but his references lose themselves in a mass of *"op. cit."* at the bottom of the page; (2) Dr. B. has written an excellent text on certain aspects of psychology, but he consistently omits the initials of the writers whose books he quotes, leaving one the annoying task of going through a whole drawer of "Smiths" at the library before finding the particular Smith whom Dr. B. had in mind; (3) Mr. C. conducts a very fine abstract department in his magazine, but his references to periodicals are by month and year without the volume, while the remainder of the magazine uniformly cites by volume and year without the month; (4) Dr. D. has written the best book yet on behaviorism, but the only references he gives are the surnames of the authors quoted inserted in the text in parentheses. Dr. D. remarks jauntily in his preface that the student who desires exact references "cannot be too early trained to use the Psychological Index."

There is something to be said for the *auto da fé*. It gave an exasperated public a chance to get even with scientific men who lacked a sense of responsibility.

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## SCIENTIFIC BOOKS

*Annals of Eugenics: a Journal for the Scientific Study of Racial Problems*, Vol. I, Parts I and II, University Press, Cambridge, 1925, pp. 256.

THE Francis Galton Laboratory for National Eugenics has issued the first two parts of a periodical entitled the *Annals of Eugenics: a Journal for the Scientific Study of Racial Problems*. It is edited by the director of the Galton Laboratory, Professor Karl Pearson who, with Miss E. M. Elderton, contributes a foreword outlining the scope and aims of the new journal. Those who are familiar with the writings of Professor Pearson might be reasonably certain as to several things which would be said in this introductory statement. The journal is to be rigidly scientific, containing "the work of trained scientists rather than of propagandists and dilettanti." Emphasis is laid on the fact that the worker in the field of eugenics requires a fundamental training in mathematics as well as in genetics and anthropology. "By whatever manner we approach heredity and selection in man," the authors tell us, "we still meet the dominating fact that probability lies at the basis of our knowledge; and that snare-besprinkled area of mathematical science—where the greatest have been impaled —justifies us when we assert that the study of eugenics requires now, and will require still more as it advances in the future, the most highly trained scientific minds. Little real progress will be made by popular discussion, and by dilettante work."

There is a real need for a journal which publishes technical and mathematical papers on eugenics, a need which is scarcely met by such periodicals as *Biometrika* or *Metron*. The papers comprising the present issues of the *Annals of Eugenics*, for instance, do not quite fall within the scope of any other journal.

The first paper of the *Annals* is by Karl Pearson and Margaret Moul on "The Problem of Alien Immigration into Great Britain, Illustrated by an Examination of Russian and Polish Jewish Children." The English, like ourselves, have their immigration problems, and one of the most serious of these is occasioned by the influx of Russian and Polish Jews. The authors take the very reasonable position that "the law of patriotism for a crowded country surely must be to admit not those who merely reach our own average—and *a fortiori* not whose who fall below—but only those who can give us, either physically or mentally, what we do not possess or possess only in inadequate quantity." The endeavor is therefore made to find out whether the people of Jewish origin compare favorably with the average of the native British population. The data for the study of the Jewish population were obtained largely from school children, together with what information could be secured in regard to their parents. These findings were compared with those obtained from the Gentile school population living under various conditions. Nearly three fourths of the foreign-born Jewish parents were unable to make any really effective use of the English language, and about a third of the parents were illiterate even in their own language. The alien Jewish population has something like 50 per cent. more bad health than the corresponding native population. Notwithstanding the presumed immunity of the Jew to tuberculosis, the statistics seem to indicate a greater prevalence of tuberculosis among the Jewish children than among the average children of the London elementary schools. When it comes to bad tonsils and adenoids, heart disease, defective teeth, diseases of eyes and ears, and in fact most physical characters except stature and weight, the Jewish population is inferior to the average of the Gentiles. In cleanliness of clothes and person, the Jewish children are behind the average of the Gentiles, even of the poorer districts, and they have an unenviable record also for the toleration of pediculi. From the standpoint of physique, the available evidence does not indicate that the Russian and the Polish Jews are apt to raise the level of the British population.

Part II of the paper is devoted to an investigation of intelligence. The data were secured by teachers who graded their students into a number of classes ranging from very able to mentally defective. No

significant relationship was discovered between the occupation, education or health of parents and the intelligence of their children. There was also little correlation between the intelligence and the health, nutrition or cleanliness of the individual child. The intelligence of Jewish boys was somewhat better than that of the boys of the poorer Gentile schools, but inferior to that of the medium or superior Gentile schools. The Jewish girls were apparently less intelligent than the Gentile girls in all schools. One rather striking fact brought out by the investigation was that whereas, among the Gentiles, boys and girls of corresponding ages were of about the same degree of intelligence, among the Jews the girls were distinctly inferior in intelligence to the boys. How far this is a general racial characteristic is a question which requires further investigation.

There is no evidence in the memoir of any prejudice against the Jew. The authors state that their "chief fear in checking indiscriminate immigration is not that Britain may lose a supply of cheap labor, but that we may exclude a future Spinoza, a Mendelssohn, a Heine, or an Einstein. Yet in approaching the problem sympathetically and, as we hope, without bias, we can not see that unrestricted immigration has been an advantage to this country." What the verdict of the future will be no one can tell. A continuation of the memoir will appear in a subsequent issue.

Following a short illustrated article on hereditary epicanthus and ptosis, by C. H. Usher, there is an extensive, but unfinished memoir by Miss Ethel M. Elderton on "The Relative Value of the Factors which influence Infant Welfare." Miss Elderton has studied how infant mortality is affected by the age and health of parents, order of birth, cleanliness of the home, employment of the mother, occupation of the father, habits of the parents and food in the home. The influence of these various factors is expressed in terms of coefficients of correlation. Those interested in public health and sanitation will find much of interest in this memoir.

The last article is on the correlation of birthrates and deathrates with reference to Malthus's interpretation of their movements. The author, Mr. A. B. Hill, comes to the conclusion that "apart from the secular trend, there has been but slight connection in either country [England and Wales, and Sweden] between the deathrates and the birthrates closely following them, over the period of time for which the statistics are available."

A copy of a fine portrait of the Reverend T. R. Malthus forms a very appropriate frontispiece of the first number of the new *Annals*.

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## SCIENTIFIC APPARATUS AND LABORATORY METHODS

### NEW METHODS TO MEASURE THE RATE OF FLOW PRODUCED BY THE GILLS OF OYSTER AND OTHER MOLLUSCS

IT is a well-known fact that the food of many marine invertebrates consists of planktonic forms carried in with water passing through the gills. It is, therefore, of great interest to know with a reasonable degree of accuracy how much water is taken in and how the process is affected by the changes in the environment. The attempts were made by various investigators to determine by indirect methods the quantity of water passed through the gills, as, for example, determining the $O_2$ consumption and $CO_2$ formation, or by counting the number of plankton organisms in the stomach and in the outside water. So far as the oyster is concerned the figures vary from 300 to 8,000 cc per hour.

Better results can be obtained with the following two methods, which give the possibility to collect the water after it had passed the gills, and to measure the rate of flow and the pressure inside the gill cavity.

(1) The valves of the oyster are forced apart and a glass rod is placed between them to prevent their closing; a rubber tube (a), 6 to 7 mm in diameter, is inserted into the gill cavity and made fast by packing all the spaces around with cotton. The outgoing water passes through the tube; leakage, if any, can be easily noticed by adding a few drops of carmine suspension and watching the produced currents. The oyster is then placed into a tank (T) of about ten liter capacity; the tank is connected through a horizontal glass tube (b) of 6 mm diameter with a small vessel (V) about 50 cc capacity. A vertical tube (c) 8 mm in diameter goes through the bottom of a small vessel; its upper level is about 1 cm above the upper level of the horizontal tube b. The large tank is filled with water up to the level of the vertical tube c. When equilibrium is established the rubber tube a, inserted into the oyster, is connected to the horizontal tube b and the water from the gill cavity begins to flow into a small vessel; the overflowing water is collected in a graduate. To keep the levels constant fresh sea water is added into a large tank at the rate the water is propelled by the oyster.

The pressure inside the gill cavity can be measured by plugging the tube c and watching on the water gauges (g) the rise of the level in a small vessel. In a few minutes a maximum difference is reached and no more water flows through the tube b. This indicates that there is no more difference in pressure inside the gill cavity and at the end of the tube b.