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ALCOHOL AS A NUTRITIVE AGENT.*

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THE experiments of Dr. Subbotin* were performed on rabbits enclosed in an apparatus by means of which the exhalations of the skin and lungs could be examined for alcohol. The urine was also collected and examined for the same substance.

The experiments showed that in the first five hours after the introduction of 3.45 grammes of alcohol into the stomach of a rabbit about 2 per cent. was eliminated by the kidneys, and 5 per cent. by the lungs and skin.

Experiments extending over a greater length of time led to the conclusion that, usually, during twenty-four hours at least 16 per cent. of the injected alcohol leaves the body in an unchanged condition (or perhaps as aldehyde), and that besides this elimination by lungs, skin and kidney, a portion of the alcohol is oxidized in the organism. Although by this oxidation force must be set free in the organism, the author does not consider that alcohol is on that account to be regarded as a nutriment, for the functions of the animal body depend for their performance, according to Dr. S., upon the transformation of living material, *i. e.*, of the constituent parts of the body, and not upon the decomposition of matter foreign to the body.

In a note appended to Dr. Subbotin's essay, Prof. Voit expresses himself as follows: "I do not agree entirely with Dr. Subbotin in his views on the importance of alcohol as a nutriment. I define a nutriment as a substance which is capable of furnishing to the body any of its necessary constituents or of preventing the removal of such constituents from the body. To the first class belong such substances as

albumen (since it can be deposited as such in the body), or fat or water or the mineral constituents of the body; to the second class belong such substances as starch, which hinders the loss of fat from the body. If a nutriment is defined as a substance which by decomposition furnishes living force to the body, the definition would not be exhaustive, for it would exclude water and the mineral constituents of the body. Alcohol must, therefore, to a certain extent, be regarded as a nutriment, since, under its influence, fewer substances are decomposed in the body. It plays in this respect a similar (though quantitatively very different) part to that of starch, which also protects fat from decomposition and, when taken in excess, causes deposition of fat in the organs or fatty degeneration. If a part of the alcohol is decomposed in the body into lower forms of chemical combination it *must* give rise to living force, which either benefits the body in the form of heat or may perhaps be used for the performance of mechanical work; the same is true of acetic acid, which is also not to be considered as an ultimate excretory product, and from which, therefore, in decomposition potential force passes into living force.

"It is another question, however, when we ask what importance alcohol has for us as a nutriment and whether we take it in order to save fat from decomposition and furnish us with living force, in other words, to introduce a nutriment into the body. Since alcohol, when taken in considerable amount, causes disturbances in the processes of the animal economy, we cannot introduce it in quantities sufficient for nourishment as we do other nutriments, and in the amount which we can take without injury its importance as a nutriment is too small to be considered. In this point, then, I agree entirely with Dr. Subbotin; we use alcohol not on account of its importance as a nutriment, but on account of its effects as a stimulant or relish."

Prof. Voit's definition of a nutriment is rather more comprehensive than those usu-

* On the physiological importance of alcohol for the animal organism. *Zeitschrift für Biologie*, vii., 361.

ally given, but it has the merit of great exactness, and of leaving no doubt as to its applicability to any given substance. Whether this definition or any other be adopted, it is, of course, essential, as a preliminary to the discussion of the nutritive value of alcohol or any other substance, that we should define as exactly as possible what we understand by the terms "nutriment" and "nutrition."

Although, as Prof. Voit says, alcohol cannot, under normal circumstances, be introduced into the body in sufficient amount to be of any importance as a nutriment without producing toxic effects, may it not be that in those morbid conditions of the system where large amounts of alcohol are borne without causing narcotism, the nutritive properties of the substance really become important, and that patients who are supported by alcohol through periods of great weakness or exhaustion are really nourished and not simply stimulated by it?

A CASE OF RAMOLLISSEMENT ROUGE.

By E. P. Hurd, M.D., Newburyport, Mass.

THIS disease goes by the name of local cerebritis and acute softening of the brain. The following case is a typical one, as judged by the symptoms during life, although no opportunity was afforded of verifying the diagnosis by an autopsy.

I was summoned, Feb. 24th of the present year, to attend Mrs. D., 64 years of age. Is of a healthy family, and had always enjoyed excellent health previously. She had been for some time suffering from debility. I found her pale, weak, with poor appetite, torpid bowels, and "very nervous." Tongue clean, pulse regular. There was an anxiety and restlessness depicted in her countenance which were well marked. She told me that she had strange sensations. There was occasional numbness in her extremities, which only partially yielded to rubbing; she thought it must be due to stagnation of the blood, but the parts were always warm. There was often pain in the top of the head, and momentary dizziness. She felt as though she were going to be crazy. Some nights she slept pretty well, and other nights she did not sleep at all. But the most marked feature, to her, of her complaint was her utter powerlessness; it seemed as though she had not strength to move. From being a person of active habits, she had been compelled to give up all housework.

I diagnosticated the case to be one of

general nervous and muscular debility, and prescribed tonics—as quinine, ale, strychnia, exercise by riding in the open air, and short walks, daily frictions of the entire body, a diet principally of oatmeal and Graham bread, with fruits, vegetables and a little beef; and five grains of chloral at bedtime to procure sleep.

The three or four following weeks I saw my patient frequently. There was no amelioration of the symptoms, as above described. The numbness was very troublesome. There was often a wild, strange feeling about the head, confusion of thought, and forgetfulness. The latter symptom was so marked that it excited wonder in her family. She was so easily excited that if visitors called to see her in the evening she failed to sleep afterwards, and she found it necessary to interdict company the latter part of the day; yet her sleep was often very heavy. She has frequently been known to sleep soundly from 8, P.M., till 7 o'clock the next morning. At other times she would wake up during the night with frightful dreams, and could get no more sleep till the next night. There was still a foreboding of something dreadful about to happen to her. Motor disturbances were noticeable. At times she staggered and fell, on attempting to walk. She was much troubled on account of involuntary twitchings of the muscles. The countenance was assuming more and more a sallow look and haggard expression. There was a decidedly febrile condition at times, with accelerated pulse, which was tense and hard; at other times the pulse was slower than usual, and the surface cold.

I thought it necessary to discontinue the quinine and nuxvomica, and allow nothing but a little whiskey at such times as there was coldness and faintness; nor did it seem expedient to continue the chloral. The sleep after taking chloral was too heavy and prolonged. A few grains of powdered lupulin seemed to quiet restlessness quite as effectually as anything. The restlessness became more and more marked. Sometimes she would send for me in extreme terror, and I would be obliged to exert myself to the utmost to arouse her out of what seemed to me to be incipient madness.

There was at no time constipation or vomiting. Ten drops of fluid extract of leptandrin, with a teaspoonful of syrup of rhubarb, taken occasionally at bedtime, was all that was required to keep the bowels in good condition.

March 21st.—There is so much heat and pain of the head to-day, with general fe-