

she may lose exactly the same quantity of blood in five minutes, causing her death upon the table. Although the physiologist may tell us that she has died from shock, she has really died from hemorrhage. With the same loss of blood the patient's life may be lost or not according to how long a time the hemorrhage is spread over; in the former case she is losing only nine and a half drops in five minutes, a quantity which she can easily replace, while during the operation the whole three quarts may be lost so quickly that the arterial pressure falls so low that no blood is forced into the coronary arteries, and the heart muscle stops for want of food. This is why the heart will not beat when there is only a small quantity of very rich blood in the arterial system; and why it will beat indefinitely if the arteries be full of the very poorest quality of watery blood. Teachers of physiology do not perhaps lay sufficient stress upon this fact when teaching the functions of the heart; if they did there would probably be fewer deaths from what is often called shock. Many patients go on the operating table with almost empty coronary arteries, who might have them filled beforehand by the means already mentioned; while other patients who die during the operation, or soon afterward from empty coronary arteries, might be saved by filling the abdomen or even injecting the veins with normal warm salt solution. It is of great importance in abdominal operations that the intestines be thoroughly emptied in order that they may be out of our road while operating, and also that it may not be necessary, owing to their distension, to turn them out of their natural cavity; but in emptying the intestines with cathartics, especially with saline solutions of greater density than the blood, we must take care at the same time not to empty the coronary arteries of the heart. I have dwelt at some length upon the circulatory changes which lead to so-called shock because I believe that there is in certain quarters too great a tendency to attribute most of the ills that flesh is heir to to disorders of the nervous system. With but few exceptions the nerves are never any better than what their blood supply makes them; and so the beautiful ganglia of the heart and the still more wonderful structure of the brain are absolutely useless without a constant supply of blood. There is another cause of shock