

common in the crowded barracks of India, a vitiated atmosphere conspiring with heat to bring on the affection by rendering the blood impure, as well as by raising its temperature. Clothing unsuited to the climate and season may be mentioned as another circumstance which favours the occurrence of sunstroke. Whatever retains the heat of the body or impedes the circulation of the blood must act injuriously upon men on the verge of a fatal temperature.

Another circumstance co-operating with heat is the want of acclimatisation. All observers agree that the accident occurs much more frequently with those who are not inured to the climate. The attack may come on suddenly, without warning; or, on the other hand, may afford ample warning. In some cases the first symptom has been a burst of laughter, or the starting up and struggling of the patient to escape from some imaginary danger. Often he falls insensible and unconscious when at work, having given no indication of distress; but more frequently it will be found that he has complained for hours, or it may be for days, of heat and dryness of his skin, embarrassed breathing, and a general sense of uneasiness or distress. The skin in all cases has ceased to perform its function. The surface is not only hot and dry, but rough and scaly. The lungs are oppressed, and exhalation from their surface is diminished. The temperature of the blood thus rises constantly, at the same time that the waste tissues render it impure, and the heat of the surface becomes intense. The treatment of sunstroke must vary with the various morbid conditions. In some cases nothing can be done. The patient is moribund from the beginning, and dies in a few minutes. In cases of syncope, if death is not instantaneous, the treatment is the same as for concussion of the brain. In a majority of cases the douche is the most promising remedy. The patient is to be kept as quiet as possible, and if under the use of the cold water his pulse sinks, the application must be discontinued.

If Dr. Yandell's views be correct it follows, that sunstroke ought to be prevented by taking care that the sources of supply of heat do not exceed the waste. It is accordingly laid down that exercise, which is a heating process, should if possible be moderate; clothing should be of the thinnest materials and loose, cold water should be drunk freely, as affording matter for cutaneous transpiration. It must be seen that the skin is moistened with perspiration. The moment a man at work in the hot sun ceases to sweat he is in danger of sunstroke, and should at once quit work and supply the deficient moisture of his skin with water. This is indispensable to the reduction of the accumulated heat of his body. Water is the resource when the body is subjected to an inordinate temperature. After too long a draught upon the system perspiration fails, and nothing will then avert sunstroke but the timely use of water to the surface. A man working long in a hot sun, or labour or sleep in a heated room with impunity, provided he keeps his skin and clothing wet with water. Can it be doubted that in all the cases where men have dry, harsh, hot skins for hours together, and with it a sense of oppression and anxiety, the impending danger might be

turned away by these cooling measures? These principles are equally applicable to the management of horses in hot weather.

Dr. D. T. Smith remarked that the statement that very high temperature is necessary to the production of sunstroke is undoubtedly true; but also that this high temperature must be continued a long time, which had not been mentioned. Excessive heat for a short time will not produce it. The nervous exhaustion attending the attacks is shown by the cessation of perspiration and the contraction of the pupils. Some cases supposed to be sunstroke lack this symptom, and are thereby known to be spurious. Among the prodromic symptoms is frequency of micturition. One feature in the cold water treatment is worthy of notice: if the pulse becomes weaker while it is applied, it should not be persevered in.

Dr. Hornor stated that he used to spend the summer in the country in Pennsylvania, where he frequently assisted in the rye-harvest, which is in July, the hottest time of the year. In this all the circumstances seemed to combine which usually produce sunstroke—great heat long continued, obstruction of the air by the tall rye, no shade, but the direct rays of the sun beating down on their heads; and yet they enjoyed perfect immunity from sunstroke, never having a single case among thirty or forty reapers. He attributed this to the fact that at each end of the field, and sometimes in the middle, they had an abundance of water, frequently iced, of which they drank copiously every time they came within reach of it, and also washed their hands and faces. He regarded the free use of water, externally and internally, an excellent prophylactic.

Dr. Milhoe stated that he had been stationed for some time on the Colorado River, where the mean temperature in the shade was 105 degrees, but frequently rose to 112, 114, and even 120 degrees. He corroborated Dr. Yandell's statement as to the necessity of loose clothing and the free use of cold water. The soldiers usually wore straw hats, with a hole in the top, and filled the crown with leaves or wet sponge. They wore flannel shirts, in order not to check perspiration. When cut off from water sunstroke was frequent among them. They drank enormous quantities, often two or three gallons a day. Having no springs, they were obliged to use river water, which was very warm. Their method of cooling it was to keep wet blankets around the vessels containing it, by which means they could reduce the temperature of the water to about 80 degrees, which tasted cool to them in their heated atmosphere. They also took the *cup-bath*, which consisted in pouring cupfuls of water over their heads and letting it run down their bodies. In order to sleep comfortably, they would wet the ground and lay mats over it. The evaporation from this kept them cool while sleeping on the mats. By the employment of these means sunstroke was rare among them. He used to regard sunstroke as congestion of the brain, but he had seen cases in which the surface was cold and the pupils contracted. In such cases the stimulating treatment was employed.