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INHERITANCE OF ACQUIRED CHARACTERS

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THE interesting letter from A. F. Dufton in NATURE of Oct. 1, p. 508, suggests a statistical method of study of the possible transmission to the offspring of mental characteristics acquired during their life by their parents, the possibilities and limitations of which seem to have been little explored or discussed. Mr. Dufton takes the age distribution of the fathers at the birth of 1000 eminent persons from the fourteenth edition of the "Encyclopædia Britannica", and shows that these ages are distinctly higher than the ages of the fathers of 100,000 children less than one year of age at the Census of Scotland in 1921. At first sight the inference might be drawn from this fact that the superior ability of the children was due to the increased wisdom acquired by their parents during their experience of life; but, before drawing this conclusion, there are one or two preliminary points to be considered.

(1) It is certain that during the relevant period the upper and middle classes married on the average some few years later than the general population. Presumably, the ages of fatherhood in these classes were also somewhat retarded. If, as one might suppose, the 1000 eminent persons chosen by Mr. Dufton came disproportionately from these classes, this alone would explain the greater age of paternity. A more satisfactory comparison would be between the ages of paternity for the eminent persons, and those of their less eminent brothers and sisters. This reduces itself to a comparison between eminent and non-eminent persons from the same families according to order of birth.

(2) In comparisons between selected and unselected children according to order of birth, great care is unfortunately necessary to eliminate the effects of death in childhood. It is a mistake to assume, for example, that corresponding to every sixth child, there is one child of each preceding birth order, who might equally have become eminent. In families of six or more, some of the first five children will have died before attaining an age at which their talents

might have raised them to eminence. Again, among families terminated voluntarily, the sex ratio of the last child must be much disturbed in favour of males, and more than half of the 1000 eminent persons are doubtless of this sex. A just comparison will require the proportion of eminent to all the surviving non-eminent, according to birth rank and size of family, for the two sexes separately. Such a tabulation would be full of interest.

(3) Supposing the sociological and statistical difficulties of the comparison were overcome, it would be a matter for further inquiry whether the differences observed (supposing them to be in the same direction as those found by Mr. Dufton) were due to the inheritance of environmental modifications, or to environmental modifications themselves. There is little doubt that children brought up in close contact with others slightly older than themselves are somewhat more precocious (in reading and writing for example, and in acquiring a vocabulary) than others without this advantage. Again, if parents increase in wisdom with years, should not this wisdom be partly applied in improving the upbringing of the later children ? I mention these points, not to discourage inquiry into the effects of birth rank, but to show that the specific question of a Lamarckian factor is not more easily disentangled in this than in other modes of inquiry.

(4) Some doubt might be felt whether all forms of capacity do increase greatly with increasing age, say from 30 to 43, to take the quartiles of Mr. Dufton's distribution for the fathers of the eminent. Should we not expect that the fathers of athletes, aeronauts and possibly artists and poets, and any occupations showing enterprise, receptivity and a capacity to learn, should be younger than the average, while those of misers and politicians should be conspicuously older ? Opinions will doubtless differ widely as to the position of men of science.

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