in the radial and carotid arteries was with, or rather immediately after, the first of the two beats of the heart. This condition persisted from December 31st to January 4th (during which time stimulants were substituted for digitalis). At the latter date, the arterial pulse again numbered 88 per minute—the cardiac pulsations remaining the same in number (88 per minute); but the intervals between the beats were isochronous, and remained so, with temporary reversions (when his pulse also fell) until his death, on January 7th. Three days prior to that event, he had frequent and severe attacks of dyspnoea, threatening asphyxia, and in one of these he died. While in the hospital, his urine averaged twenty ounces in twenty-four hours; it was acid, of specific gravity 1030, and contained neither sugar nor albumen. His temperature varied between 96° and 98° Fahr.

Post Mortem Examination.—The legs and trunk were anasaricous; the extremities livid. The serous cavities contained fluid in considerable quantities. All the organs were congested. The heart was much enlarged, chiefly from hypertrophy and dilatation of its right chambers. The left ventricle was slightly hypertrophied and dilated; it weighed twenty ounces; its muscle was pale, and, by the microscope, was seen to have undergone fatty degeneration. The auriculo-ventricular and aortic valves were sound; a quarter of an inch above the anterior aortic segment there was an opening of an aneurysm; this opening was an inch in diameter, soft and smooth. The aneurysm was of the size of a chestnut, and was half-filled with laminated fibrin; it projected into the pulmonary artery and right ventricle, almost occluding the former. The segments of the pulmonary valve presented no morbid change, except that one of them was entirely adherent to, and incorporated with, the aneurysm. The pulmonary artery, opposite and behind the

aneurysm, was much dilated; the thinnest part of the sac of the aneurysm was opposite its mouth. There were patches of recent atheroma in the aorta; one had broken down, and was beginning to cause another aneurysm. In the engraving, A is the aorta; P the pulmonary artery; C the mouth of the aneurysm; D an atheromatous patch, with central softening.

REMARKS.—I have failed to find on record a case similar to the foregoing one, where an aortic aneurysm projected into the pulmonary artery and right ventricle, without communicating with either, and where the pressure-effects of the aneurysm were confined to the pulmonary artery and right ventricle. It has fallen to my lot to witness one other such case; in it the aortic valve was diseased and incompetent; it was first seen a few hours before death, and was diagnosed as double aortic disease, from the presence of a double basic murmur, with hypertrophy of the left ventricle and an aortic pulse; it was observed at the time that the pain at the base of the heart, the difficulty of breathing, and the lividity, were abnormally great, even for the ending of a case of double aortic disease. It would be unscientific to draw conclusions, or to attempt to formulate the attendant symptoms of such cases, from two instances, which differed in the important particular of the state of the aortic valve. The differential diagnosis between such cases and cases of small aortic aneurysms otherwise situated, varicose aneurysms of the aorta, and aortic valve disease, especially has to be made. In the case recorded, and in the one referred to, there were certain common features—such as great præcordial pain, dyspnoea, a sensation of impending suffocation, a double murmur, the absence of pressure-signs other than that of the pulmonary artery, and the absence of præcordial thrill so characteristic of varicose aneurysm. When the aortic valve is unaffected, as in the case recorded, the absence of hypertrophy of the left ventricle and the absence of the aortic pulse would negative disease of the aortic valve. In the case of F., the second sound of the heart was observed to be very feeble—a condition explained by the imperfect action of the pulmonary valve. Dr. Hope pointed out that weakness of the second sound was a sign of aortic aneurysm communicating with the pulmonary artery, and that its extinction showed that both sets of semilunar valves were affected. As to the mechanism of the two murmurs, both may have been due to blood entering and leaving the aneurysm. I am inclined to think that the systolic murmur was aneurysmal; the diastolic murmur due to pulmonary regurgitation. The want of harmony between the arterial and cardiac pulsations was a phenomenon—one not pathognomic of any special lesion. I have noticed it once before in a case of mitral stenosis. Probably the left ventricle did not contain sufficient blood for the second ventricular contraction to produce an appreciable pulse in the arteries. Of the sphygmographic tracings, A is the tracing during the phenomenon; B the tracing when it was not present. Dr.

Hayden (*opus cit.*) has observed the same condition in a convalescent from enteric fever, where it disappeared quickly under digitalis; in F., it set in while he was taking digitalis, and disappeared under stimulants. The aneurysm probably began ten months before his admission; and, had he lived longer, it would probably, by bursting into the pulmonary artery, have formed a varicose aneurysm, similar to the one of which Dr. Hope gives an engraving (case Mitchell). In F.'s case, and in the other case to which I referred, the aneurysm was of the size of a chestnut, and situated just above the anterior aortic segment. Dr. Thurnam has pointed out that, in aneurysms of the aortic sinuses, the anterior sinus is most liable to be affected.

CASE V. Pulmonary Aneurysm.—Michael J., aged 32, was admitted into the hospital on March 15th, 1879. He was said to have coughed up about a pint of blood that morning. By the time he reached the hospital the hæmorrhage had ceased. He had chronic phthisis, probably of two and a half years' duration. On March 17th, he had another attack of hæmoptysis, and again on the 19th, when he died asphyxiated. On each occasion, blood poured out of his mouth and nose for many minutes. Between the attacks, his phthisical sputa were not streaked with blood, but among them were distinct pellets of coagulated blood.

In the engraving of part of the left lung, probe A is passed through

a branch of the pulmonary artery into the aneurysm; probe B into the phthysical cavity into which the aneurysm had burst.

Post Mortem Examination.—In the apex of the left lung was a cavity of the size of a hen's egg; near the root of the same lung was an aneurysm of the size of a walnut, communicating with a branch of the pulmonary artery, the sixth division of that vessel; it contained blood. Its sac had a smooth interior, and its wall, which was a quarter of a line thick, was separable from the surrounding tissue. It projected into, and nearly filled, a phthysical cavity, into which it had ruptured, and which also contained blood. The mouth of the aneurysm, which was smooth, was a quarter of a line in diameter. Both lungs were studded with caseous masses of lobular pneumonia, most of which were encapsuled by condensed tissue; many had undergone softening, and in some the broken-down material had been removed and cavities left. The trachea and bronchial tubes contained blood. The heart, aorta, and abdominal viscera were sound.

REMARKS.—Pulmonary aneurysm occurs chiefly in chronic phthisis, arising from chronic catarrhal lobular pneumonia, or scrofulous pneumonia, where the lungs are the seat of cheesy masses. It is, I believe, most frequently found towards the root of the lung. Its mechanism of production is uncertain; it may be due to ulceration of the vessel, or, more probably, to loss of support of the vessel from softening, and removal of the caseous matter around it. In F.'s case, in the centre of each cheesy mass were seen by the naked eye an arteriole and a bronchiole; and, where the central part of these caseous masses had broken down and been removed, the vessels in the centre were seen to be unsupported. Blood had found its way into the trachea from the phthysical cavity, into which the aneurysm had burst, by means of a bronchial tube, which communicated between the cavity and the trachea. Hæmoptysis in such cases is usually sudden, profuse, and repeated at short intervals. It is a question whether, in the case recorded, the aneurysm was the source of blood in each attack of hæmoptysis. No other aneurysm, nor evidence of previous hæmorrhage, being found elsewhere in the lungs, it is reasonable to suppose that the bronchial tube, leading from the cavity into which the aneurysm had burst, had been temporarily plugged; and that the plug had been removed at each attack of hæmoptysis. Pulmonary aneurysm may occur at any age; it is a common cause of fatal hæmorrhage from the lungs. Dr. Reginald Thompson states, that of 383 deaths in the Brompton Hospital in three years, 26 were due to hæmoptysis, in 12 of which pulmonary aneurysm was the cause. I am indebted to Dr. Malet (house-physician) for notes of the above case.

M. GAUTHIER has given notice to the Academy of Medicine that he has discovered that concentrated human saliva contains venoms analogous to those found in the cadaveric alkaloids, and that he intends shortly to read a detailed paper on the subject.

ON TWO CASES OF RAPIDLY DEVELOPED UNILATERAL ATAXY.

By DAVID DRUMMOND, M.A., M.D.,

Physician to the Infirmary, and to the Hospital for Sick Children, Newcastle-on-Tyne.

IN the BRITISH MEDICAL JOURNAL of April 2nd, 1881 (page 508), appeared the record of four cases which I published as examples of posterior sclerosis unattended by ataxy of locomotion. Since that date, two other cases of the same description have been under my care—both in women advanced in life, and both presenting, in a marked way, every common symptom of disease of the posterior columns, with the exception of motor inco-ordination.

I now desire to call attention to two cases of ataxy of one side, due to brain-affection. The subject of one case is an adult male, and the other occurred in the person of a little girl aged three and a half years.

CASE I.—George H., a joiner, aged 32, was admitted into the Newcastle Infirmary for what was supposed to be an attack of left-sided hemiplegia. The history of the illness is as follows. Four days before admission into hospital, on the completion of his day's work, he went with some friends to a public-house, where he drank some beer (was not drunk), and played at dominos. He suddenly discovered, whilst playing the game, that he was unable to control the movements of the left hand and arm. His hand, in attempting to perform the moves, swept the tablets off the table. Immediately afterwards he felt sick, and went down stairs, when he vomited. He then returned to the room where his friends were (upstairs), and attempted once more to play; however, he found himself utterly unable to direct his arm and hand. He then got up to walk, intending to go home; but now his left leg failed him, it "jumped about"; in consequence, his companions assisted him to walk home, when it was observed that the left foot was raised at each step high above the ground. He never lost consciousness, and constantly reiterated the assertion, that he had "good power, but no guidance". On the night of the attack, it was noticed that his face was somewhat twisted, and that his speech was *thick*—"could not make my words plain" (anarthria).

My friend Dr. Angus, who saw the patient shortly after the seizure, was much struck with the condition of the limbs—viz., marked inco-ordination without any paralysis.

On admission into hospital, the condition was noted to be as follows. He was very emotional—the slightest allusion to his illness caused him to weep. He could stand, though with difficulty; was inclined to fall to the left side. This difficulty was not increased on closing the eyes. When he walked, which he did with a stick, the left foot was raised much higher than needful above the floor, and brought down forcibly on the heel; in fact, the gait was (so far as the left leg was concerned) characteristically ataxic. There was no loss of power in the leg; this was especially noticeable as the patient lay in his bed. The left arm was also ataxic, while there was no loss of power; he was unable to touch his nose (a prescribed portion of the face) with the forefinger of the left hand when the eyes were closed. Further, he was unable to button, or to perform other actions requiring delicately co-ordinated movements. The muscular sense was unimpaired—he could tell accurately the position of his affected limbs with his eyes closed. There was a complete absence of cutaneous sensory impairment. The knee-phenomenon was markedly exaggerated on the left side, though also increased on the right. The discs were normal. The facial paralysis had completely passed off. His speech was *thick*.

CASE II.—Jessie C., aged 3½, was admitted into the Children's Hospital for so-called weakness of the left arm and leg. Her mother observed, five weeks before her admission, that she could not feed herself with the left hand—"the hand was jerked about". On the following day, it was noticed that the left leg was "jerked upwards" in walking. The condition soon after became aggravated, so that the child was utterly unable to walk on account of the jerking.

When admitted, the ataxy of the limbs of the left side was at once remarked. The child walked across the floor with tolerable ease; at every step the left knee and leg were jerked upwards, and the foot then violently thrust to the ground again. There was some jerking tremor in performing this movement, in which the entire limb shared. The inco-ordination of the left arm was also very noticeable; the same jerking tremor affected it as well. When told to grasp an object held out to her, the child made several jerking attempts to seize it, but, when at length she succeeded, she held it with considerable vigour. She experienced no difficulty in standing in the ataxic position, having the eyes closed. There was no anæsthesia. The discs were normal. The knee-phenomenon on the left side was distinctly increased. There