formation about these men. And there were very many of them. Then, too, it is most interesting to find that several of one's collateral ancestors once wrote something about insects or about some one insect, and most of us need facts of that kind to bolster up a faith in the inheritance of scientific tastes. Dr. Davenport will please note.

But these items to which I refer deal with injurious insects, while the book covers the whole field of entomology. Many of us have failed to realize how very much was done in that "pioneer century." The very good index to this book has over 600 entries, and I estimate that 500 or more of these are the names of persons who had published (prior to 1865) something on insects, and who receive longer or shorter notices in the volume. We can learn all about the Melsheimers, about Thomas Say (on whom Mr. Weiss has written a separate book), and the many writers who followed—most of them taxonomists like Bassett, Blake, Bland, Burgess, Clemens, Cresson, Crotch, W. H. Edwards, Grote, Hagen, J. G. Morris, LeConte and Norton—and nearly all the other amateurs. Several great names, like those of Packard and Scudder, carry us on from that pioneer century into the next, beginning with 1865; but the early careers of such men are described by Weiss.

But there were writers other than taxonomists and those who wrote about remedies. S. S. Haldeman was one of the best of these, and they are all mentioned. And one's curiosity is fully satisfied about such an interesting character as Benedict Jaeger, whose readable, but rather unscientific and useless book called "Life Histories of American Insects" was read and really enjoyed by the boys of my generation. Weiss tells his whole story rather fully. Then, too, he tells all about Frank Cowan, the newspaper man who found himself stranded in Washington during the Civil War, and who went to the Congressional Library and dug out the material for his "Curious Facts in the History of Insects," a book that has been more quoted than any other insect book that was ever written in the United States.

And the way the author has done the work—with what industry and care! One can not praise it too highly. He writes wonderfully well. I suppose that is because he writes as he thinks and talks. It is so much easier to read a well-written book. Isn't it?

L. O. HOWARD

The Invertebrata. A Manual for the Use of Students. By L. A. BORRADAILE and F. A. POTTS, with chapters by L. E. S. EASTHAM and J. T. SAUNDERS. Second edition. New York: The Macmillan Company. Cambridge, England: at the University Press. 1935. THE second, revised edition of this manual, published only three years after the first edition, is of itself sufficient evidence of the need of just such a text. It fills an important gap between short textbooks for beginners and much larger manuals for advanced students. As the note on page vi states, "the book is now eighty pages longer" and "each chapter has been revised by its writer." In other respects the book follows the original plan and deals almost entirely with the morphology and classification of phyla into classes and orders with some references to sub-orders and representative genera. In general, the subject is handled in an excellent manner and the chapters written by Borradaile are almost above criticism. Unfortunately this can not be said about the work of the other collaborators. The chapter on Ctenophora written by Saunders is much too short and quite inadequately treated, considering the interest attached to this group from a comparative and an experimental point of view. The same criticism applies to chapters VII (Nemertea, Rotifera and Gastrotricha), and XV (Arachnida) written by Potts. The space allotted to different classes in the latter is not well apportioned, the text has not been revised and serious errors have not been corrected. Thus on page 530 in the description of the anatomy of spiders no less than seven misstatements are made, which could have been easily avoided. In the section on Tardigrada the correct statement on page 468 of the first edition, "Physiologically they are interesting in their capacity for resisting desiccation," has been "revised" in the second edition on page 541 to read "Physiologically the *Pantopoda* (italics mine) are interesting in their capacity for resisting desiccation." The author, of course, did not mean it and intended to say *Tardigrada* instead of *Pantopoda*, but since the change was not needed, the slip is highly unfortunate. There are some incorrect statements as, for example, in the chapter on Oligochaeta, in which on page 287 the author lists among the characters found in "the primitive forms in all families" the presence of a gizzard and a typhlosole, whereas, as a matter of fact, some worms do not possess them. In some cases the description of an organ is misleading, if not strictly speaking incorrect. Thus on page 195, referring to the aboral sense organ of Ctenophores the author states that it is "formed of small round calcareous bodies" . . . etc. Now these bodies are merely supported by the processes of the sense cells and are necessary for the proper function of the organ, but do not *form* the organ. In other places there are discrepancies in the text. For example, on page 517, concerning the distribution of respiratory organs in Arachnida the author makes the following statement: "(2) 'Lung books' in the terrestrial scorpions and Pedipalpi. (3) A combination of lung books and tracheae in the spiders. (4)

Tracheae alone in the solifugae, Pseudoscorpionioidea, Phalangida and Acarina." But on page 519 he mentions the presence of two pairs of lung books and no tracheae in the spider families Atypidae, Liphistiidae and Avicullariidae, and the presence of only tracheae in the Family Caponiidae.

Notwithstanding the inconsistencies and shortcomings pointed out above, the book is more complete and better than several other texts and may be well recommended for use in colleges and universities. It is to be hoped that errors will be eliminated in the next edition.

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SOCIETIES AND ACADEMIES

THE TENNESSEE ACADEMY OF SCIENCE

THE spring meeting of the Tennessee Academy of Science was held on Friday and Saturday, April 17 and 18, at the Tennessee Polytechnic Institute, Cookeville, Tennessee. Two sessions were held on Friday and one on Saturday morning, the president of the academy, Dr. Claude R. Fountain, presiding. Friday evening, in the auditorium, following a dinner in the cafeteria, there was an address of welcome by Q. M. Smith, president of the institute, and a lecture by Dr. William S. Webb, head of the department of physics, University of Kentucky, Lexington. The subject of Dr. Smith's lecture was "A Discussion of an Archeological Survey of Norris Basin." The lecture was illustrated and of especial interest as, owing to the overshadowing importance of the economic and social features of the development of the Norris Basin, the public has given little attention to the archeological exploration. Saturday afternoon many of the members went on a botanical excursion, led by Professor D. R. Bartoo, to Stamp's Hollow.

Friday afternoon, Dr. Clinton S. Baker, associate director and resident biologist of the Reelfoot Lake Biological Station, read a paper by Dr. A. Richard Bliss, director, on the work to be done at the station next summer, and then explained the requirements for research scholarships offered by the academy, the number to be limited to about twelve. Ten applications had already been received, he said.

The success of the meeting at Cookeville, a town in the highlands on the border of the Cumberland Plateau, lends support to the policy of the Tennessee Academy of Science to hold a meeting at some point in the state in the spring in addition to the regular meeting in the fall at Nashville.

The sentiment of the forty members of the academy attending the meeting was well expressed in a motion by Dr. Bircher, adopted unanimously, that the Tennessee Academy of Science extend to the Tennessee Polytechnic Institute, to Dr. Dicus and the members of the committees who have arranged this meeting, a vote of thanks for the facilities of the institute so graciously placed at our disposal, for the friendly hospitality shown the members of the academy and for the splendid program of papers and lectures.

J. T. MCGILL

THE TEXAS ACADEMY OF SCIENCE

THE Texas Academy of Science held a regional meeting in conjunction with the eleventh annual meeting of the West Texas Historical and Scientific Society, an affiliated organization, at Alpine, Texas, on April 10 and 11. The occasion of the joint meeting was the laying of the corner-stone of the museum building, which is to be the home of the Historical and Scientific Society. This pretentious building is being erected on the campus of Sul Ross State Teachers College and is built of native rock. The museum building is to be not only a depository for the records of the historical and scientific achievement but will contain laboratories, preparation rooms and other facilities for individual investigators, especially those who come from a distance. Here ample provision is being made for the investigator to have those advantages which are so necessary to field work. The program was presided over by Frederick A. Burt, secretary of the Texas Academy of Science; H. B. Parks, secretary emeritus, acted as secretary. A program consisting of twelve numbers was given. The notable papers were: "Light from the Midnight Sky," by Dr. C. T. Elvey, in charge of the new McDonald Observatory which is now under construction on the summit of Mount Locke about forty-five miles from Alpine; "The Geology of the Chisos Mountains," Dr. Charles M. Gould; and a lecture on "Sulphur," by Dr. J. C. Godbey, past president of the academy.

A visit was made to the observatory and the visitors were shown through the empty dome which awaits the telescope. They were also shown the apparatus on which the work in astral physics is now being done. A combined field trip under the direction of Henry Fletcher, president of the West Texas Historical and Scientific Society, Dr. O. W. Sperry, Sul Ross Teachers College, V. L. Cory and H. B. Parks, of the Experiment Station, visited the Glass Mountains. One of the important actions was the making of plans for holding the meeting of the Southwestern Division of the American Association for the Advancement of