

speaks of another subsequent epidemic in which, with his son, he treated twenty-seven cases without alcohol—giving quinine sulphate with a compound infusion of orange peel only, with frequent supplies of mild nutriment night and day. The result was most successful. He says: "There is no doubt patients often recover in spite of the wine given; but, after long experience and observation, I am of opinion, that its administration in typhoid fever is always injurious in its operation, and often fatal in its effects, the patients dying from exhaustion." I hold that alcoholics are especially contra-indicated in fever, from their direct influence in impairing digestion and interfering with respiration and preventing the due oxygenation of the blood. Oxygen being the stimulant, *par excellence*, which the system needs in low forms of disease. So much so is this the case, that chlorate of potash, yielding six equiv of oxygen in its decomposition, is found to be one of the very best possible remedies in the low forms of typhus and typhoid. Alcohol, by its faculty of causing the retention of at least 30 per cent. more carbon than is usual in the blood, diminishes the vitality, or life-sustaining quality of the blood, and thereby adds so much the more to the peril of the case. On this subject, Dr. Vierordt, of Carlshure, says, as the result of experiments: "The mean number of expirations in a minute is fourteen; that number increases after meals. The amount of carbonic acid expired diminishes considerably after the ingestion of fermented liquors, and does not return to its natural quantity for the space of two hours."

Professor Lehman says, on this point: "We should forbid the use of spiritous drinks, and not prescribe tinctures, which might hinder the necessary excretion of carbonic acid." Dr. Lees says: "No doubt alcohol does hinder the excretion of foul air from the body, and retains effete, bad matter of various kinds; thus promoting, on the one hand, the production of diseases like rheumatism and gout, and, on the other, of bilious and typhoid fevers." All this goes to show that, under the administration of alcohol in fevers, the body is not properly ventilated, the blood not duly oxygenated, the digestive functions but tardily performed—all of them conditions operating in direct opposition to the patient's recovery. The proverbial predisposition of drinkers to erysipelas is another evidence of the truth of the position, that the blood is rendered excessively impure from retained effete matters, the morbid element being chiefly bile. For "it never occurs except when the whole mass of blood is surcharged with biliary elements, and the attempt of the system to get rid of it rapidly through the

skin is what constitutes the exanthem known as erysipelas," (Trall), which condition is induced by the use of alcoholics.

Dr. Ainstie, author of "Stimulants and Narcotics," 1865, is almost the only authority who still clings to the idea that, in some mysterious manner, alcohol *does* act as a food in low forms of disease. This he gathers from the patient's ability to live without anything else than spirits and water for a given time, which is merely due, in the opinion of competent physiologists, to a lessening of vital function, which is sustained in a less degree of action by the fats already stored up in the system. In fact the patient like *Bruin* in winter, lives upon his own tissues, and emaciation and debility is the result, followed, on partial revival of the digestive powers, by a voracious appetite. He considers alcohol an anæsthetic, and lays great stress upon its usefulness in the treatment of neuralgia, and, after advancing the idea of supporting the organism, in the absence of ordinary food, by stimulants, and considering that from small doses there is no recoil, but an improvement in the tone and frequency of the pulse, he goes on to speak of its sedative influence as that which is beneficial (?) in inflammatory affections, namely, the reduction of unduly frequent circulation, by the administration of wine and spirit; thus admitting, in one portion of his work, the sedative action of the drug, and in another, asserting that there is no recoil from its use in fevers. He says further "The classical illustration of the favourable *soporific* influence of alcohol (not its stimulating or tonic influence, as some would have us believe,) is to be found in its use in low fevers, such as typhus and typhoid. Given a certain rapidity of pulse, we may nearly always assure ourselves, in cases of these diseases, that the patient will be unable to obtain natural sleep, but, in place of this, will pass off into a state of coma or delirium. .... There is nothing which meets the exigency of this condition with an efficiency which at all approaches that of alcohol, administered in repeated non-narcotic doses," Where this effect is obtained it is due to its sedative or anæsthetic action upon the nerves.

After denying the correctness of the assertion that a depression, or recoil, always follows stimulation, in p. 79—by working out the problem of continuous stimulation in this way, that, after each dose the patient would have sunk lower than ever before. Ignoring the fact of the melting away or absorption of tissue to supply the place of food, and also the presence of food in the form of milk, broths, &c., as usually given, he goes on to say: "If stimulation means the calling forth, that is, the getting rid of a