the separate-agency decision was reached nor the Executive role in congressional deliberations is recounted with the sort of insight one would expect the author's 60 interviews to produce.

But if the book has shortcomings as political analysis, it is far superior to most case histories in its grasp of the substantive issues involved and in its demonstration of how the perceptions and misperceptions of political actors shape their initiatives. Not surprisingly, Rettig finds that experience with the program has led to more modest expectations among erstwhile crusaders and to revised ideas about research priorities. He is eager for Congress, at the end of the program's first decade, to glean the results of this experience and to tailor the program accordingly. Congress, to be sure, might have little "incentive to conduct such a review. There are political benefits in favoring the cancer crusade and perceived costs in criticizing it." And, Rettig might have added, even if "criticism" is forthcoming, one could hardly expect it to depart radically from the expectations that members of Congress have brought to medical research for three decades. This is simply to say that, despite the aging and passing of the remarkable Lasker circle, the basic conflicts of perception and priority that have surrounded medical research may change relatively little. The leadership (and protection) of the research community will continue to require sensitive interpretation and adaptation to those who, quite rightly, perceive the public's stake in the research enterprise.

DAVID E. PRICE
Department of Political Science, Duke University, Durham, North Carolina

The Yerkes Tradition

Progress in Ape Research. Proceedings of a conference, 1976. GEOFFREY H. BOURNE, Ed. Academic Press, New York, 1977. xiv, 300 pp., illus. $16.

On looking at the table of contents and fanning the pages of this volume one notes that its title does not convey its full or its special character, which is that it is a festschrift honoring the 100th anniversary of the birth of Robert Mearns Yerkes. The contributions, which are 29 in number, were originally presented at a two-day memorial conference at the Yerkes Primate Research Center, with sessions entitled Historical Beginnings of Research on Great Apes, Communication and Language in Great Apes, Chimpanzees as Biomedical Models, and Comparative Perspectives of Human Origins. The contents are not completely representative of anthropoid research because the scope of the conference was restricted by lack of funds. It comes as no surprise, then, that the bulk of the papers on communication and language are contributed by Rumbaugh's group in the program of study of the communication skills of the chimpanzee Lana. The biomedical-model section conveys the probably unintended impression that the research limitations are so great that this and the other anthropoid species are best studied for their particular biological characteristics rather than as substitutes for humans in high-risk experiments. The history of research with the great apes reflects these constraints.

What distinguishes the book from most other "Progress in" books is the section euphemistically entitled Historical Beginnings. Mostly, this section consists of reminiscences of persons who were associated with Yerkes many years ago, including his son, David, and daughter, Roberta Yerkes Blanchard. The other chapters of this short section are appreciations and personal memories of what life was like in New Haven and in Orange Park, Florida, and testimonials to Yerkes's greatness. He was obviously brilliant, warm and nurturant, and supportive of the younger scientists who came under his direction.

Building a laboratory and identifying a domain of research that could continue and progress for 50 years is a more than adequate accomplishment for one person. Yet, as Meredith Crawford reminds us, Yerkes had profound influence on the development of psychology, playing major roles in the development of tests for selection and classification of military personnel and in the establishment of a committee for research on sex. He also headed the National Research Council's Emergency Committee on Psychology to organize the efforts of psychologists as might be required for World War II.

Reading these brief testimonials, one gets the impression that the establishment and operation of a research laboratory for the psychobiological study of great apes were a perfectly natural phenomenon that was simply part of the zeitgeist. It took someone less closely associated with psychology (Gordon Hewes) to point out that the river of psychological science was going down an entirely different channel in the early days of the laboratory. The impact of Pavlov and associationism on the rest of psychology as well as psychology's idolatry of theories that could be tested by experimental design with results neatly arrangeable into rows and columns meant that the program at the Yerkes Laboratories had to be a product of a remarkably independent scientist. The prevailing notion that animals were simply interchangeable units required to fill certain cells of an experimental design lasted for many years, and the study of a single animal or of a small group of animals to see what their inclinations and behavior were was alien to American psychology. The situation got to the point where one site-visit team to the Yerkes Laboratories at Orange Park was dismayed by the naming of animals: surely any laboratory that named its animals would be reluctant to face the hard decisions that had to be made in the name of objective science. Others asked Henry Nissen, its director, if he was running a haven for ancient apes. This group of skeptics and the field of psychology generally were totally embarrassed by the animal-behavior studies that developed after World War II under the name of ethology and that, growing totally and somewhat defiantly outside of established doctrine of psychology, yet changed the content and emphasis of every comparative psychology textbook.

ARTHUR J. RIOPELLE
Department of Psychology, Louisiana State University, Baton Rouge 70803

Geology as History

The Structure of Geology. DAVID B. KITTS. SMU Press, Dallas, 1977. xx, 180 pp. Paper, $8.95.

In this book Kitts has collected together eight essays published in various journals between 1963 and 1974 which analyze the complex inferential context in which statements about the past are derived and tested. The essence of his method is to apply the ideas of a number of leading philosophers of science to the special case of geology and paleontology, and he is well qualified to do so, holding joint professorial appointments in geology and history of science in the University of Oklahoma.

There is a considerable amount of overlap in the subject matter of the essays, and rather than discuss each in turn I shall attempt to précis the principal thesis expounded. Geology differs fundamentally from the physical sciences in being concerned with the inference of specific events in the past and not with the more theoretical matter of establishing laws of nature. It is indeed essential for geological methodology that such laws are taken for granted. Geologists