
Under the general title of intersexuality, the author considers all states of abnormal sexual development and adaptation, whether related to sex chromosome anomalies or not. The first part deals briefly with general consideration of clinical cytogenticities, including methods, and with a review of the chromosomal findings in the many clinical variants of deviant sex development that have been described. In the second part, the author presents a series of cases from the Dermatology Department of the Charité in Berlin, and discusses their chromosomal and other findings in eight short sections. These deal with 14 cases with chromatin-positive Klinefelter's syndrome, a lactating castrated hermaphrodite, a pituitary dwarf, and a male with Turner's syndrome without webbing of the neck, four cases of gonadal dysgenesis in females, a complex sex chromosome mosaic with a triple-X cell line and pure gonadal dysgenesis, testicular feminization, and male pseudohermaphroditism, transvestism, and transsexualism, and congenital and acquired adrenogenital syndrome.

The cytological and clinical illustrations are of poor quality, and insufficient cytological (e.g. no counts distribution) and at times clinical data are given. There are a number of inaccuracies in the spelling of authors' names and in the literature quoted, and some printing errors have crept in (page 43, first lines).

P. E. Polani


This unpretentious and readable little book is written by a clinical paediatrician with the object of imparting information, at a simple level, to clinicians who wish to learn about the relevance of chromosome disorders to practical medicine, but who have little genetic or cytological knowledge. It aims at giving some basic information in three brief chapters, about the cell, cell division, and the origins of chromosome anomalies. Seven short chapters are devoted to the description of the main autosomal and sex chromosome anomalies. Attention is paid to the clinical as well as to the chromosomal features of the disorders discussed, and thoughts on management are generally put forward. The illustrations are good and clear.

Because of their relevance to the diagnosis of some chromosomal disorders, dermatoglyphics are discussed. The book is written conversationally and here and there it is purposely repetitive. Some slight inaccuracies, particularly in its general chapters, do not detract from its value as an elementary exposition.

P. E. Polani


Some anthropologists would go as far as to deny the existence of races of Man, admitting only a range of clines—racially intermediate populations—and of cultural isolates. This is a reaction not only to the confusion of concepts bequeathed by the older anthropologists with their ever-increasing number of 'races' defined by trivial and narrow criteria, but also to the horrors that the political racists have inflicted and continue to inflict on the world. This study by Dr. Carleton S. Coon carries forward the biological approach to the problem of race which he used so effectively in his Origin of Races. He accepts the world population of today as falling into three racial groups: predominantly Caucasian, predominantly Mongoloid, and predominantly Congoid. The criteria for this classification are derived mainly from relatively recent work in genetics. The distribution of variations in blood groups with the protective effects of some genetic constitutions are outstanding features, but so too is the distribution of the insulinulating mechanisms of skin pigment, hair follicle, sweat glands, and blood vessel distribution which themselves are genetically determined but interact with environmental factors. Population genetics—with its emphasis on slow spread through gene exchange, and rapid effects from the selective value of high infantile mortality among carriers of genes ill-adapted for particular environments—helps to explain the creation of human variability. Such variability is fostered by human action, and Dr. Coon suggests that the title of one of Gordon Childe's books, Man Makes Himself, might have carried a fourth word 'variable'. Variability in features sometimes depends on relatively simple mechanisms: skin pigmentation is striking, but is essentially the result of fairly trivial biological differences in skin structure, with a survival value in certain environmental conditions.

The greater part of the text is devoted to a factual account of the different physical and physiological types throughout the world, with critical expositions on such peculiar curiosities as the African and Australian pygmies. The primitive character and the adaptation of these and such-like variants to a particular environment is stressed, while the African Negro is shown to possess considerable admixtures of Caucasian features. Africa has been open to Caucasian invasion for millennia, but the invasion of the American continent is to be counted in centuries. The penultimate chapter on the Racial History of Man since 1492 shows racial evolution in historical times—much of it fairly adequately documented, and Coon concludes that 'America has been less a melting pot than a smorgasbord'—and that 'every tyranny across the Atlantic benefits the American people'.

This book is not only an excellent textbook on anthropology, but an important contribution towards an assessment of race, a subject that 'is becoming more

Interest in sex determination in man and mammals has been much stimulated in recent years by the discovery of sex chromatin, sex chromosome anomalies, the inactive-X hypothesis, and so on. Professor Bacci's book deals with sex determination not only in mammals but in the whole of the plant and animal kingdom, particularly the animal kingdom. Man and the mammals are only briefly dealt with and hence the book will be of no great interest to clinicians. It will, however, be a valuable source of reference to those engaged in fundamental research on sex determination, and would also be of interest to advanced students of biology.

The author begins with an outline of the basic types of cell division and sexual and asexual reproduction in plants and animals. He next describes the processes leading to exchange of genetic material in bacteria, algae, and fungi, and compares these with sexual processes in higher organisms, pointing out that it would be unwise to assume that genetic exchange in these lower forms constitutes a primitive type of sexual reproduction. Chapter 4 deals with the various genetic types of sex determination, including forms with well-defined sex chromosomes, whether morphologically recognizable or not, and those in which the sex genes are distributed throughout the chromosomes. It also describes sex-linked inheritance and abnormalities of this inheritance, including the effects of non-disjunction of the sex chromosomes. In the next two chapters the various theories concerning the genetic mechanisms of sex determination are dealt with, including the balance theory and the inactive-X theory in mammals. Forms in which the sex of the offspring is determined by the genes of the mother or by cytoplasmic influences are also included.

Next the book deals with hermaphroditism and dependence of sex on environmental factors, such as time, or body size, or, particularly in parasites, size and age of host and hormones of other individuals. Chapter 9, after describing the embryology of the sex organs in amphibia, goes on to list somewhat similar effects of the environment on sex determination in this group, including those of temperature, over-ripeness of eggs, castration, parabiosis, and hormones. Parthenogenesis is next treated, and again first the genetic and then the environmental factors affecting sex in parthenogenetic forms are discussed. There follows a chapter on evolution and sex, putting forward the general view that no satisfactory unitary theory of sex has yet been worked out and that there are a multiplicity of systems in different animal and plant groups, which have evolved in different ways to meet various needs.

The book is well produced, but marred by many misprints, spelling mistakes, and faults in translation. These last sometimes make the text difficult to follow, or even misleading, and the difficulty in comprehension is made worse by the use of many little known technical terms, such as epitochous, amphiogenic, protogonia, and deutogonia. A glossary is provided, however, and despite its imperfections the book will still prove a valuable work of reference.

M. F. Lyon


To judge from the account of the development and testing of volumes I–III, a great deal of work has gone into perfecting the technique of programming in this subject, and tests on student users give favourable results.

The authors are aware that a method that puts so much of the burden of teaching on the student himself depends for its success on the enthusiasm of the instructor. The reviewer, however, admitting experience only of closer student-teacher interaction, feels that a more than ordinarily keen teacher is needed, so diluted is his influence.

Again, in a biological subject, where the zeal of the student so often arises from, and is nurtured by, the handling of organisms and the ‘discovery’ element in the understanding of real data, is not a method, which uses very little of either, liable to stunt the growth of imagination and disciplined curiosity?

Finally, it seems that an effort has been made to simplify for the lowest intelligence, and that this, at least in this volume, has occasionally led to undesirable features. For example, chapter 1 shows that the checker-board predicts the outcome of crosses (a) where the segregation of two alleles is studied without consideration of their attachment to chromosomes and (b) where the segregating alleles are assumed to be attached to chromosomes; it then ‘concludes’ that the genes are either the chromosomes or are attached to them. Is this not a tautology rather than a logical argument? Again, chapter 2 states that the ‘controlled breeding method’ of studying inheritance is different from the ‘family method’ (where data on many sets of parents and offspring are pooled); but it treats them as if they were the same, i.e. it does not point out that such pooling is not done on the basis of fully-known parental genotype: a mention of ascertainment (without describing it) is needed but not given.

This volume recaps on previous ones and introduces chromosomes, sex linkage, crossing-over, population...