Book Reviews

Les Chromosomes des Vertébrés. Robert Matthey. Lausanne, Switz.: F. Rouge, 1949. Pp. 360. (Illustrated.) 48 Sw. fr.

The chaotic state of our knowledge of vertebrate chromosomes is one that makes every cytologist shudder. The prevailing confusion touches every aspect of the subject, extending even to chromosome counts. Thus the number of chromosomes reported by a long series of investigators for *Gallus domesticus*, the common chicken, ranges from 12 to 78, and cytological disagreement has been almost as great for other vertebrates. To the initiate this is perhaps not surprising, for these investigations demand the utmost in judgment and technical skill and some workers in the field have been far from realizing this.

The first important step toward putting things to rights was taken in 1937 by Oguma and Makino, who published lists of all vertebrate chromosome numbers with references that had been reported up to that time. But the Japanese cytologists did not attempt to make critical evaluations of the many discordant results, a task which has now been undertaken by Matthey.

In a great many cases Matthey encounters no difficulty in recognizing erroneous findings, and he frees the subject of such encumbrances without mercy. But in all too many instances a final decision is impossible, and Matthey, whose own excellent researches give his judgment a considerable weight, is forced to suspend his verdict. That is especially true of the sex chromosomes, and he quite rightly devotes a quarter of the book to this important aspect. The long and the short of the matter is that even in such familiar animals as frogs, various domestic fowls, and rodents, where so much breeding work might be expected to serve as an aid to cytological investigation, no final conclusion about the constitution and behavior of the sex chromosomes is yet possible. Matthey makes it clear that progress is indeed now being made, but, as he has elsewhere remarked—not without a twinkle in his eye—one hindrance lies in the fact that whereas one important group of workers derives theoretically beautiful generalizations from sadly inadequate material, another does not sufficiently utilize our present knowledge of cytogenetics in interpreting its preparations that are close to perfection. But much clarification is brought about by Matthey's clear statements of the issues that are now important to a final solution. His presentation of the problems of chromosomal evolution among the vertebrates should prove to be extremely useful in further researches.

It may not be amiss to point out that even in a work so crammed with numbers and facts, the author's freshness of expression and charming style do much to ease our progress through the pages. The book will no doubt become the basis from which all further work on vertebrate chromosomes will take its start. There are 490 illustrations, judiciously chosen and well reproduced. A bibliography, species index, and list of text figures terminate the volume.

FRANZ SCHRADER

Columbia University

Best science fiction stories: 1949. Everett F. Bleiler and T. E. Dikty. (Eds.) New York (16): Frederick Fell, 1949. Pp. 314. $2.95.

Whether the *Best science fiction stories: 1949* are or are not the best is of course a matter of taste, but most of them are good of their kind, and they do not misrepresent the field. Readers of *Science* who have read science fiction will know what to expect. To others, some of the stories should perhaps be recommended with a word of guidance.

Science fiction has its conventions and, like the mystery story, a bag of tricks. Thus, in "Genius," by Poul Anderson, "subdimensional quasivelocity" is merely a way of double-talking oneself past the speed of light in order to write about a galactic empire. I don't find this more annoying than the witches in *Macbeth*, because the story is both exciting and well thought out within its framework.

Indeed, science fiction writers have acquired a knack of constructing worlds in which things stick together so well as to make some solemn books about the future seem a little silly. Dr. Asimov, for instance, manages ingeniously to confront sanity, in a race of evolved bears, with humanity. If we miss moving characterization and hot love scenes in "No Connection," we are at least spared a raising of the devil, red or otherwise.

Some stories rely less on technology. I don't know how to describe Ray Bradbury's "Mars is Heaven" and "And the Moon Be Still As Bright" in a few words, but you might like them. Certainly, Wilmar H. Shiras's story of a child should convince anyone that not all science fiction is machines, monsters, thud and blunder.

Space is short; as for the rest, Henry Kuttner mixes such science fiction stand-bys as time travel, a robot, and teleportation with an ingenious plot and a surprise ending to make just plain enjoyment. In Lewis Padget's "Ex Machina" this and more than a dash of Thorne Smith make fun for those who can take it. Frederick Brown does better than might be expected with the hackneyed last man theme. Murray Leinster's story is acceptable. J. J. Coupling's "Period Piece" is an honest effort to set one's teeth on edge. I will lay what I think of the other two stories to prejudice.

Melvin Korshak's introduction is a good historical summary. The reader should leave Bleiler's and Dickty's preface till after the stories, because it gives away some of the plots. So do the heads above the titles.

In a reviewer's last say, I commend the good plotting and good writing that make these stories easy to read and leave no doubt about what has happened and no wonder concerning what was meant. However, this poor

fellow, who finds here and now so very puzzling, would like a little more mystery about distant worlds and the distant future. He would be pleased to be left wondering and speculating beyond the last written word.

J. R. PIERCE

Millburn, New Jersey

Nature-nurture controversy. Nicholas Pastore. New York: King's Crown Press, Columbia Univ., 1949. Pp. xvi + 213. $3.25.

The object of this book was to investigate the relationship between scientists' views on the nature-nurture controversy and their social, economic, and political opinions. The data for such an analysis consisted of the published works of 24 American and English scientists who were prominent in the nature-nurture controversy between 1900 and 1940 and who also expressed sociopolitical views in writing. Of the 24 scientists, 10 are classified primarily as psychologists and 9 as geneticists or biologists; the remainder include 2 sociologists, 1 anthropologist, 1 educator, and 1 statistician. The dates of birth range from 1822 to 1899; 10 of the subjects were living at the time of the study.

Pastore's analysis of the views expressed by these 24 scientists leads him to conclude that, of the 12 who were predominantly "environmentalists," all were politically "liberal" or "radical," with the exception of a single "conservative." Similarly, all the 12 "hereditarians" are described as "conservative," with the exception of one "liberal." In reference to causal relationships, Pastore strongly favors the hypothesis that the position of these scientists on the nature-nurture controversy was influenced by their sociopolitical allegiances.

There is much in the procedure of this survey which arouses skepticism regarding the generality as well as the interpretation of the results. In the first place, it is very likely that a selective factor was introduced by restricting the sample to those scientists who had expressed themselves in writing on *both* nature-nurture and sociopolitical issues. The author himself points out that many individuals with a definite point of view on the former had not expressed themselves on the latter. He further notes that their failure to do so may indicate a contradiction between their scientific and political outlooks, which made these individuals refrain from writing on political matters. This would mean that the very cases which failed to support Pastore's theory would tend automatically to be excluded from the survey.

A second point concerns the chronology of the study. The investigator states that in the pool of more than 200 names considered, those persons who were active in the nature-nurture controversy between 1919 and 1940 more often failed to express sociopolitical views than did those who were prominent between 1900 and 1918 (p. 16). It would thus seem that the reported relationship between scientific and sociopolitical views was more characteristic of an era when the nature-nurture controversy was in its infancy. At such a period, nature-nurture questions were so ill defined and suitable methodologies so poorly developed that these scientists were probably discussing the nature-nurture problem more as laymen than as scientists. Under these conditions, their sociopolitical opinions and other subjective considerations might have a stronger influence upon their interpretations. Inadequate control of the temporal factor might, moreover, lead to spurious relationships, since both sociopolitical views and interpretations of heredity-environment questions might change with time for entirely different reasons.

It would also seem desirable in such a study to hold constant the field of interest of the scientists. Although Pastore minimizes the influence of "subject-matter bias" in his interpretation of the data (pp. 178–179), it should be noted that all the representatives of anthropology, education, and sociology in the group are classified as "environmentalists." That the geneticist-biologist and the psychologist groups were about evenly divided between hereditarians and environmentalists is not surprising in view of the wide scope of problems covered by each of these fields. On the whole, it could be argued that the role of subject-matter bias is demonstrated by these data, insofar as anything can be demonstrated by such a small and unrepresentative sampling.

Probably the most serious criticism of the present survey pertains to the classification of the scientists as conservative, liberal, or radical. The classification into hereditarian or environmentalist at least has the support of other writers in the respective fields, who had in many cases applied these designations to the individuals in question. But the assignment of cases to the three given sociopolitical categories was apparently done only by the investigator himself. It would have been desirable to have other judges classify the individuals and to report some measure of rater reliability. The sociopolitical writings on which the judgments are based are admittedly meager in a number of instances and, in some cases, the sociopolitical interpretation appears to be quite forced in the light of the quotations given. A letter written to the investigator by one of the living scientists and reproduced in the text caused a complete reversal of the classification of this individual (pp. 94–95). It would be helpful to know at least how the remaining nine living scientists in the sample reacted to their sociopolitical, as well as to their nature-nurture, classification. The author reports that "the sharpest reactions, in those cases where a given scientist had the opportunity to evaluate the section in this study dealing with his own views, came from the hereditarian wing" (p. 182). Apparently there were other disagreements besides the one cited, but the reader is not given the benefit of this information.

Finally, the author's analysis of causal relationships can be questioned. He fails to give adequate consideration to the possibility that the nature-nurture views may have influenced the scientist's sociopolitical writings, and seems too eager to accept the reverse interpretation (pp. 179–182). As a matter of fact, a large number of the so-called sociopolitical quotations cited represent only the scientist's attempt to state certain practical implications of his conclusions regarding nature-nurture questions. The evidence for this type of relationship is just as strong as that for the reverse relationship, which the