6 (52). **"Some Mendelian results in animal breeding": C. B. DAVENPORT.**

The essence of Mendelism in inheritance is its alternative character. In this it is opposed to blending inheritance (as in human skin color) which had been regarded as the typical sort of inheritance. At the Carnegie Institution's Station for Experimental Evolution certain new cases of nonblending inheritance have already been found. Among sheep it appears from Dr. Alexander Graham Bell's records that the offspring of two black sheep are (probably always) black, although one or more of the grandparents were white. It looks as if black color (like albinism) might be recessive. Among canary birds it is found that of the offspring of crested and of plain headed birds, some are crested and some are not. Poultry have been studied because of the numerous characters they exhibit. When a Japanese long-tailed, clean-legged cock was crossed on a white bantam hen, the two surviving offspring were highly colored like the father and had abundant feathers on the legs like the mother.

7 (53). **"On the decomposition products of epinephrin": JOHN J. ABEL** and **R. DE M. TAVEAU.** (Presented by **WILLIAM J. GIES.**)

The empirical formula, $C_{10}H_{13}NO_3 \cdot \frac{1}{2}H_2O$, adopted by Abel for that member of the epinephrin series which he has called epinephrin hydrate (the adrenalin of Takamine) is, at present, the subject of an acute controversy. The authors have been engaged in a repetition of the analytic work on which Abel based the above formula for epinephrin hydrate. In view of the suggestion of Abderhalden and Bergell that this substance should be prepared in a way that avoids oxidation by the air, the authors have undertaken the laborious task of preparing and purifying it in an atmosphere of hydrogen. The results of their work in this direction will soon be published.

The authors emphasized the fact that the $\frac{1}{2}H_2O$ of their empirical formula has always been regarded by them to be water of constitution, and not water of crystallization as their opponents have taken for granted. The assumption that this $\frac{1}{2}H_2O$, so easily removable by high heat and by various acids, is water of constitution necessitates doubling the present empirical formula, a pro-

cedure which is at variance with the molecular weight determinations of v. Fürth and Jowett. These determinations are, however, open to serious objections, as will be shown at length elsewhere.

Work on the decomposition products of both alkaloidal epinephrin and epinephrin hydrate has been continued. The basic substance, $C_3H_4N_2O$, which is obtainable equally from both forms of epinephrin, has been decomposed by treatment with caustic potash into ammonia (NH_3), methylamin ($CH_3.NH_2$), and methylhydrazin ($CH_3.NH.NH_2$). Of these decomposition products, methylamin is also obtained from both modifications of epinephrin. Methylhydrazin has thus far not been obtained either from epinephrin or its hydrate. This degradation product is of great importance in throwing light on the chemical constitution of the new base, $C_3H_4N_2O$, for its appearance, under the circumstances referred to, proves that the two nitrogen atoms of this base are directly combined one with the other, and suggests, among other things, for this base a ring structure, such as is found in bodies of the pyrazolon $\left(\begin{matrix} N\text{——}NH \\ \| \quad | \\ CH.CH_2.CO \end{matrix}\right)$ series. It may here be noted that pyrazolin carboxylic acids can easily be made to yield hydrazin.

A full discussion of the bearing of the above results on the constitution of epinephrin must be deferred until it has been determined whether the oxidation product $C_3H_4N_2O$, is of a primary or of a secondary character. In any case, an adequate constitutional formula for epinephin must be able to account for all the decomposition products that have been named.

In conclusion it may be mentioned that the authors have repeatedly obtained in their recent work small quantities of skatol on fusing epinephrin hydrate with caustic alkalis — a product which has been erroneously supposed to be obtainable only from the mono-benzoyl series of epinephrin compounds.

Ninth meeting.[1]

Professor C. A. Herter's private laboratory, at 819 Madison Avenue, New York. December 21, 1904. President Meltzer in the chair.

[1] Reprinted from *Science*, 1905, xxi, p. 105; *American Medicine*, 1905, ix, p. 72; *Medical News*, 1905, lxxxvi, p. 229.