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Editorial and Publishing Offices :

MACMILLAN & CO., LTD.,
ST. MARTIN'S STREET, LONDON, W.C.2.

Editorial communications should be addressed to the Editor.
Advertisements and business letters to the Publishers.

Telephone Number: GERRARD 8830.

Telegraphic Address: PHUSIS, WESTRAND, LONDON.

NO. 2949, VOL. 117]

National Eugenics.

THE first parts of the new journal of the Francis Galton Laboratory for National Eugenics¹ should remove many misconceptions concerning both the methods and utility of later developments of the science which Galton founded. The editors contribute a short foreword reviewing the reasons which have prompted them in launching another large vessel of scientific journalism. Their tone may be considered in some quarters unduly combative; but it would be difficult to point to any accusation of prejudice or ignorance, explicit or implied, not strictly justifiable. When they state that "our journal will differ from existing journals in that . . . the papers published will be the work of trained scientists rather than of propagandists and dilettanti," the scarcity of journals devoted wholly to the scientific treatment of racial problems must be borne in mind. There appears to be no need to scent a slander upon all methods but those mathematical. Heredity may be viewed from other not less 'scientific' points of view than those of statistics.

Naturally, "a journal issued by the Galton Laboratory will be sympathetic to the methods of its founder, summed up in the title of his Herbert Spencer Lecture, 'Probability the Foundation of Eugenics.'" But the harvest of other disciplines is not excluded. Every new science is an "unclean novelty," and as a field for prejudices "the study of agencies under social control that may improve or impair the racial qualities of future generations, physically or mentally"—the subject of the Galton Laboratory—has been and is singularly fruitful. If impatience with prejudice is intelligible, so is impatience with the vague and dubious expressions of much descriptive biology. Yet no one knows better than the workers of the Galton Laboratory the importance of qualitative characters and the difficulties imposed by the absence of definitions where exact measurement is impossible.

Ultimately it is to descriptive biology that the biological statistician must go for scientific data. In practice the biometrician, if he has at times found fault with what he has received, has never disdained to seek light, in sociology or in medicine, upon his problems. The biologist, secure in a formulated if not a stereotyped discipline, has found no need for statistical aid, and thus has received less pressure to inform himself of even the most elementary details of his colleague's procedure. "Obsolete lumber" or not, the biological statistician is a fairly energetic raider of the storehouses of qualitative description. What is the truth underlying the editors' assertion that "eugenics requires

¹ "Annals of Eugenics," vol. i. parts 1 and 2. Edited by Karl Pearson, assisted by Ethel M. Elderton, 1925. (The University Press, Cambridge.) Annual subscription, 50s. net.

now, and will require still more as it advances in the future, the most highly trained scientific minds," if it is not a plain admission that their science is a discipline as well as a technique, and that the only facts they can afford to condemn or opinions to despise are those that are false?

The present issue contains a pedigree of Epicanthus and Ptosis by C. H. Usher, a note on the correlation between birth- and death-rates, with reference to Malthus's interpretation of their movements, by Anthony B. Hill, and the first parts of two larger studies—one on the "Problem of Alien Immigration into Great Britain," by Karl Pearson and Margaret Moul, and the other on the "Relative Value of the Factors which Influence Infant Welfare," by Ethel M. Elderton, based on data provided by the Medical Officers of Health for Rochdale, Bradford, Blackburn, Preston, and Salford. Than this last it would be difficult to imagine a better illustration of the scope, methods, and difficulties of the technique adopted. The subject is essentially statistical but is complicated by all manner of circumstances from which an inquiry like that of the senior editor and his collaborator is free. For example, among the factors influencing viability, are considered the health of the parents, the habits of the parents, the condition of the home, the occupation of the father, the place in family of the child, the age of the mother at birth of the child, and the employment of the mother.

Surely it is of importance that questions of such social value should be studied and judged by methods more refined than those of casual acquaintance. It is impossible to read Miss Elderton's judicial reviews of her own results—which need not be summarised here as they are incomplete—without attaching to them a higher value than the partial results of other methods can claim. The same applies to the paper on alien immigration, the authors of which conclude that restriction is both nationally eugenic and practicable. With regard to both, some sentences in the latter paper may be quoted:

"For the practical purposes of prognosis there does not exist in the present material any correlation of the slightest consequence between the intelligence of the child and its physique, its health, its parents' care or the economic and sanitary conditions of its home. No doubt the indiscriminative critic will assert that we advocate poor physique, carelessness in the parent, uncleanness in the child with overcrowding and poverty in the home. The workers in the Galton Laboratory are fairly inured to that type of criticism. They hold, however, that the decencies of life are worth fighting for and obtaining for their own sake, and without an adventitious stimulus from vague assertions that their absence is the chief source of stupidity, if not indeed of mental defect, in the child. Philanthropists, seeking to reform deleterious conditions, never gain in the long

run, when they proclaim, without due research, that these conditions are the unquestionable cause of all concomitant evils."

There was never such pressing need as to-day for the work of such a laboratory as the Galton Laboratory; only by the skilled and methodical sifting of facts can be reached a state of knowledge that will lead to a raising of the standard of national fitness.

The Study of History.

Geschichte der Mathematik und Naturwissenschaften im Altertum. Von Prof. J. L. Heiberg. (*Handbuch der Altertumswissenschaft.* Fünfter Band, Erste Abteilung, Zweite Hälfte.) Pp. v + 121. (München: C. H. Beck'sche Verlagsbuchhandlung, 1925.) 7.50 gold marks.

THE fact is so well known that it is neither flattery nor even compliment to say that Prof. Heiberg is one of the most learned of living men. Theodore Gaza, I feel sure, knew no more Greek than he, nor can Casaubon or Selden or Bentley have been more industrious and more erudite. The booklet now before us is one of the least of Heiberg's works, but it is an astonishing performance; for he has managed to fit a real history of ancient science into its 120 pages. A reasonable share, some fifty pages, goes to the great subject of mathematics; a delightful sketch of ancient medicine occupies the last thirty pages of the book; and between the two are readable and most instructive chapters on astronomy, mechanics, optics, music, and natural science.

When Zeuthen, another very learned Dane, wrote his short "History of Mathematics," he was more concerned with the development of mathematical concepts than with the precise part in that historical evolution which A or B happened to play; his little book was not over-full, but it was the perfection of lucidity. Prof. Heiberg's book is of a different kind, for it is an encyclopædic article which he has undertaken to write. It is packed to overflowing with information, but it is still exquisitely clear; it seems to touch on everything, and to omit nothing. Short as it is, every student of the history of science will want to keep it by his side.

To epitomise the long chapter on mathematics is beyond our powers; let us glance at the shorter chapter on ancient astronomy. Anaximander comes first, disturbing the old Homeric cosmogony; the Pythagoreans, Philolaus, Anaximenes, and the rest, down to Oinopides and Anaxagoras, are next passed in review. Plato is shown to have given a firm foothold to astronomy in Athens, and we are told how the fantastic or at least poetic cosmology of the "Timæus" and the