SCIENTIFIC PROCEEDINGS.

ABSTRACTS OF THE COMMUNICATIONS.

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50 (659)

The influence of alcoholism on the offspring.

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Two years ago I showed that almost all known gross deformities of the brain could be produced by treating developing fish embryos with alcohol and a number of anæsthetics.

Since that time these experiments have been extended to birds and mammals. The work of Ferè with hen's eggs has been repeated and his results confirmed. When these eggs are subjected to the fumes of alcohol the shell is penetrated and the developing embryo is affected. The rate of development is reduced and a large number of monstrosities occur.

Guinea pigs have been put into a state of chronic alcoholism by treating them for six days per week with alcohol fumes to almost the point of intoxication. Forty full-term matings of various combinations have been made with these alcoholic animals. Treated males have been paired with normal females (test of paternal influence on offspring), treated females paired with normal males (maternal influence plus the direct effect on the developing embryo) and finally treated males and females were paired. The outcome of these matings has been most striking.

Twenty-five matings gave no result or the embryos were aborted early and eaten by the mother. Fifteen matings produced in all 25 young, of these two have lived to reach maturity and are apparently normal, four are still young but seem normal. Of the other 19, eight were stillborn or aborted shortly before

term, seven lived for a few days after birth and all died in convulsions, four were *in utero* when the mothers were killed and one of these was deformed.

All of the control matings were successful, all of the young lived and were vigorous.

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Growth and maintenance on purely artificial diets.

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[*With the coöperation of the Carnegie Institution of Washington.*]

In earlier reports of the authors' feeding experiments with isolated food substances[1] attention was directed to the failure to induce growth or secure prolonged maintenance of body weight in albino rats with any of the food mixtures tried prior to the introduction of "protein-free milk" as the adjuvant of the dietary which furnished the inorganic nutrients together with some of the carbohydrate (in the form of lactose). In order to determine whether the nutritive success achieved by the use of the protein-free milk was due to the peculiar supply of inorganic salts or some other ingredient, an artificial mixture of salts was prepared to imitate as nearly as possible the proportions of acid and basic radicals in the milk product. This mixture, the preparation of which will be described in detail in a forthcoming paper, contains: Ca 1.97; Mg 0.23; Na 2.03; K 2.66; PO_4 3.33; Cl 4.13; SO_3 0.30; Fe 0.04; citric acid 3.33; lactose 82.0 per cent. This purely artificial product added to purified proteins, starch, sugar and lard has already sufficed to meet the needs of rats for maintenance over very considerable periods of time, and has, thus far, proved as efficient in promoting early growth as the so-called protein-free milk used in our former experiments.

[1] Osborne, T. B., and L. B. Mendel, Carnegie Institution of Washington, Publication 156, Part II, 1911; and *Science*, 1911, XXXIV, p. 722.