Book Reviews

Receptors and Sensory Perception. A discussion of aims, means, and results of electrophysiological research into the process of reception. Ragnar Granit. Yale Univ. Press, New Haven, Conn., 1955. xi + 369 pp. Illus. $5.

Ragnar Granit, director of the Nobel Institute for Neurophysiology, has written a valuable book that should be read by all who are interested in the nervous system. From reading this book one realizes how much progress has been made during the past few years, and a presentation of the subject, even though confined to a segment of nervous system studies, by one of the most active and prominent workers in the field should be greatly welcomed. For instance, the subject of spontaneous activity in sense organs and its functional significance has not been surveyed before. Detailed research on the mechanisms of centrifugal control of sense organs is only about 10 years old, and the implications of these advances on such problems as control of posture are well stated. This is to be expected since many of the studies were initiated and carried out at the author's institute.

Receptors and Sensory Perception is by no means a neutral review; the author's views are forcefully presented, and there is always an effort made to state general principles rather than mere details. Granit is at his best when he is discussing the functional organization of the nervous system. This is clearly essential, since he aims at narrowing the gap that exists between psychophysics of perception and sense organ physiology. The historical background to problems is as valuable in this book as in the author's previous publication, *Sensory Mechanisms of the Retina,* which appeared in 1947. Topics on visual physiology have been brought up to date, especially in respect to Granit's dominator-modulator theory.

The book, which contains the substance of the 1954 Silliman lectures given at Yale University, concludes with some thoughts concerning the validity and usefulness of the approach and of the concepts that are presented. Granit writes: "everyone makes his own selection from available knowledge, just as in these discussions I have made mine. It then remains to be seen if they stand the test of time and experimentation. However, one can be quite satisfied if they prove useful for the time being." The usefulness of this book is beyond doubt, although it shows how quickly the field changes and how rapidly new results become superseded.

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Bau der Südamerikanischen Kordillere. Heinrich Gerth. Borntraeger, Berlin, 1955. 264 pp. + plates. DM. 52.50.

This book is the second volume of Gerth's *Geologie von Südamerika,* the first volume of which was published in 1941. Gerth has published numerous good geologic works on South America since 1913. This book represents the best and most thorough compilation of published material on the Andes ever attempted. The author's success in condensing so much factual material into so few pages is remarkable. Relatively few pages of this work deal with theoretical considerations, and it will be invaluable to geologists who desire a good general knowledge of the structure, stratigraphy, igneous geology, and stratigraphic section localities of the Andean belt.

The book is divided into six chapters: Antarctic Andes, south-central Andes, north-central Andes, Caribbean Andes, Andean volcanism, and a summary. Each chapter is divided into sections on the basis of natural geologic-geographic subdivisions. These subdivisions, except possibly in the south-central Andes, are fundamentally sound.

Of several criticisms, the most important is the inadequacy of the number and type of illustrations. The use of a series of small block diagrams to illustrate surface geology and structure of the entire Andes is unique, but the advantage gained is dubious. The result would have been more effective if more structure sections had been utilized in the text and a much larger single-piece geologic map drawn to illustrate the surface geology. The structure sections in the book are not located on index maps, nor are all of the thousands of geographic place names used in the text located for the reader's use. The result is often confusing. Among the structural sections, one small error was noted: cross sections *c* and *d* on plate 5 opposite page 160 are reversed.

Throughout, the geologic picture presented in the text is basically sound. But several minor remarks and criticisms must be made. The paleogeographic sketch (Fig. 62, p. 235) is cluttered and loses its effect. Each epoch or period would have been clearer if it had been shown on a separate map. The full extent of some of the seaways is not indicated.

Table 3 (after p. 264) is restricted to Cretaceous strata. Thus the discussion (p. 152) of the controversial Quinta-Giron series is nowhere summarized. Tables 2 and 3 do not show the Tertiary, although considerable Tertiary crops out in the areas covered by these tables. All the tables omit the Paleozoic deliberately, although in Bolivia and northern Argentina the Paleozoic is the most important stratigraphic cycle.

Referring to the Paleozoic of Argentina and Chile, the author apparently was unaware of the articles by Suero (1953), Miller and Garner (1953), and the 178-page summary of the Argentine Paleozoic by Keidel (1947). Gerth tentatively correlates the Isla Madre de Dios (Chilean Archipelago) marbles with the Cretaceous (p. 4), but during recent field studies fusilinids have been collected from these rocks.

Gerth also missed the excellent 541-page treatise by Gröber (1952) on the Argentine Mesozoic and Grossling's (1952) review of the Magallanes basin in Chile. Had he seen these articles he would have realized that Thomas' (1949) correlations (p. 13) across this basin are incorrect.

In northern Argentina, northern Chile, and Bolivia, the author (p. 55) dates the Horizonte Calcareo-Dolomitico as Triassic. The dating of this marker bed is important in regional correlations between the north-central and south-central Andes. All available evidence suggests that the Horizonte Calcareo-Dolomitico is no older than Jurassic and is probably Cretaceous.

The discussion of Peruvian geology is the most thorough in the book. The only question that comes to mind is the dating of the base of the Rimac series. Gerth (chap. III, pts. 2 and 3) dates the base as Upper Cretaceous, but regional considerations suggest that the oldest beds are Tertiary.

Although Gerth (p. 220) perpetuates the classic idea of a Caribbean landmass during the Mesozoic, concrete evidence for such a landmass is lacking. However,