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EUGENICS AND DYSGENICS IN RELATION TO ALCOHOL.*

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THE present communication is designed as a continuation of the paper on "The Discussion of Alcoholism at the Eugenics Congress," which appeared in the *British Journal of Inebriety* for October, 1912. In that paper the writer set forth the scheme of eugenics as framed some years ago by himself, with the concurrence of his master, Galton; the importance of recognizing symptomatic alcoholism, a consequence of transmissible nervous defect, was insisted upon; and the writer undertook to deal subsequently with the action of alcohol as what he calls a "racial poison," or originating agent of what may best be called dysgenics. Very important new material is now available for the study of this question, and it is much to be regretted that, owing to the publication of these researches outside the new organs of eugenics, writers on that subject are still teaching that no real evidence on the action of alcohol as a racial poison exists. Those who claim to write authoritatively on eugenics, and whose association with the subject is such as to justify their claim, should not dogmatically deny the existence of evidence on this subject until they have taken the trouble to study the literature of alcoholism. The apologist of alcohol is not doing his duty to

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the public who at this date indulges in *ex cathedra* pronouncements on the subject without ever having so much as heard the names of Laitinen, Bertholet, or Stockard, to say nothing of the long list of their predecessors.

Having fully recognized the existence of symptomatic alcoholism, our duty is to proceed with the study of the action of alcohol on healthy stocks, in order to see whether positive scientific evidence of what Forel calls "blastophthoria" exists. Much confusion has been caused between these two perfectly distinct and independent issues. A very distinguished gentleman, whose personal influence has done much for eugenics, has lately written as if one or other of these two possibilities must be the truth of this subject. There is no alternative whatever between them; either or both may be true. The degenerate may tend to become alcoholic; alcohol may spoil germ-cells as it may spoil liver-cells. Yet we have been asked to decide whether the one or the other of these propositions is true, and, having so decided, to reject the second.

Not dissimilarly, much confusion has been produced by the introduction of new terms to heighten our darkness. The question at issue is one of causation; it is the one and only question which all science exists to answer. Given the ingestion of alcohol, why is it taken, and what effects does it produce? That is our business. The recent idea that our difficulties are soluble by the introduction of such terms as "concomitant" and "co-efficient" is quite chimerical. Alcohol either does things or it does not. It may be sole cause, or a part cause, or not a cause at all, of any phenomena associated with it. To call it a "co-efficient" or "concomitant" is not to answer any questions, but merely to raise them. This only need be said, as any reader of John Stuart Mill will remember: no one thing is the sole cause of any effect. I slip because of a piece of orange-peel, but I also slip because of gravitation, and because I am not clever enough to keep my balance. When the orange-peel is blamed, the other causes of the disaster must not, and need not, be forgotten; nor must we say that, in point of fact, the orange-peel was only a "concomitant" or "coefficient." That, however, is the latest position as regards alcohol. Someone makes the startling discovery that bad housing, or bad cooking, or heredity, plays a part in the consequences associated with alcohol, and then we are told that alcohol must no longer be spoken of as the cause of

anything, but merely as a "coefficient." The introduction of these meaningless illogicalities into biology of recent years must directly be attributed to the now happily decadent vogue of "biometry"—a mode of statistical measurement which could never reveal causation, and the advocates of which, therefore, decried the search for causes in science altogether, and asked us to accept the discovery of "coefficients of correlation" as the grand object of human inquiry.

But, in fact, correlation is the riddle which Nature always poses us with, and causation is what we have to discover. There is a high correlation between day and night, but is the day the cause of the night? There is a high correlation between alcoholism and degeneracy, which no statistics are required to show; science has to inquire into causation, and this can only be done by the old-fashioned methods of observation and experiment.

Laitinen's work is known already to readers of this journal. Let us proceed to that of Bertholet, briefly referred to here last October, and since published. The Swiss author's first paper appears in the Proceedings of the 1909 Congress on Alcoholism; his second, now before me, is in those of the 1911 Congress, and I can add to the recollections retained from hearing the author read it at the Hague. It may be hoped that, at this year's Congress, which is to be held in Milan in September, further work on these lines may be forthcoming, and I shall hope to be able to report upon it for this Society.

Bertholet has made 210 autopsies, of which 100 were upon chronic alcoholics. In 82 of these—i.e., 82 per cent.—there were morbid changes in the testicle. His inquiry shows the error of the view maintained by myself before this Society in 1909, and quoted at the Hague in 1911 by our distinguished President—that such a racial poison as alcohol could not cause blastophthoria until it had first injured the individual body or *soma*. In this biological opinion, I must confess, I was largely influenced by the persuasive pen of Dr. Archdall Reid, who has argued at length that natural selection must always produce in the germ-cells a higher degree of resistance than in the cells of the transient *soma*. Like many other conclusions reached by the *à priori* route, this one has now been falsified by observation and experiment. Bertholet's work teaches him that "*les glandes reproductrices sont plus sensibles à l'intoxication alcoolique que les autres organes.*" Bertholet finds a simple explanation of this fact, which his paper demon-

strates, in the observations of Nicloux and Renault, who have demonstrated the remarkable rapidity with which alcohol passes into the reproductive glands from the blood-stream. The reader must be referred to the original paper for further details, but it is already beyond question that alcoholic degeneration of the essential elements of the testicle can be, and is, produced in man under the conditions of chronic alcoholism. Bertholet has found the same results in the ovary, and has been engaged upon hitherto unpublished researches in the lower animals upon these points since 1911.

In my paper in October I referred to the contribution of Dr. Alfred Mjöen, of Christiana, to the Eugenics Congress. His paper is now published* in the supplementary volume of the proceedings of the Congress, and it takes rank as a real contribution to the subject. It is much to be regretted that only a very small portion of the microscopic exhibits of Bertholet at the Hague, and the pedigrees, etc., of Mjöen, in London, occur in their respective papers, which would otherwise appear even more cogent than they do in their present form. Mjöen refers to previous work on the subject, and notes the Pearson-Elderton results, which I have fully dealt with previously here. He observes that when the children of alcoholics were found to be superior to those of the sober (according to the notorious memoir), the explanation given was that the alcoholics are the naturally stronger part of the community, and that their children inherit their strength; but when, from a later inquiry, the children of the alcoholics were found to be inferior, the resourceful apologist for alcohol explained that this was so because the alcoholic parents were naturally defective, and the alcohol had nothing to do with it. So long as the memoir in question remains unrepudiated by its authors, and continues to be quoted as evidence on the subject, those who have looked into the matter will be under the regrettable necessity of pointing to the kind of arguments which are used in its defence, and which, as Dr. Mjöen shows in his paper, are frankly self-contradictory when awkward facts have to be explained. I here repeat the demand for the withdrawal of the Pearson-Elderton memoir, which I made before Sir Francis Galton's death, and which, I confidently believe, would have been granted on the evidence if the influence of that lover of truth had not been unhappily withdrawn from the conduct of the laboratory which he founded.

* "Problems in Eugenics," vol. ii., pp. 172-182.

The reader must be referred to Mjöen's paper, the gist of which has already been given in these pages; but one cannot refrain from quoting its final paragraphs:

"I will finish these words in an appeal to all eugenists to join in the fight against alcohol, but on a new basis; *the strongest blow against the strongest form*—that form which destroys the joy of life, even before that life has commenced.

"There has been a tendency in our social history to wait until the harm is done before we take measures. Such philanthropic work may be a sign of great culture and refinement of soul and heart. But for society the act of saving drunkards is nothing more nor less than to teach corpses to walk. The question, 'Will someone take care of little Else?' is answered by the Norwegian author, Alexander Kjelland, in the biting, sarcastic words: 'First she must fall.'

"It is more human to take care of young girls in time than to save prostitutes. It is cheaper to prevent war than to mend the effect of it. It is better eugenics to take precautions against brandy than to build asylums for inebriates."

In October I referred to Mjöen's arguments in favour of the view that the strong solutions of alcohol are those 'against which a true bill can be found. One may now leave his paper by quoting the following sentences:

"When freedom was given to the distillation of brandy in Norway in the year 1816, the so-called home or house-distillation commenced. In some districts almost every farmer distilled brandy from his own corn and potatoes. The consumption of brandy replaced the consumption of other drinks in several of our mountain valleys. In these communities the number of feeble-minded increased from 1816 to 1835 more than 100 per cent. The country was alarmed, and after an attempt to diminish it by tax on the still, the house-distillation was stopped in 1848. The farmers had for years been brewing beer, most of it holding 3 per cent., 4 per cent., 5 per cent., exceptionally 8 per cent., alcohol.

"Any perceptible difference in the state of health, where more or less of this beer was consumed or where no beer was consumed, could not be detected. The enormous increase of idiots came and went with the brandy."

Lastly, we have to consider the recent results of the well-known experimental embryologist, Stockard, who is Professor of Anatomy at Cornell, and whose work on the experimental production of cyclopean and other monsters by the modification of nutrient media, and similar means, is familiar to all students of that department of biology. So far as experiment upon the lower animals can prove the fact of racial poisoning, his work* has done so.

Stockard worked with guinea-pigs, which were first tested by normal matings and found to produce normal offspring. The influence of the poison upon each sex was tested separately. The alcohol was given by inhalation only, and the author says: "The inhalation method is entirely satisfactory; the guinea-pigs thrive and usually gain in weight during the experiment; they have good appetites, and are in all respects apparently normal. The only indication of the effects of the treatment is shown by the quality of the offspring they produce." The treatment was continued for such periods as fifteen months and more. When killed, the animals were microscopically normal, even as regards the reproductive glands. Says Stockard, "They may be compared to a toper who drinks daily but never becomes really drunk. While the bodies of these animals show no direct effects of the alcohol, the conditions of the offspring to which they give rise exhibit most strikingly the effects of the alcoholic treatment." It will be seen that this agrees with Bertholet's observations in man, showing the early susceptibility of the germ-cells.

Neither the photographs nor other details of this long and invaluable paper can here be quoted. It suffices to say that no one can read the paper without assent to the following sentences, in which the author expresses his results: "The present experiments seem to us to demonstrate in a convincing way that alcohol may readily affect the offspring through either parent, and that this effect is almost fatal to the existence of the offspring when the parents have been treated to even fairly large doses of alcohol. Many of the cases seem to indicate, further, that the tissues of the nervous system in the offspring are particularly sensitive in their responses to the induced conditions."

* "Archives of Internal Medicine," vol. x., No. 4 (American Medical Association), pp. 369-398, and in "Archiv für Entwicklungsmechanik der Organismen," Band xxxv., Heft 3.

CONCLUSION.

The foregoing work, against which there is nothing to be set on the opposite side, entirely and abundantly confirms the truth of the assertion that alcohol is a racial poison, which the present writer has been maintaining against Professor Karl Pearson and the majority of eugenists in this country for many years. It is no longer possible to say that there is no evidence; the work of Bertholet on man and of Stockard on the guinea-pig *is* evidence. The *à priori* arguments may now be ignored. These observers' work, to my mind, explains why *more* signs of racial degeneracy are not to be observed after generations of drinking, as the fanatics who still champion alcohol suggest should be the case. The evidence shows that not long after alcohol begins to injure the germ-cells to an extent that can be microscopically recognized, it puts an end to their production altogether. Largely, alcohol kills the race outright; and the evidence of degeneracy produced by it, short of extinction, depends upon the offspring produced during that period of its action which intervenes between the stage when no harm is yet done and the stage when fatal harm is done. If it acted so quickly as to cause either harm to the germ-cells, or none at all, there would be no degenerates produced by it. But its action would be none the less important—not least for nations with rapidly falling birth-rates.

[ADDENDUM SINCE THE LECTURE.]

Fortunately, this question is now receiving the attention of a great National Commission in France, which will report in two or three years. Also, early in the present year, there was formed a French Society of Eugenics, and, during a recent visit to Paris for the purpose of reading a paper on eugenics there, I had the privilege of discussing the question with some of those who are leading eugenists in France. Here, for patriotic reasons, we are mostly Darwinians—which means that we do not believe in the influence of parental conditions upon the offspring. Darwin, it need hardly be said, was not a Darwinian. He believed, with Lamarck, the founder of organic evolution, in the racial consequences of parental nutrition and other circumstances. That belief is orthodox in France, and not least in the Paris where Lamarck worked. I look to Paris, and the newly born French school of eugenics, for a powerful and much-needed

corrective of the form which eugenics has lately taken in this country under the influence of the neo-Darwinians, and the doctrine of the "all-sufficiency of natural selection," as Weismann called it in his younger and less wise days. In point of fact, almost everything has yet to be learnt as to the influence of parental nutrition upon the offspring. Only we do know that, as Weismann now admits, as Darwin never doubted, as Galton himself admitted, there *is* such an influence; and in the case of alcohol we have now *proved* that it is deleterious. The practical conclusion is surely that which the present writer has for many years been trying to force upon the temperance party and eugenists alike as the first duty of both—"Protect parent-hood from alcohol."