

Original Communications.

Surgical Shock. By WILLIAM FULLER, M.D.,
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GENTLEMEN,—Surgical shock is a condition which appears to be very imperfectly understood; consequently, its treatment is wholly empirical and not based upon any scientific knowledge or theory. In the works on surgery the symptoms have no physiological arrangement, and the treatment is directed toward stimulating the circulation, generally by alcohol, with certain cautions against producing a too sudden or intense reaction.

In the study of shock we must go back to the moment of accident and take into consideration the subjective symptoms which take place previous to the arrival of the surgeon. I find upon enquiry that there is a sequence of sensations experienced by the patients, which is nearly the same in all cases, modified by the nature and violence of the accident and the nervous susceptibility of the person.

As an illustration of these sensations and the order in which they occur, I will give a few cases described in the patients' own words. In a comparison of the description of their feelings and their sequence given me on paper, I was struck with the close resemblance and the surprising distinctness with which they were fixed on the memory at a time when excitement and physical depression would seem to be an unfavorable moment to receive a lasting mental impression.

Case 1.—A robust youth, aet. 19 years, injured in the hand by a circular saw, describes his sensations as follows: "I felt at first when the saw struck my hand a dull thud pass over my whole body, and a sound in my ears as if a bass drum was struck close to my head. There was no pain, and I did not know that I was caught until I saw the blood. In a couple of minutes I felt a tingling feeling, something like a sleepy foot, all over me as if the blood was rushing very fast through my veins. I then felt very warm, and broke out in a sweat, got weak, had a buzzing in my ears, felt sick at the stomach, and was chilly for a few hours, when I got

warm. I was also sleepy while I was cold, and sick at the stomach."

Case 2.—A shunter, of good constitution, aged 32 years, had his ankle and foot crushed by a wheel, says: "As the wheel passed over my foot I felt no pain, but a feeling all over me as if I was pressed down by a heavy weight. Immediately after I was released I experienced a burning sensation in the injured part as if it were too close to the fire. This feeling ran up my leg and spread over my whole body, when I felt too warm. This lasted, I think, from three to five minutes, when a very acute pain set in with a chill, and I broke out in a perspiration all over. I think there was a sound in my ears like running water, and at the same time a desire to vomit and a general weakness. I also had a difficulty of breathing, and wanted air and water. I did not feel the burning sensation after the chill. This is all I remember until after the amputation of my leg."

Case 3.—S. H., driver, healthy, aged 40 years, was badly scalded on the legs and arms by hot water and steam issuing from a boiler, describes his feelings as follows: "The steam caused a prickling on my limbs like needles. I next felt a numbness in my bones and body, had no other feeling for fifteen or twenty minutes while I was walking about. I went into a car and sat down. Did not know that I was burned except in the hands. My heart then began to jump violently, and I felt very warm for about half an hour. After that I was very cold, and took a great pain in the stomach and then in the back, and had cramps in the stomach and limbs. About four hours after the accident I got a glass of brandy, which had no more effect on me than water. I was very cold all this time and my belly swelled. The pain came in my back about two hours after I was scalded and lasted several days. I was insensible, slept, and remember very little of what passed for a couple of days. The doctor gave me a powder when I got home, which I think warmed me a little.

I have made enquiry into several cases in order to elicit the early symptoms of shock, and have found the sensations and the order of their occurrence to closely correspond to the above illustrations which I have chosen, as they were the most intelligently given, and also as representing three kinds of accident, viz.: sudden injury, an injury by a crush done slowly and by