Book Reviews

Policy-Making for Conservation: A Pragmatist's View

The Politics of Conservation. FRANK E. SMITH. Pantheon Books (Random House), New York, 1966. 350 pp. $5.95.

Until recently, books and articles dealing with the conservation of natural resources have had a strong moral flavor. In order to publicize a complex and technical problem, they have usually indulged in oversimplification and implied that their proposed solution—a new national park, a new set of regulations—embodies the highest degree of public virtue whereas all other proposals or criticisms, directly made or disguised behind such labels as "states' rights," "economy," or "more jobs," come from the enemies of the people. In the last decade, however, a growing number of scholars with an interest in the processes rather than the ideologies of democracy have examined the ways in which the nation has decided how to waste or use its natural heritage. Because they are still engaged in scrutinizing particular topics within limited time periods, they have not yet reached the point where they can bring together the full history of resource conservation.

Frank Smith offers a welcome and useful alternative to the publicist's polemic and the scholar's detailed study. He is not a scholar in the academic sense, but he bases his narrative on the works of those who have examined government archives and personal manuscript collections. He is far better equipped than any scholar to inform us that conservation has been something more than a St. George-and-the-Dragon epic. He is a pragmatic conservationist, whose 12 years as congressman from Mississippi and 4 years as a director of the Tennessee Valley Authority have taught him that the making of resource policy does not consist of applying the pat answers of purists in some automatically perfect program. Along with many others he learned that "to achieve anything, we would have to master the multiple art that is pork barrel politics—the ever shifting coalitions, the compromises, the trades, the inter-agency lobbies, the special interests alliances—the lesser evil from which has come the greater good."

Although Smith's book ranges through the full variety of resource topics from forestry and reclamation to air pollution and strip mining, it is not so much a full political history of conservation as it is a series of chapters in that history. The subjects he covers most thoroughly are those involving what he calls "the water barrel": the Erie Canal, the reclamation of arid lands, the construction of water power projects, and —most significantly—the TVA. The last of these affords an amazing and frightening illustration of the dangers of public apathy and ignorance on the one hand and the opportunism of several segments of the economy on the other. Although scholars will find some of his judgments open to question (the influence of conservation issues on national elections, and the achievements of Harold Ickes as Secretary of the Interior, for example), Smith's candor is admirable through the entire narrative. He does not set up the traditional stereotypes of "looters of the public domain." Instead, he correctly identifies other "villains" in the drama: bureaus seeking to defend their own jurisdictions, states hesitating over constitutional scruples, and leaders rendered timid or impotent by financial or economic theories.

This history of conservation is a story of missed opportunities. Whenever surveys were made by military or technical advisers, legislatures, both state and federal, tended to disregard them. At the turn of the century, when the wasteful loss of resources was painfully obvious, the sensible arguments of a John Powell or a Gifford Pinchot would be listened to, but enacted into policy only reluctantly and partially. Both Roosevelts were able to blend popularity and executive skills by which they enlarged the scope of federal resource planning. As Smith points out, Eisenhower's administration was unable to modify the nature or extent of federal resource programs. No president, however, has yet provided sufficient effective leadership for the fulfillment of the broadest possible policy. There are many new opportunities facing America, Smith reminds us, for example in controlling air and water pollution and in expanding outdoor recreation. These new fights, like those of the past, must still be made "with the tools at hand." Those "tools" are an aroused citizenry who, with their leaders, are adept at "the politics of conservation."

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Ideas about Inheritance

Origins of Mendelism. ROBERT C. OLBY. Schocken, New York, 1966. 204 pp., illus. $6.95.

Robert C. Olby, librarian of the Botany School at Oxford, has written a stimulating interpretation of the attempts of biologists to fathom the principles behind the overt results of organic inheritance. He analyzes some of the prominent explanations of heredity from the time of Comte de Buffon (1707–1788) to William Bateson (1861–1926) and modestly claims that he has retraced and then added to the material covered in H. F. Roberts' classic *Plant Hybridization before Mendel* (Princeton, 1929; reprinted by Hafner).

In outward form Olby's dependence on Roberts is obvious; in the first two chapters he concentrates on the hybridizing experiments of Koelreuter and Gaertner; in the next two chapters he scrutinizes the solutions offered by Darwin and Galton; he devotes the fifth chapter to the work of Mendel and the final chapter to the rediscovery of Mendel's paper in 1900. This is basically the form of Roberts' book, but many of the interpretations go far beyond Roberts' account.

Perhaps the most novel and provoking section of Olby's book is the treatment of Darwin. Roberts emphasized Darwin's observations and discussions of plant and animal hybridi-

zation and viewed the provisional theory of pangenesis as Darwin's explanation for the tendency of some offspring to revert to ancestral types. In this new history Olby points to Darwin's difficulty in accounting for unusual phenomena, such as pseudogamy, "bud sports," and fusion of graft hybrids, and reminds the reader that even in 1859 Darwin insisted that the environmental condition rather than the effects of cross-breeding created new somatic variations. This double emphasis, Olby argues, led Darwin to deny the uniqueness of sexual reproduction and forced him to develop his theory of pangenesis. Here is a thoughtful interpretation which is further supported by a manuscript version of the theory of pangenesis which Darwin wrote in 1865 and a portion of which the author has included in an appendix. Whether this was a prevailing attitude only future historical research can tell; however, as presented by Olby it offers an interesting way to view the irksome question concerning the lack of contemporary appreciation of Mendel. In fact, using Darwin's correspondence with Galton as a test case, Olby forcefully argues that in light of his indifference toward the special nature of sexual reproduction Darwin would not have understood Mendel's achievements even if he had known of them.

In a second fascinating section Olby contends that de Vries knew of Mendel's work as early as 1896 but did not announce the fact until his hand was forced in 1900. The evidence for this is conjectural, but Olby's interpretation of the events has the advantage of explaining how on separate occasions de Vries could claim that he learned of Mendel's work from different sources.

There are other provoking sections in this book which demonstrate that Olby has gone far beyond Roberts' history of the same events. One serious drawback, however, arises from the fact that Olby has followed Roberts' outline so closely that he does not break away to analyze other issues. Most notably, Olby skips from Mendel's experiments of 1865 to the rediscovery of Mendel's laws in 1900. This "saltation" dodges a thorough investigation of the cytological work of Weismann, Van Beneden, Nägeli, Roux, and many others. It was this cytological understanding, as Olby himself briefly notes, which permitted de Vries to have the insights he did by 1900. Only after historians have fully investigated these developments can we claim to have an understanding of the "origins of Mendelism."

I highly recommend this work. It will stimulate investigation into many corners of 19th-century biology, and its many thoughtful and unique interpretations demand a hearing at history's forum. The book is reasonably priced and contains some valuable source material in the appendices.

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Biology of Marine Caves

Biologie der Meereshöhlen. Topographie, Faunistik und Ökologie eines unterseeischen Lebensraumes. RUPERT RIEDL. Parey, Hamburg, 1966. 636 pp., illus. DM 186.

Until about 20 years ago submarine caves were virtually unexplored and almost no information concerning their configurations, biota, and environmental conditions was available. This situation was due primarily to man's inability to solve technological problems involved in first-hand exploration of these recesses. With accelerated development of skin- and SCUBA-diving instrumentation and techniques, this barrier was successfully overcome, and concomitantly, interest in the investigation of submersed caves increased rapidly. Centered along the edge of the Mediterranean Sea, French, Italian, Croatian, and Austrian scientists actively engaged in probing this remote habitat. One of the most successful of these endeavors was the Austrian Tyrrhenia Expedition of 1952, the results of which form the basis for the present book. Riedl's integration of geological, geomorphological, climatological, hydrographical, and biological data and conclusions has resulted in a monograph which will certainly be a directing influence for the orderly investigation of other marine environments. One is impressed by the book's excellent illustrations, both graphical and photographical, and the exemplary organization of the text.

A discussion of the problems and methods of littoral research, with special emphasis on marine caves, introduces the book, and the reader is confronted with the program, execution, and investigations undertaken during the Tyrrhenia Expedition. Riedl then discusses the occurrence and limits of the rocky littoral and the roles played by geological, geomorphological, and hydrographical factors. A preliminary division of the littoral, based upon water movement and light exposure and their biological effects, follows. The distribution, origin, and age of caves in the rocky littoral occupy the greatest portion of the second chapter, wherein the morphological and climatological significance of different cave types is also treated. This treatment leads to a topographic definition of marine caves, which is supplemented in later chapters by faunistic, ecological, functional, and biocenotic definitions.

About 900 species of organisms are known from sea caves, and they are dealt with systematically and biologically in chapter 3. It is interesting to learn that none of these species is a troglobiont, although many species are speleophilic, especially sedentary animals which show a preference for caves to evade competition with plants in the open littoral. Troglobiontic marine species are known to occur only in "border caves" (*Randhöhlen*). Riedl's discussion of this type of cave, which was originally open to the sea but is now only poorly connected and may in the future become completely isolated from the marine environment, bridges the gap between marine and terrestrial speleology. Furthermore, Riedl shows that the "border cave" and its successive integration into the limnetic domain provide a possible route for the immigration of certain marine faunal elements into the subterranean freshwater habitat.

The zonation of organisms in sea caves is considered in chapter 4. Using one cave, the "Grotta tuffo-tuffo" in the Gulf of Naples, as an example, Riedl portrays the qualitative and quantitative distribution of the biota. He then compares faunal zonation in caves of different forms and depths, considering also chronological and geographical faunal changes. At the beginning of chapter 5 Riedl points out that knowledge of faunal zonation would be of little value without determination of the factors governing it. Consequently, he analyzes the complex influences of light and water movement, in addition to such factors as competition for space, benthonic and pelagic food supply, and the significance of sedentary animals as substrates for other