ful to academicians and policy-makers, although the often complex treatment of its subject will pose problems for the reader with no prior exposure to the technical issues. Finally, the book should attract researchers to the difficult areas of investigation mapped out. We can hope that there will be increased funding for these efforts.

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The Politics of the War on Cancer

Cancer Crusade . The Story of the National Cancer Act of 1971. RICHARD A. RETTIG. Princeton University Press, Princeton, N.J., 1977. xxii, 382 pp. $15.

"If this great country of ours can put a man on the moon," Ann Landers asked in her column of 20 April 1971, "why can't we find a cure for cancer?" The opportunity was at hand, she announced, in a pending bill that would be for cancer what NASA had been for space: "the mightiest offensive against a single disease in the history of our country. If enough citizens let their senators know they want bill S.34 passed it will pass." Let them know they did, by the thousands, and within eight months the National Cancer Act was indeed on the books.

But if it was predictable that Congress would find the cancer crusade irresistible, other aspects of the story call for more subtle explanations. Richard Rettig gives a thoughtful and plausible account of why the issue appeared on the national agenda when and in the form in which it did and of the forces that changed the bill as it made its way through the legislative process. The greatest strength of his study, however, lies in its critical probing of the factual assumptions underlying the policy initiative—that cancer research was facing unique opportunities for rapid advance, that a new program and a revised set of federal research priorities were needed to exploit these opportunities, and that the organizational status of the National Cancer Institute (NCI) was a critical determinant of the quality of the research effort. These assumptions, Rettig finds, were seldom straightforwardly addressed, even by the scientific community, whose contributions to the debate he describes as sporadic and "nonanalytical." Consequently, he argues, the program was bound to generate false hopes and frustrated expectations.

The initial proposal was formulated in 1970 by the Senate Labor and Public Welfare Committee's Panel of Consultants on the Conquest of Cancer, a group appointed at the instigation of Mary Lasker and her associates, fabled promoters of major-disease research. The panel's most controversial recommendation, faithfully mirrored in the Senate bill, was that the war on cancer be coordinated by a new agency that would absorb all functions of the NCI and would operate independently of the National Institutes of Health (NIH). The plan thus reflected the conviction of the Lasker circle not only that the overall deceleration of federal research spending must be reversed but also that a vigorous program of clinical and categorical research could flourish only if removed from NIH control.

This seemed to represent a major switch from previous years, when the research lobby, top NIH administrators, and key appropriations chairmen in Congress had skillfully collaborated to boost presidential budget figures for research. But Rettig shows that the research lobby's disaffection in 1970 was rooted in long-standing conflicts over priorities and procedures within NIH and between NIH and the Lasker circle. These conflicts grew more acute with the coming of the Nixon Administration, but the NIH-Lasker-congressional alliance had been more fragile through the previous decade than it had appeared from afar.

It is a complicated story, and Rettig occasionally leaves questions dangling. He uncritically accepts the notion, for example, that a trade-off developed between the growing federal commitment to health care delivery and research funding. Lasker, he suggests, was not inclined to make such a trade-off and in fact "sought to go beyond research towards the provision of patient care" in her instigation of the work of the President's Commission on Heart Disease, Cancer, and Stroke in 1964. The Lasker circle was disappointed, Rettig says, with what Congress and the Administration made of that program. But this hardly clarifies our sense of Lasker's "broader" objectives. For many of the changes made in the commission's recommendations—insuring NIH administration, for example, and moving the program away from delivery toward a primary emphasis on research—were approved, and in some cases engineered, by Lasker allies.

President Nixon sensed an issue in the making as the Panel of Consultants completed its work. He sought to gain the initiative by announcing the addition of $100 million to his budget for cancer research in his 1971 State of the Union message. By May the White House, wary of being outflanked by Senate Health Subcommittee Chairman Edward Kennedy, had dismissed the scruples of the Department of Health, Education and Welfare and NIH and endorsed the separate-agency idea. Meanwhile Representative Paul Rogers and his House Commerce Subcommittee on Public Health were beginning work on the version of the bill that, in expressing the views of NIH, organized medicine, and much of the scientific community, was ultimately to prevail. The Rogers bill, Rettig rightly stresses, left the major premises of the Panel of Consultants uncontested. But Rogers left the new program in the hands of NCI, and NCI within NIH, albeit with substantial provisions for budgetary autonomy.

Rettig gives an insightful account of Rogers's motivation and strategy as a new subcommittee chairman seeking to establish himself, but he fails to develop a convincing explanation for his victory. He treats the autonomy Rogers enjoyed in running his subcommittee, for example, as a matter of general "congressional norms." But there were in fact wide variations within the House, and on the Commerce Committee, in the situation of subcommittee chairmen, as subsequent pressures for a "subcommittee bill of rights" attested. That Rogers would have a free hand, far from being self-evident, requires explanation. Nor does Rettig have a sure sense of which groups and individuals really counted in influencing Rogers and in bringing others to accept his position; the book contains too many recitals of who said what in public hearings, too little probing of political roles and relationships. And the account of Executive Branch politics is underdeveloped throughout; neither how

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.

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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.

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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