

THE EFFECT OF A SMALL DAILY DOSE OF ALCOHOL.

BY PROFESSOR TAAV. LAITINEN.

A NOTE ON THE INTERNATIONAL ANTI-ALCOHOL CONGRESS AT STOCKHOLM.

July 28 to August 3, 1907.

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THE Congress has been a great success. The scientific study of the alcohol problem has received fresh encouragement and gained in much trustworthy knowledge. Communications of permanent value were presented, and the discussions aroused much interest. In the space available it will only be possible to touch now on the most important paper laid before the Congress by Professor Taav. Laitinen, of Helsingfors, embodying the results of research which he has been carrying on for the last three years. It is entitled, "The Influence of Small Doses of Alcohol upon the Resistivity of the Animal Organism, and especially with regard to the Effect of such Doses upon their Offspring." He began by reminding us that former results which he had from time to time published* had been obtained by the administration of larger doses—never less than 0·5 gramme for each kilogramme that the animal in question weighed. He had felt that it was of great importance, however, to try how far the resistivity of animals was affected, and in what directions, when the doses administered each day were so small as 0·1 gramme.

* See "A Report on the Tenth International Anti-Alcoholic Congress," *British Journal of Inebriety*, January, 1906, p. 127.

The writer, when at Helsingfors, was told by Professor Laitinen that this amount would mean, in the case of a man of average weight, a glass of Finnish beer daily, and the glass seemed hardly as large as that used in England. In order to detect the influence of these very small doses, Professor Laitinen has kept his research animals—guinea-pigs and rabbits—in a perfectly equipped place. He employed a large number of animals, and, of course, treated them all alike, even to the handling during the administration of the liquids. The only difference was that some had water alone, and others the same quantity of water with such an amount of alcohol mixed with it as to get 0·1 gramme of alcohol per kilogramme of their respective weights. The two sets were so treated for eight months. To detect the alteration in resistivity, Dr. Laitinen availed himself of the most delicate methods of research and biological reactions. In the first place, the resistivity of the animals (the alcoholized animals and the control or non-alcoholized animals) was tested either by auto-infection or by inoculation (guinea-pigs) with the toxin of diphtheria. This showed the alcoholized animals to have less resistivity. The difference was clearly to be recognized. In the case of forty rabbits exposed to infection for four months, the lessened immunity was as 45 to 65, and where death ensued the duration of disease was as 13·6 to 21·7 days in the alcoholized and control animals respectively.

In the second place, the hæmolytic capacity of the blood of rabbits was tested after a longer or shorter period of treatment, and it was found that these small doses of alcohol clearly have an injurious effect in this direction generally.

In the third place the bacteriocidal potentiality of the blood (rabbits') was carefully investigated; it was found that the alcohol had lowered this but little—in the ratio of 1,954 to 2,050.

In the fourth place, he endeavoured to determine, at intervals, by means of a new method specially invented for the purpose, the degree of concentration of hydroxyl-ions in the blood of the alcoholized and control animals respectively. No clear difference between the two, however, could be discovered in this respect.

In the fifth place, he studied with especial care the influence of these doses upon the offspring of the two classes respectively. For this purpose note was taken of the young stillborn or which died shortly after birth, and also of those which survived. The weight of the latter and the rate of their growth during the lacta-

tion period was also carefully ascertained. Of the young born of alcoholized rabbits 61·29 per cent. died, and of those born of control animals 54·17 per cent. died.

The young of the alcoholized rabbits, when three days old, weighed on an average 79 grammes, and grew during the next twenty days 7·13 grammes daily on an average. The young of those treated with water only weighed 87·9 grammes at birth, and grew at the rate of 9·46 grammes per diem.

The difference is still clearer when we come to the guinea-pigs. Of the young of those treated with water alone 21·74 per cent. only died; whilst, on the other hand, the proportion in the case of the alcoholized animals was 36·76 per cent. The progeny of the former weighed at birth on an average 77·31 grammes, grew in the first ten days 4·12 grammes, and in the first twenty days 5·2 grammes daily. The young of the latter—the alcoholized animals—on the other hand, were on an average 73·41 grammes at birth, and grew in the first ten days 3·76 grammes daily, and in the first twenty days 4·30 grammes daily. When he carried on his weighings for 110 days the difference was as 4·36 grammes to 5·50 grammes.

The degenerative effect of these small doses of alcohol was, therefore, if not very great, still clearly to be seen.

This piece of research work represents an enormous amount of patient, skilful, and costly work. He began with 70 animals and ended with 348, having had more than 600 pass through his hands. It constitutes one of the most important researches of modern times, and its findings must exercise a great influence upon our attitude towards what is now regarded as the most moderate use of alcohol as a beverage. The paper will appear *in extenso* in Koch's journal this autumn, probably.