

stimulation of the vaso-motor centers. These observations that I present here only incompletely may be taken to indicate that the infundibular lobe of the hypophysis is, in all probability, not a rudimentary organ, but a structure that has some important physiological activity. Moreover, its function is probably different from that of the glandular lobe, and possibly quite independent of it. With regard to the function of the glandular lobe, the method of injecting extracts into the circulation of a normal animal seems to teach us nothing. While the negative results thus obtained do not oppose, they cannot be said to support, the favorite hypothesis that this part of the hypophysis cerebri has a function resembling that of the thyroid lobes. I venture to suggest that this supposed similarity in function might be tested most satisfactorily upon human beings by feeding the gland in cases of myxoedœma or goitre and ascertaining whether a reaction similar to that caused by the thyroid can be obtained.

W. H. HOWELL.

JOHNS HOPKINS UNIVERSITY.

ON THE RELATIVE VARIATION AND CORRELATION IN CIVILIZED AND UN-CIVILIZED RACES.\*

THE general conclusion would then be that, with increased civilization, absolute size† and variation tend to increase, while correlation, to judge by the males, is stationary; to judge by the females, tends to increase.

It will be found somewhat difficult to

\* Conclusion of a communication made to the Royal Society.

† This is only *generally* true, not in every individual case. The French femur is longer than that of the Aino, of neolithic man, and of the ancient inhabitants of the Canary Islands. On the other hand, the French femur appears to be slightly less than the Libyan, although the humerus is somewhat greater. The French women appear in all long bones less than the Libyan women.

reconcile these results with any simple applications of the principle of natural selection. In the first place increased variation undoubtedly suggests a lessening of the struggle for existence, and there can be no question that this increase has gone on among civilized races (See 'Variation in Man and Woman'). The lessening of the struggle has probably been greater for woman than man; hence the principle of natural selection might help to explain the preponderance of variability in civilized woman. The increase in size with civilization seems, on the average, also incontestable. But is it the effect of lessening the struggle for existence? The possibilities may, perhaps, be summed up as follows:

(a) The civilized races may have survived owing to their superior size. It may be a result of the struggle in the past. To this must be objected that the increase of size appears to be a progressive change still going on, and yet increase of variation should show a lessening struggle for existence.

(b) The effect of suspending natural selection may be to increase size. This would be a blow for panmixia, for we might naturally have expected a regression to the smallness of the more primitive races. It would leave unexplained the apparently smaller progress of women as compared with men, for in their case we might argue from the variation that the struggle for existence is relatively less than in the case of man.

(c) The larger size of the civilized races may be due to better food supply and better physical training; in short, it may be due, not to evolution, but to better conditions of growth. This hypothesis does not involve the assumption that acquired characters are inherited. Diminish the food supply and abolish physical training, and the size would sink to the level at which natural selection had left it. Physical

training in civilized races being usually more adequate in the case of man than of woman would, perhaps, explain why man has progressed more rapidly in size than woman. It seems impossible, taking variation as a measure of the intensity of selection, to reconcile the relative increases in size of man and woman with any direct effect of natural selection.

8. To sum up, then, the following results seem *suggested* by these measurements.

(i.) Civilized man has progressed generally on primitive man in size, variation and correlation.

(ii.) This progression can hardly be accounted for by increased selection (because of the increased variation), not by decreased selection (because it is inconsistent with the relative changes in male and female size). It might possibly be accounted for by decreased selection and improved physical conditions.

(iii.) Woman is more variable than man in civilized races.

(iv.) Woman is more highly correlated than man in civilized races.

(v.) In uncivilized races the sexes are more nearly equal in the matter of size, variation and correlation than in the case of civilized races.

(vi.) It is impossible to say that civilized woman is nearer to the primitive type than civilized man, for while civilized man differs more from the primitive type than civilized woman, so far, probably, as absolute size is concerned, he has made only about half her progress in variation, and hardly any progress at all in correlation.

(vii) The causes (*e. g.*, lessening of selection) which tend to increase variation may also increase correlation. In other words, the intensity of the struggle for existence is not necessarily a measure of the intensity of correlation.\*

\* The mathematical theory of selective correlation shows that the close selection of an organ, say the

The measurements made by Mr. Warren on the Libyans, the results of which he has kindly favored us with, are, on the whole, fairly in accordance with the above conclusions. He finds for the

Mean of the sexual ratio of the means.....	1.092
“ “ “ the variations.....	1.028
“ “ “ the correlations.....	1.068

The corresponding quantities for the French are: 1.109, 0.939, 0.956, or, we concluded, that in passing from uncivilized to civilized peoples, from Libyan to French, the men gain on the women in size—here very slightly, and the women gain upon the men very markedly in variation and correlation.

These results are merely suggestions, but they may possibly serve to emphasize the importance of a careful measurement of the long bones of, say, 100 members of both sexes for a series of civilized and uncivilized races. In the former case at least there does not appear to be any real difficulty, except the need of coöperation, in obtaining measurements similar to those of M. Rollet, for both English and Germans. The value of such statistics for comparative purposes would be very great.

Alice Lee,  
Karl Pearson.

#### MIGRATION OF THINGS AND OF MEMORIES.

IN the minds of some students the question of migration of forms is frequently confounded with that of the migration of tribes. It must not be forgotten by those who are carefully studying the origin of industrial forms on the Western World that there were daily mails delivered on the American shore from the Eastern Continent, from the remotest antiquity.

The United States Navy has been dropping bottles overboard in the Atlantic

femur, may actually tend to reduce the correlation between two other organs, say the humerus and the radius.