SUNSTROKE—A HERESY.

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It would be a fine achievement for the Military Medical Services to clear up this ill-defined and much bemuddled subject. Our watchword, "Prevention," demands we should know more about it than we do, for so much of our life and campaigning is in the tropics. The medical officer is constantly being called upon to express an opinion on the effects of heat on human beings, and my personal opinion is that many of the opinions and recommendations are founded on misconception and are valueless.

My own efforts in clearing up this subject consist in making these few remarks and hoping that somebody else will work out the facts. Not a satisfactory attitude, I admit, but if these remarks will move some more gifted or energetic person to take up the subject then the arm-chair critic will not have criticized altogether in vain.

To plunge into the heresy straight away. Is there such a thing as sunstroke? If so, how does it differ from heatstroke? This is the question I ask after nearly twenty years of tropical service that includes much of Northern India and part of the Eastern Sudan. A heresy indeed!

My own views were greatly strengthened by reading the account of the American experiments in the Philippines, on the action of the rays of the sun on monkeys under varying conditions. Also by the invaluable experimental work of the Royal Army Medical Corps at Aldershot, on the production and loss of heat by men when marching. Both these appeared in the Corps Journal and should be carefully read by anybody who proposes to confound the heretic.

In the broadest terms disability due to the sun has been attributed to (1) the actinic rays, (2) the heat rays, and (3) a microorganism.

The last view appears in various text-books and I confess puzzles me. Nobody in my personal acquaintance has maintained it.

The actinic rays have carried a heavy burden of sin. No proof of their guilt has yet been produced. In the Himalayan hill stations of 7,000 ft. the air is about three-quarters the density in the plains and contains less dust. The actinic rays at such a hill station are, I believe, as powerful if not more powerful than in the plains. These statements are founded on general report and
are open to correction. Compare the incidence of "sunstroke" at two places like Murree and Multan. Here is matter for thought. Next the heat rays. Again, I believe that a black bulb thermometer in vacuo reads as high at a Himalayan hill station as in the plains, and for the same physical reasons. Again, compare the incidence of "sunstroke" in the hills and in the plains. More matter for thought.

Statistics will afford but little help in the differential diagnosis between sunstroke and heatstroke. If the victim was bowled over in the sun the case is sunstroke, if he was in the shade it is heatstroke, the symptoms being identical in both cases. Nothing easier. History too does not help much. The introduction of topis in India took place at a time of sanitary awakening, when alterations and improvements were made in the whole dress, equipment and housing of Europeans.

It is hard, therefore, to attribute to each alteration its exact share in the improvement in health that followed.

To sum up my heresy: (1) There is no such thing as sunstroke, all cases of this kind are heatstroke; (2) heatstroke in the vast majority of cases is due to non-radiation of the heat from the body. This, again, is due to:

(a) Deficient evaporation from the skin.
(b) Deficient supply of cool air to the skin.

Of these the former is the more important, and so finally we find our enemy is not the sun but the wet bulb. This I humbly suggest is the foundation of the whole matter—the relative humidity of the air. Here again the invaluable experiments at Aldershot give food for thought.

(3) Heatstroke can also be precipitated by the heat rays of the sun adding the few fatal degrees to the body surface. In hot and damp climates where evaporation and radiation from the skin barely suffice to keep the body temperature below the dangerous point the heat rays of the sun are probably the deciding and precipitating factor.

Much could be learnt during one hot weather in India by simultaneous observations at a Himalayan hill station, a hot, dry plains station and a hot damp plains station. The observations should include actinic power of sun’s rays, heat of sun’s rays (black bulb thermometer in vacuo), dry and wet bulb thermometers, incidence of cases of sunstroke and heatstroke.

The following examples show the looseness of thinking on this important subject.
In the Indian Ocean under the deck boat of a steamer a medical officer was seen with a thick cloth cap crammed over his head like a poultice. He stated that this was to avoid sunstroke and was prompted by the death of a Seedee boy in the stokehold from heatstroke.

On the relief of Pekin—the heat and moisture being intolerable—every square inch of skin surface was crying aloud for cool air and evaporation. Need I say that several British officers had about eighteen invaluable square inches covered with a horrible tea-cosey thing called a spinal pad? And on medical recommendation too.

A case occurred in a person who had not been exposed to the sun, and was reported as "sunstroke" by the responsible medical officer. A somewhat acrid correspondence at last elicited the statement that the case was due to heat, the heat was due to the sun, ergo, the case was one of sunstroke.

In conclusion, I would repeat the statement made earlier, that this article does not profess to be authoritative, and that the writer will be well pleased if facts can be produced throwing light on the subject, even if his own views are demolished. At present the only advice given about the effects of heat is "Take care of the sun," and the only practical prescription for resisting tropical heat in all its forms is a topi.