

GENETICS
and the Races of Man

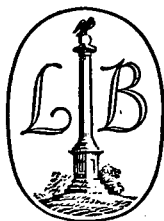
GENETICS and the Races of Man

*An Introduction to Modern
Physical Anthropology*

by

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To Concetta Blanciforti for her drawings in the text.

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Publisher's Note

The publisher considered at one time publishing this book in two versions: (1) an edition for specialists in the field and (2) a simplified edition for the general reader. Considering, however, that we live in a modern world in which the consequences of new scientific theories are often very immediate or even revolutionary, it seemed that many a reader, even though not a specialist, would prefer the opportunity of reading a book of this importance in its original form — the same form in which it will be used by the specialists themselves. The lay reader should be warned, however, that he may not be able to follow the mathematics in the Appendices, and may not care to read certain chapters, such as Chapter II, in full detail.

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Preface

Whether or not it be true that the proper study of mankind is man, it is certain that he finds great difficulty in studying anything else.

— J. W. N. SULLIVAN: *Aspects of Science*

EVEN IF the human element were not so difficult to eliminate, there would be good reason to recommend the study of man because of its usefulness, actual and potential, in the interpretation, prediction, and guidance of human behavior. The present world crisis has made it very clear that unless mankind acquires deeper and more intimate information about the nature of man and the human societies he forms and their mechanisms of action, civilization as we know it may come to an end in the only too foreseeable future. This is still not realized as fully as would be desirable, but nevertheless some results of thought and investigations along such lines are beginning to appear.

The observations of the men of antiquity on their fellow men were largely restricted to aphorisms as to the motives underlying human behavior and to some scattered observations on differences in skin color and certain other aspects of human physique. It was not until the year 1775 that anything which one may regard as a really scientific study of mankind was published. I refer to the book by Johann Friedrich Blumenbach called *De Generis Humani Varietate*, or in other words, *On the Natural Varieties of Mankind*. This author set out to show what significance was to be attached to the differences, physical and mental, which were supposed to exist between men. He realized at the outset that no absolutely sharp distinction could be expected between different peoples and stated that the varieties of mankind, as accepted by various eminent thinkers, seemed to have been arbitrarily chosen as to both number and definition.

Once a movement to study mankind systematically had begun, many who became interested in this subject applied themselves to it, often with amazing energy and industry. Numerous observations on human physical varieties, and new techniques for detecting and measuring new characters, were published, so that an imposing mass of data was accumulated. However, this effort began before the science of genetics was founded, or in other words, before there was any knowledge of the mechanism of heredity, and consequently the mode of inheritance of differences between different varieties of man was for a long time uninvestigated. Therefore, it is not surprising that the chief methods of approach to a physical study of man were along other lines.

One of the most promising lines at first appeared to be a study of human physique, as revealed by a study of skin, hair and eye color, and by stature and various other physical measurements which were from time to time introduced. At one time it seemed that a clue to racial differences of very great value had been found when Retzius suggested that the ratio of the breadth of the head to its length was characteristically different among various peoples. Classical physical anthropology developed from this and similar suggestions.

Once the science of physical anthropology had been properly launched a great many investigations into human physique in various parts of the world were carried out. Various measurements of the head and other parts of the body were made and tabulated and the differences between the peoples in different parts of the world were analyzed. Until fairly recently these data and their interpretation constituted the science of physical anthropology.

But in the meantime one of the greatest of all scientific investigators, Gregor Mendel, had carried out experiments which revealed the true mechanism of inheritance. He was before his time, however, and his work passed almost unnoticed for nearly forty years. About the beginning of this century Mendel's principles were rediscovered and the whole scientific world became aware of them. It has thus been only about fifty years since this rediscovery occurred.

Once rediscovered, however, the science of genetics was developed with great enthusiasm and insight by numerous inves-

tigators in various countries of the world, and it was realized by a great many workers that the laws which were found to apply to plants and animals would doubtless hold true, perhaps with some variation, for human beings also.

As the new science of heredity became better known a gradual revolution began in the ranks of physical anthropologists. It was slowly realized that the proper study of mankind involved as one of its parts a study of the mechanism by which his various physical traits were inherited, and indeed that characteristics which were not inherited would be of small use to the would-be student of physical anthropology. This revolution, however, did not take place overnight, and was for years unperceived by many. It is the purpose of the present book to explain this revolution in anthropological thinking, the scientific basis on which it rests, and the way in which genetic knowledge can be applied to a study of mankind.

Even after the acceptance of Mendelism by geneticists, many of those who wrote on anthropology seem to have known little, if anything, of the new science of genetics. Others gradually discovered the subject as their researches progressed, and modified their points of view accordingly. In the chapters which follow it has sometimes seemed desirable to quote the opinions of certain individuals because they serve to illustrate the ignorance of, or a lack of appreciation of, the science of genetics. But in doing so it is not meant to imply that none of the authors quoted ever learned to understand the role of genetic principles and their application to physical anthropology. Also, it must be remembered that publication always lags behind research, so that in many cases at the time of the publication of a certain book, memoir, or pamphlet, the author of it was already painfully aware that his views, as therein expressed, were out of date.

It does not seem that any single volume has adequately summarized the new point of view towards physical anthropology which developed after the revolution initiated by a study of genetics had taken place. Some aspects of the new views were occasionally summarized in papers in various scientific journals, and the new doctrines were implicit in several remarkable books, none of which, however, were books on anthropology. We should mention partic-

ularly *Inbreeding and Outbreeding* by East and Jones, Fisher's *The Genetical Theory of Natural Selection*, Hogben's *Genetic Principles in Medicine and Social Science*, Dobzhansky's *Genetics and the Origin of Species*, Mayr's *Systematics and the Origin of Species*, Simpson's *Tempo and Mode in Evolution*, and Glass's *Genes and the Man*. The debt which I owe to these books is immense, and will be obvious to any reader of the present text. Nevertheless, there still remained a gap to be filled by a book which would attempt to summarize the results of a thoroughgoing application of the new doctrines to the study of man.

In all humility, and conscious of its many imperfections, the author offers the present volume to his readers as the missing book. No claim is made to any great originality of thought, and if any specialist fancies he recognizes his own thoughts and conclusions in one or more paragraphs, he is probably right, and this seems as good a place as any to apologize for not making a more specific acknowledgment of each such debt. The fallibility of human memory, and the limitations which space imposes on bibliographies, may serve as partial excuses. The chief effort in the present writing has been to acquaint the reader with the important results of the newer work, especially as they might apply to man, and to summarize and synthesize the views of those who, often working in very diverse fields, have contributed to our understanding of the problems considered here. If nothing but a clearer and more complete exposition of the new point of view regarding physical anthropology has been achieved, the author will feel more than satisfied.

In scope, however, this book is somewhat more ambitious than a mere summary of the applications of the newer methods of physical anthropology, for it attempts also to provide the reader who is willing to learn with the basic genetic (and to some extent the mathematical) background which might make it possible for him to make new applications of these very important principles. For this reason Chapter II, for instance, is much longer than the usual chapter on genetics in books on anthropology.

Although the present volume is limited to a consideration of the genetic approach to physical anthropology, it is not implied that other approaches do not have their own value. The various morphological and metrical features of the human body are of

interest in themselves, for the setting up and description of anatomical races are of importance in medicine and criminology, and their study will doubtless be continued. This work, however, is already so well founded that it does not need encouragement by writers working in fields outside of human morphology. It is possible that the need is, rather, for an exposition of the newer points of view, which have been accepted by many but have as yet been expounded in detail by comparatively few, and which have made possible a completely new approach to the problem of the descent of man and the origin of human races. The present approach, therefore, is only one of the many possible ones and there is no encyclopedic thoroughness and no attempt to include the kinds of treatment for which the author has neither the training nor the inclination. As the subject of physical anthropology expands it will doubtless be more and more necessary to specialize in the various branches of the study of the physical aspects of man, and this book may be regarded as one dealing with a particular aspect of this developing subject.

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The author is enormously indebted to various colleagues, some of whom are practicing anthropologists, and others who are specialists in other fields, who have read and criticized the manuscript while it was in the process of preparation. Without their advice it is doubtful if the book could ever have reached completion. None of these friends and colleagues should be blamed, of course, for any errors in the present work, nor should they be held responsible for any unorthodox points of view which may be peculiar to the writer. Among those whose help deserves special mention should be listed C. Blanciforti and J. Holbrook, who drew many of the illustrations, and my wife, who read through the entire manuscript several times, and made suggestions so valuable that without them the book would be much more imperfect than it is.

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