ethnology, or any issue of *The American Anthropologist*, and he is likely to find sufficient instances without painstaking research.

But a moment's reflection shows us how ridiculous and false this terminology is. The clan, for instance, is not founded on any blood tie, nor is any other relationship of family or kin. The relationship may be genuine or fictive, but it rests on a *genetic* principle and nothing else.

The error is even more agregious in physical anthropology when we commonly speak of racial ancestry in terms of blood. It is not unusual, for example, to hear a contemporary anthropologist say that the composite Polynesian race is predominantly Caucasian with a definite Mongolian admixture and a minority element of Negro *blood*. We still speak of half-blood and full-blood Indians.

The error of the anthropologist is shared by his fellow scientists. We unthinkingly carry and perpetuate the timeworn popular fallacy of hereditary continuity through blood. *In the interests of scientific accuracy it is incumbent upon us to stop it.* The imprint of accurate word usage based upon scientific fact must be stamped upon the lexicon of all men by scientists. It is our responsibility not to permit ourselves to be bound by popular word usage based on age-old error, especially when the error serves to generate and perpetuate untold mischief in the affairs of men.

A simple correction can easily be made. For "blood relationship" and "consanguine" substitute "genetic relationship" and "genetic group." For Negro, Caucasian, and Mongolian "blood" substitute "ancestry" or "hereditary of genetic component" unless it *is* blood you are talking about and not racial heredity.

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Book Reviews

Animal cytology and evolution. **M. J. D. White. London: Cambridge Univ. Press, 1945. Pp. viii + 375. (Illustrated.) $7.50.**

This timely and, in many respects, excellent review of the present status of chromosome morphology in relation to genetics hides its subject nature under a misleading title. The author may have intended originally to write a general cytology text; but he narrows the scope of the book in the Introduction, announcing that "by cytology we mean nuclear cytology, since the evolution of cytoplasmic constituents of the cell is an entirely different subject." In fact, even the term nuclear cytology seems too inclusive, considering that the book deals almost entirely with the chromosomes as the carriers of heredity. The comparative lack of purely cytological interest is reflected in the illustrations of the book, which consist of diagrams and simple line drawings.

The author makes a deliberate effort to relate his material with "neo-Darwinian" views, but in many instances, these attempts are unconvincing. By excluding from discussion all protozoans, plants, and lower organismic forms, the largest source of material which might serve as a basis for phylogenetic speculations remains unused. Consequently, the chapter on "The Evolution of Meiosis and the Chromosome Cycle" does not deal with the origin but merely with some modifications of meiosis, mostly as observed in aberrant insect groups. One may justly apply to this and other chapters of the book the commentary which the author attaches to his review of Goldschmidt's Lymantria work: "Its significance from the evolutionary point of view is, however, by no means clear."

The chapter on "The Evolution of the Sex-determining Mechanism" probably comes closest to the proclaimed aim of the book. The obvious fact that several times within the animal kingdom the change from hermaphroditism to gonochorism is followed by an evolution of sex chromosome mechanisms provides a tempting field for theory and speculation. White follows traditional ways in suggesting that sex-determining mechanisms evolve from monogenic differences (at a single chromosome locus), expand through the acquisition of differential regions, and finally become visible under the microscope in the shapes of X and Y chromosomes. He offers an excellent discussion of the relationships between pairing segments and differential segments of the sex chromosomes and their bearing on chiasma formation, crossing-over frequency, and reductional or equational distribution of the sex-chromatin in the first meiotic division. The scarcity or absence of sex-linked mutants in many of the more advanced-type sex chromosomes is connected interestingly with the progress of heteropycnosis. Gradually, the chromosomes seem to lose all original genetic functions except for their role in sex determination. The concluding paragraphs of the book contain the surprising statement that "monogenic sex-determining mechanisms which we observe at the present day, were almost certainly evolved as reversions. . . ." Accordingly, amphibians and teleosts should no longer be considered as links between the primitive hermaphrodite and the advanced sex chromosome types. But such a conclusion receives little support from recent investigations which reveal that, among lower vertebrates, rudimentary hermaphroditism is a relatively frequent occurrence and genetical sex determination is usually in a very labile condition. Furthermore, comparative chromosome studies furnish no indication that, once present,

well-developed sex chromosomes were "subsequently lost."

The book serves as a comprehensive guide to the chromosome literature bearing on genetical matters. Entire chapters are devoted to such fundamental subjects as structure of mitotic chromosomes, salivary-gland chromosomes, structural rearrangements and meiosis; others bear on special problems connected with parthenogenesis, male haploidy, and hybrid sterility. The always interesting subject matter is presented in stimulating and easily readable form. In a second printing, some minor errors and inconsistencies should be eliminated.

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Modern plastics. **Harry Barron. New York: Wiley, London: Chapman and Hall, 1945. Pp. xv + 680. (Illustrated.) $7.50.**

This book, as the author notes in his Preface, has been written for the reader with a modest scientific or engineering background who wishes to obtain an over-all view of the plastic industry. In line with this thought, the book covers all the well-known basic plastics, emphasizing their requisite raw materials, manufacture, processing, and applications. The nine chapters on phenolic plastics cover the phenol formaldehydes, the urea formaldehydes, and the melamine formaldehydes. Special emphasis is placed on the methods of polymerizing and details of molding, casting, and laminating. The five chapters on cellulose plastics are concerned with cellulose nitrate, cellulose acetate, and ethyl cellulose. Of particular interest is the description of the injection molding process. The vinyl resins are well covered, with much attention being given to applications. Brief but excellent chapters on plasticizers and the extrusion process are included. Polyamide plastics, alkyd plastics, and casein plastics are each discussed. High-frequency heating methods, analytical tests, and physical tests are briefly considered.

While the book has not been written for the specialist in plastics polymerization, there are several very good descriptions of the polymerization process both for thermoplastic and thermosetting materials. The author succeeds very well in presenting an over-all picture of plastics chemistry and plastics technology. Although the author is an Englishman, most of the references are to American concerns and literature. However, enough of Germany's and England's contributions are present to give the book a cosmopolitan flavor.

The author makes no pretense of including any up-to-the-minute developments, and such topics as allyl plastics and silica plastics are absent. The newer developments in alkyds and low-pressure laminating are not treated adequately in the light of present knowledge. For American readers, the author's dependence on British testing procedures is unfortunate.

All in all, however, the book can be well recommended as covering the entire field in an adequate manner.

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