tary beds and intrusive bodies of igneous rock. A minimum thickness exceeding 30,000 feet of the altered strata has been determined. Unconformable on these basement rocks is the Adelaide system of varied sedimentary formations, classified as Proterozoic or late Precambrian, essentially unmetamorphosed and with maximum total thickness of more than 50,000 feet. Extensive glacial deposits are found at two widely separated horizons in this thick section. Marine formations of Cambrian age, many thousands of feet thick, were laid down conformably above the Adelaide system. Deformation that began later in the Cambrian period culminated in the early Paleozoic orogeny. The resulting chain of mountains extended from Kangaroo Island, southwest of Adelaide, at least 1000 miles to the north and northwest. The present low chains in the state are remnants of this ancient mountain belt, after repeated uplifts, erosion, and local burial by younger sedimentary deposits.

Except for limited outcrops of beds dated doubtfully as Ordovician, the only Paleozoic rocks known to have been formed in South Australia after the mountain making are Permian glacial deposits, which locally rest on glaciated bedrock floors. Mesozoic deposits, partly marine and partly continental, have limited distribution and thickness and are only moderately deformed. Workable coal beds occur locally in Triassic sections. During Cenozoic time some downwarped areas received marine sediments; a widespread cover of continental deposits was formed, and important local uplifts have resulted from warping and faulting.

Details of the geology and of the inferred history are presented in ten chapters, each dealing with a specific province of the state. A brief summarizing chapter integrates the salient points. Geology is represented without topography, on black-and-white sheets—some page-size; others folded tip-ins; the four largest, separate sheets in a pocket. The scales of these maps range from 8 to 16 miles to the inch. The one complete map of the state, in color, is a one-page frontispiece, with scale one inch to 120 miles. Stratigraphic and structural relationships are clearly represented by diagrams, sketches, and a number of excellent halftone plates.

Thus, the treatise is brief and in large part of reconnaissance character. Nevertheless it is a welcome reference volume, presenting the salient geologic features of the entire state and bringing together for the first time much critical information won through field studies during the past 30 years.

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Descriptive Meteorology. Hurd C. Willett and Frederick Sanders. Academic Press, New York, ed. 2, 1959. xix + 355 pp. Illus. $7.50.

This book is very useful. It is a welcome revision of the first edition, which was written, like so many meteorological texts in the United States, as an aid for the training program of World War II. Thousands of weather forecasters were needed by the Armed Forces. At that time the emphasis was on mapping, analysis, and forecasting of weather features. The senior author (who has acquired an able collaborator in this second edition) tried then to meet both the practical demands and the requirements for thorough understanding.

The present volume backs off a little from the practical aspects. It makes up fully for this change by an expanded and much more penetrating probing into the behavior of the atmosphere. After a relatively brief introduction to the thermal and radiative properties of the air, most of the space is devoted to atmospheric motions. The general circulation of the atmosphere and the smaller circulation systems embedded in it and the relative interdependence of these systems, together with their causes, are extremely well discussed. In particular, the chapter on secondary circulations of the thermal type, which includes the monsoons and tropical storms, is excellent. The confusing assortment of currents and eddies, which so bewilders the beginner in atmospheric science, is presented as a logical system. The shortcomings are those inherent in our lack of knowledge of many of the phenomena.

A final chapter is devoted to weather forecasting and weather modification. It contains no magic recipes for either. Rather, the authors give a critique of present capabilities and a seasoned outlook regarding what may reasonably be expected in the next decade or two. In neither field is there anything to please the pseudo scientists who have stirred up extravagant hopes for perfect forecasts and widespread weather control. The research path is a long and hard one, and the incipient meteorologist might as well know it.

This book is designed to give information at the professional level in the field of meteorology. It will serve best in conjunction with a course on the subject, for it raises questions that a beginner will have difficulty in answering for himself. But it can admirably support the necessary companion studies on meteorological observation, dynamic meteorology, and the synoptic laboratory.

On one point I find myself out of step with the authors. In the whole text only five persons are named (presumably, because basic material came from their papers). This leaves the student entirely without historical perspective of the field and its development. I am sure there is little doubt about the stature of Rossby, V. Bjerknes and J. Bjerknes, Palmén, and a good many others. Why not give them credit for their contributions? This would not necessarily require extensive literature citations, which the authors expressly wanted to avoid.

On the whole, it is gratifying to see this addition to the solid texts in a field which needs to attract much talent in the future to help in the solution of its many problems.

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Advances in Chemical Physics. vol. 1. I. Prigogine, Ed. Interscience, New York, 1958. xi + 414 pp. Illus. $11.50.

This is the first of a series of volumes which, it is anticipated, will be published annually. The field of chemical physics is assumed to include such problems as those of chemical kinetics, molecular physics, molecular spectroscopy, transport processes, thermodynamics, the study of the states of matter, and the variety of experimental methods used. The purpose of the series is to make available a group of comprehensive articles each of which is the report of an expert in a particular field, who explains his view on a subject freely and without limitation of space. For the most part the articles are of a review nature and are well done, at an authoritative, advanced level; they are not exactly light reading for one not a specialist in the field under treatment.

The emphasis in this volume is on nonequilibrium effects in transport processes and chemical kinetics, but several articles on other subjects are included. The titles and authors represent adequately what one may expect to find in the volume: "Statistical mechanical theory of transport processes. X. The heat of transport in binary liquid solutions" (13 pages), Richard J. Bearman, John G. Kirkwood, and Marshall Fixman; "Theoretical and experimental aspects of isotope effects in chemical kinetics" (62 pages), Jacob Bigeleisen and Max Wolfsberg; "Some physical aspects of gaseous chemical kinetics" (16 pages), G. Careri; "Dielectric properties of dilute polymer solutions" (42 pages), L. de Brouchere and M. Mandel; "Transport processes in liquids" (30 pages), Frank C. Collins and Helen Raffel; "The relation between structure and chemical reactivity of aromatic hydrocarbons with particular reference to carcinogenic properties" (37 pages), R. Daudel; "Molecular theory of surface tension" (35 pages), A. Harasima; "Re-