

Surgeon the late Count Wolowitz, capable of reducing temperature, but only in a very unimportant degree, so that its power as an antiphlogistic is very slight, and such enormous doses must be taken, that harm can only come by any attempt at reduction of temperature from the use of alcohol. Dr. Ringer has made many observations on this point, and is convinced that little can be hoped for from alcohol as a means of diminishing the preternatural heat of fever patients. This much seems certain, however, that its anti-febrile influence is best expressed in the removal of conditions which induce paralysis of the brain and heart, and when the temperature of the body is high, as indicated by the thermometer; in this respect it approaches quinine in its action, but at the same time possesses in addition its well-known stimulating action on the central nervous system and upon the heart. Depression is generally associated with a high temperature of the blood, and passes off when it falls. But, in giving alcohol, it must be remembered that two circumstances may contra-indicate its use, namely—(1). *Its effects on the pulse.* (2). *Its influence on the tone and diameter of the vessels.*

"It increases the heart's beats as well as the strength of the contractions of the heart. If such effects are to be feared, of course alcohol is not proper to be employed, either in fevers or inflammation. Certain precautions must therefore be observed in the administration of alcohol, and its effects on the different functions carefully watched, to learn whether we obtain from the employment of alcohol good or harm: and although the pulse and heart afford the greatest and most reliable information on this point, yet the influence of the alcohol on the other organs must not be overlooked, as it may happen that while one system is benefited, others are injured, and with some good, the alcohol on the whole may do much harm (Ringer).

"The following rules regarding the use of alcoholic stimulants in fever were laid down by Dr. Armstrong, and they have been indorsed by many experienced physicians.

"During the administration of alcohol—

"1. If the tongue becomes more dry and baked, alcoholic stimulants generally do harm. If it becomes moist, they do good.

"2. If the pulse becomes quicker, they do harm. If it becomes lower, they do good.

"3. If the skin becomes hot and parched, they do harm. If it becomes more comfortably moist, they do good.

"4. If the breathing becomes more hurried, they do harm. If it becomes more and more tranquil, they do good.

"In judging also of the influence of alcohol on the pulse," says Professor Ringer, "its compressibility is of more importance than its volume. Under the action of alcohol, a soft and yielding pulse of large volume often becomes much less compressible and smaller, changes which show an increase in the tonicity of the arteries and in the strength of the heart. Other circumstances also afford information as to the employment of alcohol, namely—'At the two extremes of age, the powers of the body are easily

depressed; and hence, with such persons, stimulants are early called for, and must be freely used. In such, and especially the aged, it is of the greatest importance to anticipate prostration by the early employment of alcohol, as when once this occurs, the greatest difficulty is experienced in restoring the patient to his former state. Young children, when weak, take stimulants even in large quantities with benefit. And with the stimulant some easily digested food should always be given.

"*Sulphurous acid* has also been proposed as an agent for the reduction of the temperature by Dr. R. Bird, in *Indian Medical Gazette* for February, 1869. In drachm doses every two, three, or four hours according to intensity of febrile heat, a fall of temperature has followed its administration, continued over twenty-four hours. In remittent fever he considers it especially beneficial and in 'internal fever'—a native name.

"(2.) *To insure sufficient but not excessive exertion, and to promote elimination in fever*, is much more difficult than to reduce temperature; which, for obvious reasons, is not always judicious to attempt either by cold water, bloodletting, *digitalis*, or alcohol.

"The system ought to be supplied with an abundance of alkaline salts, if the urinary excretions are not eliminated.

"*Chloride of sodium, the alkaline salts of soda, and of potash* tend to aid the formation of urea and its elimination. Purgatives generally, and especially *salines*—i.e., salts of the alkaline and earthy metals—tend to insure a proper excretion, probably by removing from the blood some of the abnormal products formed in fever, and great relief may follow their intelligent use. When urea is retained, they promote its elimination, because it is known that urea sometimes passes off by the mucous membrane of the intestines.

"Dr. Armstrong strongly recommended purgatives to be freely administered to fever patients during the first few days of their illness, and before exhaustion had set in, so as to produce several evacuations in the day. By free purgation in scarlet fever the severe sore throat and swelling of the glands can be prevented, as well as many other of the disagreeable *sequelæ* of this disease, such as discharge from the nose and ears. I have found the following formula of great benefit as a purgative for this purpose:—

℞. *Magnesiae sulphatis* 3vj; solve in aquæ 3vij; adde pulv. *guaiaci*, 3iss.; pulv. gum *tragacanth.* co. gr. xi. *Misce bene.* One sixth part of this mixture given every four hours till the bowels are freely moved, gives great relief to the congested throat and swollen glands.

"But in some fevers, as in *typhus*, purgatives must be very cautiously and sparingly given, and always in mild doses. So also elimination by the skin, to the extent of *diaphoresis*, is to be dreaded in typhus fever; (see "Treatment of Typhus Fever).

"(3.) *Restorative agents.*—The most important indication, however, in the management of the febrile state is to find some substance which, being restora-