

## ALCOHOL HAS NO FOOD VALUE.

Alcohol has no food value and is exceedingly limited in its action as a remedial agent. Dr. Henry Monroe says, "every kind of substance employed by man as food consists of sugar, starch, oil and glutinous matter mingled together in various proportions. These are designed for the support of the animal frame. The glutinous principles of food fibrine, albumen and casein are employed to build up the structure while the oil, starch and sugar are chiefly used to generate heat in the body".

Now it is clear that if alcohol is a food, it will be found to contain one or more of these substances. There must be in it either the nitrogenous elements found chiefly in meats, eggs, milk, vegetables and seeds, out of which animal tissue is built and waste repaired or the carbonaceous elements found in fat, starch and sugar, in the consumption of which heat and force are evolved.

"The distinctness of these groups of foods," says Dr. Hunt, "and their relations to the tissue-producing and heat-evolving capacities of man, are so definite and so confirmed by experiments on animals and by manifold tests of scientific, physiological and clinical experience, that no attempt to discard the classification has prevailed. To draw so straight a line of demarcation as to limit the one entirely to tissue or cell production and the other to heat and force production through ordinary combustion and to deny any power of interchangeability under special demands or amid defective supply of one variety is, indeed, untenable. This does not in the least invalidate the fact that we are able to use these as ascertained landmarks".

How these substances when taken into the body, are assimilated and how they generate force, are well known to the chemist and physiologist, who is able, in the light of well-ascertained laws, to determine whether alcohol does or does not possess a food value. For years, the ablest men in the medical profession have given this subject the most careful study, and have subjected alcohol to every known test and experiment, and the result is that it has been, by common consent, excluded from the class of tissue-building foods. "We have never," says Dr. Hunt, "seen but a single suggestion that it could so act, and this a promiscuous guess. One writer (Hammond) thinks it possible that it may 'somehow' enter into combination with the products of decay in tissues, and 'under certain circumstances might yield their nitrogen to the construction of new tissues.' No parallel in organic chemistry, nor any evidence in animal chemistry, can be found to surround this guess with the areola of a possible hypothesis".

Dr. Richardson says: "Alcohol contains no nitrogen; it has none of the qualities of structure-building foods; it is incapable of being transformed into any of

them; it is, therefore, not a food in any sense of its being a constructive agent in building up the body." Dr. W.B. Carpenter says: "Alcohol cannot supply anything which is essential to the true nutrition of the tissues." Dr. Liebig says: "Beer, wine, spirits, etc., furnish no element capable of entering into the composition of the blood, muscular fibre, or any part which is the seat of the principle of life." Dr. Hammond, in his Tribune Lectures, in which he advocates the use of alcohol in certain cases, says: "It is not demonstrable that alcohol undergoes conversion into tissue." Cameron, in his Manuel of Hygiene, says: "There is nothing in alcohol with which any part of the body can be nourished." Dr. E. Smith, F.R.S., says: "Alcohol is not a true food. It interferes with alimentation." Dr. T.K. Chambers says: "It is clear that we must cease to regard alcohol, as in any sense, a food".

"Not detecting in this substance," says Dr. Hunt, "any tissue-making ingredients, nor in its breaking up any combinations, such as we are able to trace in the cell foods, nor any evidence either in the experience of physiologists or the trials of alimentarians, it is not wonderful that in it we should find neither the expectancy nor the realization of constructive power."

Not finding in alcohol anything out of which the body can be built up or its waste supplied, it is next to be examined as to its heat-producing quality.

Production of heat.

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"The first usual test for a force-producing food," says Dr. Hunt, "and that to which other foods of that class respond, is the production of heat in the combination of oxygen therewith. This heat means vital force, and is, in no small degree, a measure of the comparative value of the so-called respiratory foods. If we examine the fats, the starches and the sugars, we can trace and estimate the processes by which they evolve heat and are changed into vital force, and can weigh the capacities of different foods. We find that the consumption of carbon by union with oxygen is the law, that heat is the product, and that the legitimate result is force, while the result of the union of the hydrogen of the foods with oxygen is water. If alcohol comes at all under this class of foods, we rightly expect to find some of the evidences which attach to the hydrocarbons."

What, then, is the result of experiments in this direction? They have been conducted through long periods and with the greatest care, by men of the highest attainments in chemistry and physiology, and the result is given in these few words, by Dr. H.R. Wood, Jr., in his Materia Medica. "No one has been able to detect in the blood any of the ordinary results of its oxidation." That is, no

one has been able to find that alcohol has undergone combustion, like fat, or starch, or sugar, and so given heat to the body.

Alcohol and reduction of temperature.

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instead of increasing it; and it has even been used in fevers as an anti-pyretic. So uniform has been the testimony of physicians in Europe and America as to the cooling effects of alcohol, that Dr. Wood says, in his *Materia Medica*, "that it does not seem worth while to occupy space with a discussion of the subject." Liebermeister, one of the most learned contributors to Zeimssen's *Cyclopaedia of the Practice of Medicine*, 1875, says: "I long since convinced myself, by direct experiments, that alcohol, even in comparatively large doses, does not elevate the temperature of the body in either well or sick people." So well had this become known to Arctic voyagers, that, even before physiologists had demonstrated the fact that alcohol reduced, instead of increasing, the temperature of the body, they had learned that spirits lessened their power to withstand extreme cold. "In the Northern regions," says Edward Smith, "it was proved that the entire exclusion of spirits was necessary, in order to retain heat under these unfavorable conditions."

Alcohol does not make you strong.

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If alcohol does not contain tissue-building material, nor give heat to the body, it cannot possibly add to its strength. "Every kind of power an animal can generate," says Dr. G. Budd, F.R.S., "the mechanical power of the muscles, the chemical (or digestive) power of the stomach, the intellectual power of the brain accumulates through the nutrition of the organ on which it depends." Dr. F.R. Lees, of Edinburgh, after discussing the question, and educing evidence, remarks: "From the very nature of things, it will now be seen how impossible it is that alcohol can be strengthening food of either kind. Since it cannot become a part of the body, it cannot consequently contribute to its cohesive, organic strength, or fixed power; and, since it comes out of the body just as it went in, it cannot, by its decomposition, generate heat force."

Sir Benjamin Brodie says: "Stimulants do not create nervous power; they merely enable you, as it were, to use up that which is left, and then they leave you more in need of rest than before."

Baron Liebig, so far back as 1843, in his "Animal Chemistry," pointed out the fallacy of alcohol generating power. He says: "The circulation will appear accelerated at the expense of the force available for voluntary motion, but

without the production of a greater amount of mechanical force." In his later "Letters," he again says: "Wine is quite superfluous to man, it is constantly followed by the expenditure of power" whereas, the real function of food is to give power. He adds: "These drinks promote the change of matter in the body, and are, consequently, attended by an inward loss of power, which ceases to be productive, because it is not employed in overcoming outward difficulties i.e., in working." In other words, this great chemist asserts that alcohol abstracts the power of the system from doing useful work in the field or workshop, in order to cleanse the house from the defilement of alcohol itself.

The late Dr. W. Brinton, Physician to St. Thomas', in his great work on Dietetics, says: "Careful observation leaves little doubt that a moderate dose of beer or wine would, in most cases, at once diminish the maximum weight which a healthy person could lift. Mental acuteness, accuracy of perception and delicacy of the senses are all so far opposed by alcohol, as that the maximum efforts of each are incompatible with the ingestion of any moderate quantity of fermented liquid. A single glass will often suffice to take the edge off both mind and body, and to reduce their capacity to something below their perfection of work."

Dr. F.R. Lees, F.S.A., writing on the subject of alcohol as a food, makes the following quotation from an essay on "Stimulating Drinks," published by Dr. H.R. Madden, as long ago as 1847: "Alcohol is not the natural stimulus to any of our organs, and hence, functions performed in consequence of its application, tend to debilitate the organ acted upon.

Alcohol is incapable of being assimilated or converted into any organic proximate principle, and hence, cannot be considered nutritious.

The strength experienced after the use of alcohol is not new strength added to the system, but is manifested by calling into exercise the nervous energy pre-existing.

The ultimate exhausting effects of alcohol, owing to its stimulant properties, produce an unnatural susceptibility to morbid action in all the organs, and this, with the plethora superinduced, becomes a fertile source of disease.

A person who habitually exerts himself to such an extent as to require the daily use of stimulants to ward off exhaustion, may be compared to a machine working under high pressure. He will become much more obnoxious to the causes of disease, and will certainly break down sooner than he would have done under more favorable circumstances.

The more frequently alcohol is had recourse to for the purpose of overcoming

feelings of debility, the more it will be required, and by constant repetition a period is at length reached when it cannot be foregone, unless reaction is simultaneously brought about by a temporary total change of the habits of life.

Driven to the wall.

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Not finding that alcohol possesses any direct alimentary value, the medical advocates of its use have been driven to the assumption that it is a kind of secondary food, in that it has the power to delay the metamorphosis of tissue. "By the metamorphosis of tissue is meant," says Dr. Hunt, "that change which is constantly going on in the system which involves a constant disintegration of material; a breaking up and avoiding of that which is no longer aliment, making room for that new supply which is to sustain life." Another medical writer, in referring to this metamorphosis, says: "The importance of this process to the maintenance of life is readily shown by the injurious effects which follow upon its disturbance. If the discharge of the excrementitious substances be in any way impeded or suspended, these substances accumulate either in the blood or tissues, or both. In consequence of this retention and accumulation they become poisonous, and rapidly produce a derangement of the vital functions. Their influence is principally exerted upon the nervous system, through which they produce most frequent irritability, disturbance of the special senses, delirium, insensibility, coma, and finally, death."

"This description," remarks Dr. Hunt, "seems almost intended for alcohol." He then says: "To claim alcohol as a food because it delays the metamorphosis of tissue, is to claim that it in some way suspends the normal conduct of the laws of assimilation and nutrition, of waste and repair. A leading advocate of alcohol (Hammond) thus illustrates it: 'Alcohol retards the destruction of the tissues. By this destruction, force is generated, muscles contract, thoughts are developed, organs secrete and excrete.' In other words, alcohol interferes with all these. No wonder the author 'is not clear' how it does this, and we are not clear how such delayed metamorphosis recuperates.

Not an originator of vital force.

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which is not known to have any of the usual power of foods, and use it on the double assumption that it delays metamorphosis of tissue, and that such delay is conservative of health, is to pass outside of the bounds of science into the land of remote possibilities, and confer the title of adjuster upon an agent whose agency is itself doubtful.

Having failed to identify alcohol as a nitrogenous or non-nitrogenous food, not

having found it amenable to any of the evidences by which the food-force of aliments is generally measured, it will not do for us to talk of benefit by delay of regressive metamorphosis unless such process is accompanied with something evidential of the fact something scientifically descriptive of its mode of accomplishment in the case at hand, and unless it is shown to be practically desirable for alimentation.

There can be no doubt that alcohol does cause defects in the processes of elimination which are natural to the healthy body and which even in disease are often conservative of health.