

It may be observed that in each group the percentage of men is higher than that of women, as might be expected from recent immigration of a number of unmarried men. This difference is, however, not statistically significant. In both cases, however, the percentage is lower in group *A* than in *O*, and again lower in *AB* than in *B*. This difference is quite significant, and confirms the conjecture that recent population movements, even within Great Britain, can lead to significant association between surnames and blood-groups.

There are probably many other places in which empanelling for blood transfusion is now sufficiently active for local heterogeneity to be detected by the same method. Local surname frequencies may be obtained rapidly from telephone directories, and more thoroughly from marriage registrations, of which the Society of Genealogists has a large collection.

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Human Origins and Taboo

If we think of the evolution of man from some anthropoid stock as the evolution of mainly instinctive (innately conditioned) behaviour into mainly customary (socially conditioned) behaviour, we can both see the possibility of the formation of a larger group than the family one characteristic of extant anthropoids and can relate the said possibility to the facts of taboo—and totemism.

It is commonly and plausibly assumed that the reason why anthropoids do not form larger groups than family ones is the difficulty the larger group would have in finding sufficient food. This difficulty would not arise to the same degree in the case of anthropoids whose behaviour-habit was becoming less instinctive, more customary. The more variegated the dietary customs of family-groups of such a species became in course of ages, the more possible it would be for such groups to combine permanently together without undue strain on the food-resources of the larger group thus formed. It is a matter of pooling experience. When two heads began to be better than one, *Homo sapiens* was in sight.

Customary behaviour is initiated by individuals acting consciously in a novel manner, making a habit of novel and 'agreeable behaviour' and making a negative habit of novel and 'disagreeable behaviour'. In general, the agreeable behaviour is viable and the disagreeable is unviable. But accidents of conditioning occur in Nature as they occur, not as accidents, in the experimental psychologist's laboratory. A dog can be conditioned to regard anything whatever as 'taboo', so to speak; it is merely a matter of administering some unpleasantness concomitantly. Similarly, in a state of Nature negative customs could be formed by accidents of conditioning in regard to objects suitable for food, and it is almost a statistical necessity that our family-groups of anthropoids during the ages while, as family-groups, they were evolving their respective customary diets, should have formed one or more such negative customs. There would be nothing to distinguish these 'mistakenly' conditioned negative customs for their

'owners' from customs normally conditioned by disagreeable experience until *after* families were combined in larger groups. Even then we are still a long way from the name and concept of 'taboo' and from totemistic theories of food-taboo practices and social organization, but all that follows easily enough.

This hypothesis is an application of my "Novius Organum" (Longmans, 1931), namely, the assumption of 'nature as habit' in a sense of 'habit' quite the reverse, in relation to 'mind', of Hering's and Butler's notion of 'habit'.

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Metaplasia and Adenoma-like Changes in the Uterus of Rats Injected with Sex Hormones

SQUAMOUS metaplasia in the uterine epithelium can be considered as the first stage of pre-cancerous changes. In a previous publication¹, we have given the literature on the subject and have described our own experiments, which showed that metaplasia in the uterine epithelium, produced by injections into the rats of oestrogenic hormones, can be decreased or prevented by the simultaneous administration of progesterone, the hormone of the corpus luteum.

In another paper², on the basis of a few experiments only, we have suggested that male hormones, when injected simultaneously with oestrogens, might influence the metaplastic changes.

We have now completed a series of experiments on 105 normal or ovariectomized rats. The animals were injected for 2-3½ months with oestradiol dipropionate or benzoate-butyrate (0.018-2 mgm. a week) alone, or simultaneously with male hormones (androsterone 7.5 mgm., testosterone propionate 2.25-7.5 mgm., and testosterone dipropionate 7.5 mgm. a week). In one experiment progesterone (4.5 mgm. a week) was given in addition to oestradiol dipropionate and testosterone propionate. The results obtained can be summarized as follows:

(1) The percentage incidence of the metaplastic changes may be the same in the rats injected with oestrogens as in those injected with both oestrogens and male hormones.

(2) With the doses used, however, adenoma-like changes in the uterine glands and the most severe degree of squamous metaplasia of the uterine epithelium were found only in the latter group of rats.

(3) The addition of progesterone considerably decreased or in most cases prevented the metaplastic changes.

(4) The results obtained add weight to the suggestion that disturbances of the ratio of the male and female sex hormones, simultaneously present in the organism of either sex, may be an important factor in the occurrence and development of some types of neoplastic growths.

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¹ Korenchevsky, V., and Hall, K., *J. Obst. and Gynaec.*, **45**, 22 (1938).
² Korenchevsky, V., Hall, K., and Burbank, R., *Biochem. J.*, **33**, 372 (1939).