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THE FREQUENCY OF HETEROZYGOSIS IN FREE-LIVING POPULATIONS OF *DROSOPHILA MELANOGASTER* AND *DROSOPHILA SUBOBSCURA*

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THE evolutionary significance of genetic studies, considered by Bateson (1906) to be one of the main tasks of the then newly founded science, has not been very fully dealt with by the largest school of genetics, that concerned with *Drosophila*. This school has amassed a large volume of important evidence, but the integration of genetics with evolutionary theory has been the work of Fisher (1930, 1931 *a*, 1931 *b*), Haldane (1930, 1932 *a*, 1932 *b*, 1933) and Sewall Wright (1929, 1931, 1934). Tschetverikoff (1926) and Dubinin (1931) have dealt with somewhat more limited aspects.

Following on the theoretical considerations of Tschetverikoff, Timoféeff-Ressovsky (H. A. and N. W. 1927) and Tschetverikoff (1928) inbred populations of *D. melanogaster* to investigate the incidence of recessive mutants. Dubinin and co-workers (1934) have also repeated this on a larger scale, but using somewhat different methods of inbreeding. In this communication further work on the same lines will be described.

MATERIALS AND METHOD

The species inbred were *D. melanogaster* and *D. subobscura* Collin (see note, p. 60). The animals were caught by putting out a milk bottle with a perforated gauze cap, and containing yeasted banana agar. The traps were laid in the grounds of the Biological Field Station of the Imperial College of Science and Technology at Slough in 1933 and 1934. Trapping was commenced at the beginning of June, when only *D. subobscura* was trapped. *D. melanogaster* appeared at the beginning of July, and by the middle of August was the more numerous. In October, however, only *D. subobscura* was trapped. I found that the temperature optimum of *D. subobscura* was much lower than that of *D. melanogaster*. Christie (unpublished) later confirmed this, finding that sterility commenced at about 20° C. This is consistent with the findings of the distribution of the species with season, and the fact that the geographical distribution of *D. melanogaster* is fairly restricted. *D. melanogaster* is

NOTE. *Drosophila subobscura* sp.n. ♂♀. By J. E. Collin, F.R.E.S. A common and widely distributed species hitherto included under *D. obscura* Fln. which it generally resembles, though easily distinguished in the male sex by its larger tarsal "combs" on first and second joints of front tarsi (that on first joint occupying about apical half, on second joint more than apical half), while in both sexes the thorax is uniformly light brownish grey without even faint indications of darker stripes. Length about 2 mm.