

THE DIRECT TRANSFUSION OF BLOOD.

Among the various methods of transfusing blood that have been employed, the most commendable appear to be those of Dr. Oré, of Bordeaux, and Dr. Roussel, of Geneva. The process of the latter has recently occasioned a remarkable cure which has attracted much attention from the medical world, and we are therefore glad to make it known to our readers. Facts, as we know, speak for themselves, so we will give these in a succinct manner. Mrs. M., aged 31 years, had had five living children and two miscarriages. In December, 1881, after six months of gestation, she gave birth to two children—one of them was stillborn and the other lived for a few hours only. The patient in spite of all care gradually became feeble from week to week. She was attended by her physician, Dr. Chauvin, and by Drs. Brochin and Pean. On the 31st of January she went from bad to worse; and, on the 1st of February, there was little hope for her. Anorexia, vomitings, insomnia, inertia, diarrhoea, anemic hectic fever, cadaverous face, and approaching dissolution; such were her symptoms. Drs. Pean and Brochin then suggested transfusion as a last resource. This was performed by Dr. Roussel, who describes the remarkable operation as follows: on the 5th of February, Dr. Brochain came to the Grand Hotel to ask my concurrence. I found the patient inert, scarcely conscious, without heat, without respiration, as pale as a corpse, veins invisible, and pulse filiform at 140.

The heart and lungs appeared to me to be healthy, and I consented to operate, February 7th, 4 o'clock P. M. The patient is in the state above described; to-day she has had diarrhoea nineteen times; her pulse is filiform, tremulous, and 150. The sister and husband of the patient offer me their arms; but, after an examination, I prefer to make a choice elsewhere. There is made known to me a business man of the street who employs many strong workmen. Mr. Z. at once comprehends the importance of my request and causes his men to call, and to them I explain that it is a question of saving a mother of a family by giving her a little blood taken from the arm of one of them by a single puncture which I affirm will be harmless. Several consent. I select a young man of about thirty years of age, healthy and robust, named Adrien Renaud. We go up to the patient's room, where are present Drs. Brochin and Chauvin and the husband, sister, and other relatives. The transfuser is washed in warm water to which has been added a little soda. I uncover the breast of the patient, and stretch her arm along the edge of the bed. I seat R, and place his arm parallel with that of the patient, and surround it with a bandage so as to cause his veins to swell. After having carefully sought and noted with ink the course of the humeral artery at the bend of the elbow, I mark a point of ink at two centimeters beyond the course of the artery, on the median vein, which appears to be prominent and well swollen with blood. Resting the initial cylinder of the transfuser in such a way that it figures the circumference of this central point, I cause the annular cupping apparatus to adhere by a pressure on its bulb.

Then, turning to the patient, I find that her veins are so bloodless as to be invisible. I succeed in discovering them by placing a bandage on her arm. I raise a fold of the skin transverse to the median vein, and cutting it with the bistoury, find that the vein is bluish and very narrow. I prick it with a fine erine, and then, removing the bandage from the arm, confide to Dr. Brochin the care of cutting a small piece from the vein with the point of a fine scissors and of introducing the canula into the narrow vessel. A few drops of very pale, thin, and incoagulable blood run out.

During this time I have dipped the bell of the aspirating tube of the instrument into a vessel of water heated to about 40 degrees. By working the bulb, this water fills the entire transfuser, heats it and expels the air that it contains. It was after all the air was expelled by the water that Dr. Brochin introduced the canula into the patient's vein.

The patient is now in such a state of inertia and anemic anaesthesia that she makes not even the slightest movement, either during the incision of the skin or during the preparation of the vein.

Our two subjects are now united by an uninterrupted channel full of water and free of air. A sharp tap on the head of the lancet opens Renaud's vein, and his blood soon makes its appearance at the orifice of the tubes, after having driven the water before it. The water section tube as well as the expulsion tube are closed, and a direct current of blood is set up. Slowly, never removing my eyes from the patient, I press the pump

bulb, and force the blood easily into the vein in quantities of 10 grammes each time. At the tenth contraction of the bulb the patient breathes more deeply and quickly. When questioned she answers that she feels no discomfort, but experiences a heat rising from her arm into her breast.

Dr. Brochin easily ascertains under his finger that the blood is distending the rubber tube and the vein at each pressure; and, moreover, we all perceive the vein becoming more apparent and turgid as far as the arm pit.

At the seventeenth injection of ten grammes, perceiving a resistance in the bulb and a slight agitation in the patient, I stop transfusing, after 170 grammes of Renaud's blood have passed into the patient's veins.

The preparations for the operation were somewhat prolonged by the absolute lack of comfort and room in the apartment. It was difficult to light the latter well, and Dr. Chauvin was good enough to hold a lamp so as to light alternately each subject. The operation itself lasted five minutes.

Renaud's arm was dressed with a simple bandage, and he returned to his work very much pleased with the service that he had rendered.

February 8th.—The patient has slept, although she has awakened several times. During the day she has eaten six times. She has spoken aloud, and has not felt the least pain.

February 9th.—The patient has slept well the entire night, and for the first time in six months.

Feb. 10th and 11th.—State of convalescence assured.

February 12th and 13th.—Madame M. is sitting up, and is certainly cured. Hereafter she can dispense with my care.

Such is the interesting case that we have desired to make known. It now remains to say a few words in regard to the instrument employed by Dr. Roussel—his transfuser.

The apparatus consists of a soft, elastic, warm, and moist tube, after the style of the blood vessels, designed to be placed between the vein that yields the blood and that which receives it. This tube carries a suction and force pump, which gives impulsion to the venous blood, while measuring the quantity and velocity of the same. Two bifurcations, one at the beginning, and the other at the end of the tube, allow of the entrance and exist of a current of warm water so as to drive out the internal air and heat the instrument without the water itself being forced into the patient's circulation.

The above description which is taken from *La Nature*, seems to indicate a method of transferring blood which is likely to be generally adopted, as it avoids the many difficulties which have hitherto accompanied the operation of removing blood from one person in order to inject it into the veins of a second.

GENTILI'S GLOSSOGRAPH—AN AUTOMATIC SHORT-HAND APPARATUS.

Amadeo Gentili, C.E., brought before the public a short time ago an invention with which he has been occupied for a number of years. The purpose of this apparatus is to record speech automatically, in easily deciphered characters, with the rapidity of the normal flow of speech. The inventor did not proceed with his studies as the inventors of the telephone and phonograph, upon the principle of acoustics, because he could not succeed in making practical use of the microscopical characters thus obtained; but he converts the motions of articulation of the organs of speech into visible permanent characters.

An easily managed instrument, shown in Fig. 1, is provided with delicate levers which rest upon the different parts of the tongue and lips, and slender wings swing before the nostrils. The levers of this instrument may be taken in to the mouth without any inconvenience.

On speaking, these levers and the wings move, and their motions are transferred partly in a mechanical way and partly by electricity by a writing pencil, which is moved forward by hand or clockwork. Upon the utterance of the vowels and consonants, moving one or more parts of the organ of speech more or less strongly, or upon the air being exhaled through the nose, the signs corresponding to the sounds uttered are recorded and may be read at once. For example in uttering ch, r, g, the back part of the tongue is raised, with s, h, l, the tip of the tongue; and with e, i, the whole tongue is moved; with s, l, the tongue is pushed forward against the teeth; with o, u, the under lip, and with f, b, the upper lip is moved; and with n, m, the soft palate is depressed in such a manner that the air which otherwise would issue from the mouth finds its way