

TWINS

A STUDY OF HEREDITY AND  
ENVIRONMENT

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TWINS

A STUDY OF HEREDITY AND  
ENVIRONMENT

By

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PREFACE

IT IS now ten years since the three authors agreed to pool their intellectual resources in an attack upon the much-debated nature-nurture problem, using twins as the most favorable weapons for such an attack. It was thought that the three of us together a psychologist, a statistician, and a specialist in the biology of twins might be able to go more deeply into this problem than could one person with one particular type of training.

Originally the plan was to compare, in as many ways as we could, a group of identical twins reared together with an equivalent group of fraternal twins reared together. Subsequently, when we began to secure for study a number of pairs of identical twins reared apart, it seemed advisable to postpone an attempt to arrive at final conclusions until the number of twins reared apart became sufficiently large to have statistical value. These cases came in slowly, and it was only a little over a year ago that we decided that the time had come for publishing a general report of the whole project.

In this study there has been continuous collaboration, each of us contributing his own type of specialized knowledge to each part of the study, in addition to participating in making the general plan of the investigation. Dr. Freeman has had charge of all the psychological tests; Dr. Holzinger has been responsible for the statistical aspects of the work, including tabulation and analysis of data, and the derivation of the formula for the estimate of the relative effect of nature and nurture, and has also participated in the collection of data on twins reared together; Dr. Newman

has been responsible for diagnosing the twins into identical and fraternal groups and has personally collected most of the data concerning the physical resemblances and differences.

The actual administration of intelligence and personality tests was carried out by a considerable group of assistants who had received their training under Dr. Freeman. Dr. Newman has been chiefly responsible for the discovery of the cases of identical twins reared apart and has made arrangements for having them come to us for study. He is also responsible for obtaining the life-histories of all but one of these interesting pairs. Tentative reports on the first nine pairs were written for the Journal of Heredity by Dr. Newman with the co-operation of Dr. Freeman. These reports, together with those of ten new cases not previously reported, have been worked over by Drs. Newman and Freeman in collaboration.

## vi PREFACE

The general conclusions discussed in the final chapter represent a consensus of the views of all three authors arrived at after considerable discussion of divergent interpretations of the data. In this chapter we have attempted, first, to give a summary of the facts themselves in as objective a manner as possible, and, second, to draw up a statement of interpretation which is sufficiently guarded to be acceptable to those having a somewhat different bias toward the problem.

Grateful acknowledgments are herewith made to all those who have given of their time and energy to this investigation. Especially do we wish

to thank the nineteen pairs of separated identical twins for coming to us, sometimes from great distances, and for their thoroughly co-operative spirit in submitting themselves for study. We sincerely hope that what we have written about them will be accepted as our best efforts to state the facts without in any way causing them embarrassment in case they should chance to read this book.

The copies of the paper form of the International Test and the directions for administration were furnished for use in the study of the separated twins by Drs. Carl C. Brigham and Stuart C. Dodd. The authors are greatly indebted to these gentlemen for these tests. The tests of the one hundred pairs of twins of the first part of the study and of the first few separated pairs were given by Mrs. Blythe C. Mitchell. Mrs. Mitchell also did the statistical work of the first part of the study. Part of the statistical work on the separated cases was done by Miss Frances Swineford. The remaining tests of the separated twins were administered by Drs. Ethel M. Abernethy, Charles D. Flory, Herman G. Richey, Arthur E. Traxler, Edward C. Bolmeier, and the late Mrs. Eula S. Williams. Mrs. Williams also made a special study of the Kent-Rosanoff Test, and Dr. Richey re-scored all the International Test papers. The physical examination of the later separated cases was made by Dr. Gladys Kindred Dolan. The palm prints of the separated cases were made by Mr. Marshall T. Newman. Assistance in the reading and checking of the proof was given by Miss Frances Swineford, Mrs. Mary Jordan, and Mrs. Elizabeth Nordberg. The Index is largely the work of Walter Thiele in consultation with the authors.

Financial support for the investigations was obtained from appropriations from an annual research grant from the Rockefeller Biological Research Fund and from funds of the Departments of Education and Zoology and the Social Science Research Committee of the Division of the Social Sciences, all of the University of Chicago.

All these forms of assistance are gratefully acknowledged.

THE AUTHORS  
March 1937

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