

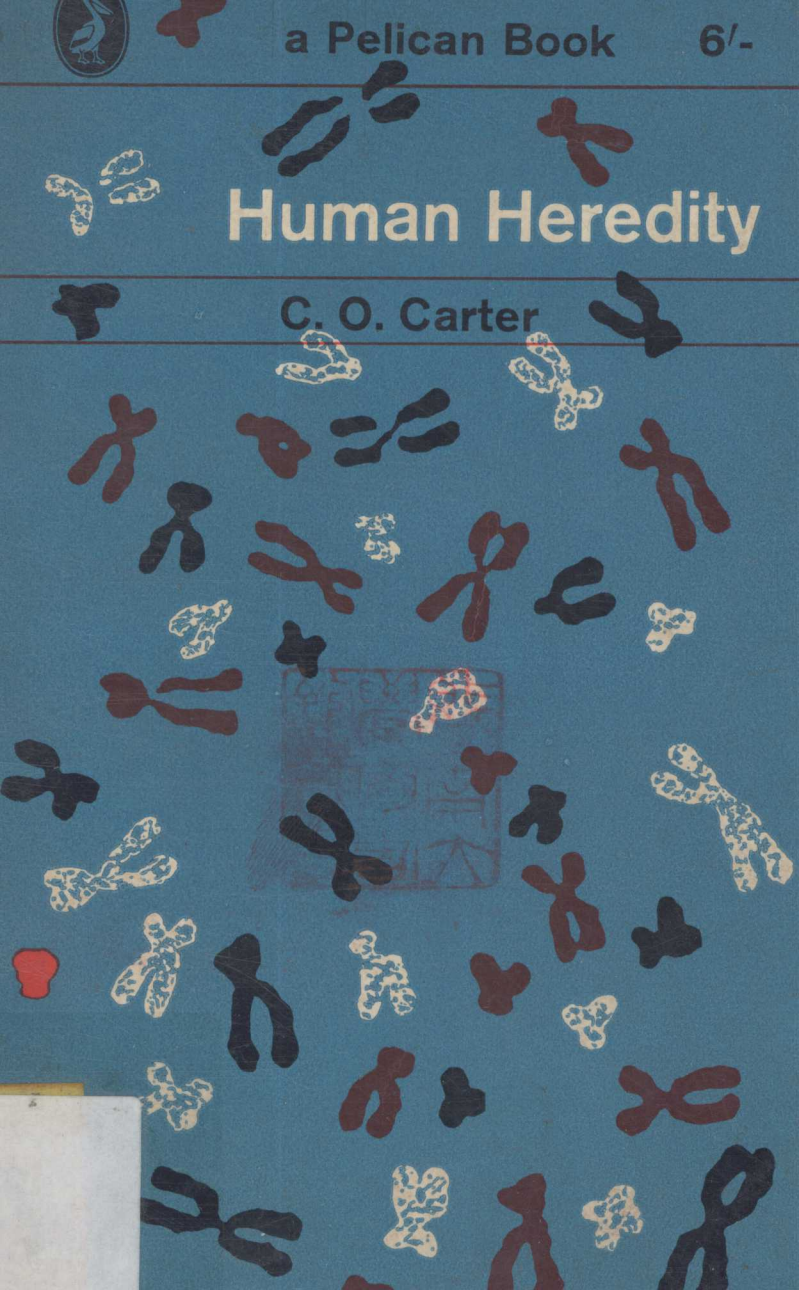


a Pelican Book

6/-

Human Heredity

C. O. Carter





*Some other
Pelicans are described on
the following pages*

MASS, LENGTH AND TIME

Norman Feather

A 532

Measurements of mass, length, and time are the fundamental measurements in physics. Professor Feather traces the history of the emergence of these concepts, with their associated systems of measurement, from the earliest times. On this basis the whole subject of the mechanical properties of matter in bulk is developed. A unique feature of the book is its complete exclusion of the calculus, in any formal context. The author's express intention is to provide an understanding of principles and he devotes chapters to different kinds of motion, to force, mass, and inertia, to gravitation, energy of various sorts, elasticity, and surface tension. His biographical notes on the physicists he mentions add direct human interest to this explanation of 'what Physics is all about'. For essentially this book offers a friendly introduction to the science of Physics.

'What the author has in view . . . has been done admirably, in a way that will stimulate the general interest and broaden the mind of the youthful reader' – Professor Andrade in the *New Scientist*.



KNOW YOUR OWN I.Q.

H. J. Eysenck

A 516

Intelligence Quotient, as a useful means of measuring brain capacity, has come more and more into the public eye in recent years, and the run-away success of a television programme like *Pencil and Paper*, drawing some 14,000,000 viewers every week, proves how ready people are to put themselves to the intelligence test.

This is at present the only book which permits the reader to determine his own I.Q. In the first part of it the well-known author of *Sense and Nonsense in Psychology* and *Uses and Abuses of Psychology* describes clearly what an I.Q. is, how it can be applied, and what the shortcomings of this system of rating may be.

The second part of the book contains eight sets of forty I.Q. problems each, and these are graduated from 'quite easy' to 'very difficult'. There are tables for converting results into an I.Q. rating, and also explanations of the problems, together with the right answers, at the end of the book.



INTRODUCING SCIENCE

Alan Isaacs

A 562

'It is doubtful if the kind of science included in the general education of humanists is even barely adequate.' So the Duke of Edinburgh expressed a feeling that most of us probably share (with varying degrees of guilt). In this direct, lively book Dr Isaacs introduces science to all those who realize that their understanding of modern life is limited by ignorance of science. He first identified the two great principles of the universe – matter and energy. A whole section of the book is then devoted to each of these concepts. The chapter on living matter takes into account the most recent biochemical developments; while the section on energy describes nuclear energy as well as the older forms – chemical, heat, mechanical, and radiant. The final part of the book surveys the boundaries of knowledge, dealing in particular with the creation of life and the ultimate nature of matter.

We live in a scientific age. Can we afford *not* to be introduced to science?



A DICTIONARY OF ELECTRONICS

S. Handel

R 19

So rapid has been the growth of electronics that you will not find the word in any English dictionary published before 1940. 'Transistor' is still absent from most dictionaries. Yet both words are in common use, though often not understood.

Automation, radar, television, tape-recording, computers, artificial satellites, guided missiles, communications, and navigation — all these, with their profound effect on everyday life, are dependent on electronics, and each application contributes its quota of new words. Hence we have a serious problem of language.

This dictionary has been prepared by a consultant electrical engineer, with twenty years experience in electronics, as a concise, accurate, and up-to-date reference work both for those who are professionally concerned with electronics and for those who are simply moved by a healthy curiosity about our complicated world. In the definitions provided, such words and phrases as may be unfamiliar to non-technical readers are all related, by systematic cross-reference, to 'standard dictionary' words. Specialists in electronics will find this a useful source of short, authoritative descriptions and, when they exist, standardized definitions.



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AUSTRALIA: Penguin Books Pty Ltd, 762 Whitehorse Road,
Mitcham, Victoria

First published 1962

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by Cox and Wyman Ltd,
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Editorial Foreword

WE all tend to take the commonplace and familiar in human experience for granted and cease to wonder at it. But, when one stops to think about these things, and asks for an explanation of them, again and again one finds that it is the most common and familiar which prove most difficult to account for in scientific terms. Heredity is an outstanding example of this fact. All species breed more or less true to type. Indeed, reproduction down the generations is one of the great characteristics of living things. On the other hand, individual variation does occur, and it is on variation of a certain kind that natural selection has worked to lead to organic evolution. In this book, which is bound to appeal to a very large circle of readers, Dr Carter explains in simple terms what is known about this extraordinary phenomenon, with particular reference to man.

In the first place his book must make an appeal to every thinking layman. For we have all inherited, not only our ordinary human characteristics, both physical and mental, from our parents, but also some of those characteristics which are peculiarly our own as the result of the complex gene pattern whence we are individually derived. Most of us, too, have had or will have children, and have passed or will pass on to them some of the characteristics which now seem peculiarly ours. Dr Carter's book explains all this, in so far as it is capable of explanation as yet, and helps us to distinguish, where the causation of human variation is concerned, between genetic factors and the influence of environment on individual development.

In the second place this book will appeal to sociologists.

To what extent can the human race be modified by control of environment? Or, can it be improved only by the control of human mating? Some seem to think environment all-important in this matter; others take their stand on eugenics, and tend to ignore the importance of environmental influence. Dr Carter's book will help the reader to take a balanced view in a field where a rational outlook is very much required. In the third place, it will appeal to all students of biological science. For, biologically speaking, man is a good example of an animal, and in it he will find a simple up-to-date account of the phenomenon of heredity in general.

Last but not least, to the medical student and practising doctor it will come as a ray of light in the darkness. Hitherto they have been regaled and oppressed by books on genetics dealing with the inheritance of odd conditions and rare characteristics, most of them extremely difficult to understand. But this book deals in a simple way with the familiar: with the inheritance of intelligence, constitution, and some of the common diseases which the doctor meets. Further, disease can be defined only as an alteration in an individual for the worse, as judged on human standards, and that must be due to some fault in the genetic plan whence the individual is derived, or to some adverse factor in the environment into which he has been born, or to interaction between these two rival factors. It is true that some common diseases *are* due to simple genetic factors; true also that some others *are* due to simple adverse factors in a man's environment. But the pendulum of medical opinion is fast swinging away from the idea of single simple causes. Most diseases are bred of complex interaction between genetic predisposition and adverse factors in environment. A proper understanding of human heredity is becoming increasingly important to a proper understanding of human disease.

A. E. CLARK-KENNEDY

Acknowledgements

GRATEFUL acknowledgement is made to Dr H. Lehmann of St Bartholomew's Hospital for Plates 1 and 4a; to the McGraw-Hill Publishing Co. Ltd for permission to reproduce Plate 4b from *The Metabolic Basis of Inherited Disease*, Stanbury, Wyngaarden, and Fredrickson (1960, McGraw-Hill Book Company, Inc.); to Mr J. L. Hamerton of Guy's Hospital for Plate 2; to the Department of Medical Illustration, the Hospital for Sick Children, and the family concerned, for Plate 3.

I am indebted to the Editor of the Penguin medical series, Dr A. E. Clark-Kennedy, for his kindly encouragement. Grateful thanks are due to Mrs K. A. Evans for her untiring help with the preparation of the manuscript and to those who kindly read and criticized it, particularly Dr H. Blyth, Dr K. Hutton, and my wife.

All those who work in the field of medical genetics owe much to the ideas of the two British pioneers, Dr J. A. Fraser Roberts and Professor L. S. Penrose, who, however, bear no responsibility for any controversial opinions expressed in this book. My concepts of eugenics have greatly benefited from discussions with Dr C. P. Blacker.



Inheritance: How We can Learn from Twins

IN general, children resemble their parents. This is often more evident to others than to the parents themselves. A family doctor, and even more a children's specialist, who sees a succession of mothers and children during his consulting hours and visits, is constantly struck by these resemblances of features, body-build, and mannerisms. People change as they age, and these resemblances would be even more striking if one could see, say, a mother at the age of six and her daughter at the same age. Parents who are lucky enough to have photographs of themselves as children will be able to make these comparisons. There are also many exceptions to this general resemblance. A particular child may resemble neither parent, at any rate for some of his characteristics. The scientific study of heredity, which is called genetics, attempts to analyse and explain these likenesses and, equally important, the unlikenesses.

There is, of course, more than one cause of likeness between parent and child. The first main cause is true genetic inheritance, a potentiality for growth along certain lines transmitted from parent to child in the germ cells. The second main cause is cultural inheritance, the tendency of children to learn from and imitate their parents and also to have social experiences, such as standard of living and type of schooling, of much the same kind as their parents. As knowledge of human heredity grows, it is becoming increasingly possible to distinguish likenesses due to heredity from likenesses due to similar external influences, physical, social, and cultural. The latter groups of influences are collectively called environmental.