

## Annotations.

## SOLDIERS' COMFORTS IN WAR.

Captain E. D. Swinton, of the Royal Engineers, read a paper at the Royal United Service Institution on "The Comfort of Troops on Active Service." Captain Swinton spoke of the extreme importance of the adoption of hygienic rules among soldiers on active service, and gave a table of comparative losses by death from disease and casualties, which showed that a far larger number of men lost their lives in a campaign through disease than through wounds. For one man killed or dying from wounds in the Crimea during six months, twenty-five died from disease. The number of deaths from disease in South Africa was three times greater than that of the deaths from casualties. The chief diseases in war are enteric and dysentery, and many of the cases could be prevented by attention to hygiene and sanitation, shelter, food, and morale. Captain Swinton proceeded to give some hints on details. He explained some methods of obtaining good water supplies on marches, and suggested that if there was a man in the force professing to be a water-diviner he should be allowed to practise his art. On forced marches, which the Germans called "death marches," it was better to have frequent short rests than one long rest. Flies were one of the causes of enteric, and every step should be taken to prevent these insects becoming too numerous. Bad food, and particularly badly-cooked food, caused a great deal of disease among troops in the time of war. He urged that soldiers should be given a rudimentary knowledge of cooking. Mental comfort was important in keeping up the efficiency of an army. All literature should be saved because it would be read until it fell to bits. Every facility should be given for the receipt of letters from home, and the men should be told the reason for any of the movements being made. In the course of the discussion, Colonel Davies said that men marched better if they were trained not to drink, or to drink as little as possible.

In regard to mortality from disease, we might well study the preventive methods in force in the Japanese army, for during the present war this clever people seem to have reduced the mortality from disease to almost the vanishing point, and, if statistics are to be believed, their ratio of recoveries from wounds is equally unprecedented.

## Medical Matters.

## OPSONINS.



What are opsonins? To explain is to go back to the time when the discovery of the tubercle bacillus by Koch led to the foundation of the science of Bacteriology. On the first discovery of microbes it was supposed that they were the actual cause of the diseases with which they are associated, but it was soon found that the cause of disease was not the microbes themselves, but the chemical bodies which they produced. It was the great Continental pathologist Metchnikoff who made the discovery that the white corpuscles of the blood are mainly occupied in swallowing up the microbes which are continually gaining access to the tissues of the body, a process to which he gave the name of phagocytosis. In most of the acute inflammations due to microbes the number of white cells is greatly increased, and this caused the belief that the body was endeavouring to protect itself by reinforcing its army of white corpuscles.

More recently an important advance has been made by the discovery of opsonins. The name is derived from a Greek word signifying tasty, and the extraordinary fact is that opsonins form a kind of appetising sauce which is spread over the microbes, and makes them tasty for the white corpuscles to swallow. Thus, supposing that a colony of tubercle bacilli gain access to a healthy body, what happens is that, first of all, they become coated with tubercle opsonins from the fluids of the blood, and then the white corpuscles come along and make a hearty meal. On the other hand, if the body is not healthy, and cannot provide the necessary opsonin, the white corpuscles will not touch the tubercle bacilli, which multiply and disease ensues. Of themselves the white corpuscles do not possess the initiative to touch the microbes, but must receive the necessary impetus from the opsonins.

It is believed that Nature has provided opsonins not only against the tubercle bacillus, but against every microbe by which the human body is liable to be attacked. The practical outcome of these interesting facts is that by the injection into a person of certain microbial products the amount of opsonins have been increased, and some apparently hopeless cases cured.

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