A "friendly caricature" honoring Rem Khokhlov (left) and S. A. Akhmanov on their winning the Lenin Prize for their research on nonlinear coherent interactions in optics in 1970. The pedestal represents "a nonlinear crystal through which a beam of red light [becomes] green." The caricature "was reproduced abroad in a leading physical journal dealing with laser research. . . . This fact . . . speaks of the international recognition in terms that are more eloquent than any other expression of praise or reward." [From *Rem Khokhlov*]

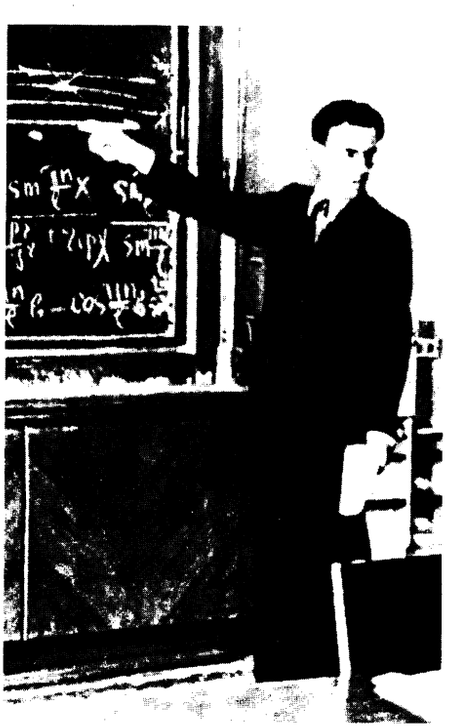
technological support provided his group and the heavy administrative burdens he had already assumed. The appointment of Khokhlov as rector of the university when he was only 47 is but one indication of his achievements.

The account of Khokhlov's life by Grigoryev is not very good, at least by standards of biography to which I am accustomed. In the first part there is discourse (augmented by listings at the end of the book of his publications in radiophysics, quantum electronics, nonlinear optics, and nonlinear acoustics) about the science in which Khokhlov was engaged in his early years and, in fact, virtually to the end of his life. The author took upon himself the task of trying to describe sophisticated physics without equations or precise terminology, and I found that the physics I already understood was not particularly well explained and the science I had either forgotten or never understood was not well clarified. Nevertheless, there are items of historical interest and validity, particularly pertinent to the churning decade of the 1960's, in which the development of the laser gave rise to a torrent of scientific accomplishments. The text very much reflects a Soviet perspective of the major players, but I found no significant errors and learned some new things.

Khokhlov's untimely death is dealt with only briefly. Khokhlov was an avid athlete and an accomplished mountaineer who I understand actually led some of the major training expeditions in the Himalayas and in the Pamirs, as well as participated in several climbs as a member of the "first teams." It was during one such training expedition at some 20,000 feet that he suffered the pulmonary embolism that was to prove fatal. He was flown from the mountain heights by helicopter (a nontrivial feat!) down to lower altitudes for initial treatment and then almost directly on to the clinics in Moscow, where he died. It has been suggested to me by several Soviet friends that Khokhlov's seniority in the Soviet system was partly responsible for his death in that it led to his being treated by physicians who were less familiar with this particular illness than was the medical community nearer the site of the accident. I am disappointed that his biographer, who must certainly have attempted some research on this poignant matter, chose not to detail any of his findings.

My overall criticism of the book would home in on the point that the portrait of Khokhlov that is painted by Grigoryev is just too monochromatic—all rose. Khokhlov must have had his warts, his tension points, his harassabilities and intolerances, and many of the other imperfections that we all have to some measure.

The book has more of the flavor of a funeral oration than of a biography. It remains true, however, that the world lost an extraordinary man with Khokhlov's death, and Grigoryev's work is the only English material about him of which I am aware. For those of us who knew Khokhlov it is an important book that will remain in our libraries. Those readers who did not know him but have a curiosity about the achievements of Soviet physics and wish to get some of the flavor of research in optical physics in the past 30 years or so will certainly derive a great deal from it.



Rem Khokhlov at a blackboard, 1952. [From *Rem Khokhlov*]

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Seabirds

The Atlantic Alcidae. The Evolution, Distribution and Biology of the Auks Inhabiting the Atlantic Ocean and Adjacent Water Areas. DAVID N. NETTLESHIP and TIM R. BIRKHEAD, Eds. Academic Press, Orlando, FL, 1985. xx, 573 pp., illus. $40; paper, $19.95.

Two principal themes run through this collection of papers. One is the value of the comparative approach in elucidating reasons for the ways in which animals do things. The other is the importance of detailed data if one is to understand how to protect vulnerable wildlife from sharing the fate of species such as the great auk. As this book points out, alcids are particularly vulnerable to perturbations of their environment, whether natural or anthropogenic.

Alcid conservation is the central issue of the final chapter, but I feel that the authors somewhat overstate their case. The upper and lower limits for the estimates of Atlantic alcid population sizes given in table 10.2 and in an earlier chapter by the same authors seem far too precise by comparison with the literature from which they were derived. (Contrast the cautious estimates given by M. P. Harris in *The Puffin* [Poyser, 1984], who said that even many present-day estimates are no better than order-of-magnitude.) Later in the chapter we are told that razorbill, puffin, and murre population levels were "at least an order of magnitude greater during the 19th century than they are today." This implies a minimum of 38 million pairs of Atlantic puffins, which seems improbable since Harris's review of puffin status indicated that, in the major strongholds of Iceland and Norway, there is "no firm evidence of any change" or "if anything [the population] has increased since 1870." Clearly some alcid populations at the southerly extremes of the ranges have declined, often spectacularly, but we need a careful appraisal of historical records to assess whether any changes can be demonstrated for northern colonies. This is not to detract from the overall message of the book, that many alcid populations may be suffering at present from harmful influences

of humans. A major achievement of the book has been to present a detailed baseline understanding of alcid status and ecology and a thorough and critical review of present threats to alcids.

Clearly *The Atlantic Alcidae* will be indispensable to any student of alcid biology and a valuable source of ideas for seabird biologists in general. It also deserves to be read by marine biologists, conservationists, ecologists, and evolutionary biologists. Chapters by Birkhead and Harris on ecological adaptations for breeding and by Gaston on chick development make excellent use of comparisons between species (perhaps it is a shame that Pacific species were not dealt with here) and also make use of comparisons between colonies of the same species. This approach can be highly rewarding. For example, the discovery that chick weight at fledging varies inversely with colony size has important implications for understanding influences of intraspecific competition for food around colonies. Chapters by Bradstreet and Brown are equally stimulating, being careful accounts of the relationships between alcids, their food supplies, and the oceanographic environment, a subject about which rather little has been known until recently.

I hope this book will receive the ultimate accolade: imitation. Sequels dealing with the Pacific Alcidae and the penguins would seem appropriate, as this approach to seabird ecology clearly has great merit.

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Some Other Books of Interest

Design for Research. Principles of Laboratory Architecture. SUSAN BRAYBROOKE, Ed. Merle Westlake, technical consultant. Wiley-Interscience, New York, 1986. xx, 193 pp., illus. $39.95.

In the 1950's the Nuffield Foundation commissioned what was, according to Braybrooke, "thought to be the first systematic attempt to study laboratory design." The results of that study, which focused on the physical characteristics of the laboratory environment and how space and facilities were actually used by scientists, were reported in *The Design of Research Laboratories* (Oxford University Press, 1961). Literature on the subject since then has been "very scant" (one recent generally accessible article is F. Drake and C. Williamson's "The efficient laboratory," *New Scientist* 12 June 1986). Meanwhile, some "famous tours de force" of laboratory design have raised "serious questions of functional inadequacy" and efficient laboratories have "tended to be competent architecture, no more." The present work, by a group of architects and engineers, represents an effort to produce "a totally new study of the state of the art and future directions in laboratory design." The research has been focused on three issues: flexibility, safety, and quality of environment, with regard to the last of which the editor observes that "scientists, introduced to attractive, modern facilities tailored to their real needs, have been known to comment that the surroundings 'were too good for them.' " The first chapter of the book, "A design approach" by John Weeks, which includes discussion of the historical evolution of the laboratory and of ergonomic considerations, emphasizes that "the most enduring requirement in the design of research facilities is the maintenance of the ability of the users to use the facilities in an ill-defined way." Two subsequent chapters by Bryant Putnam Gould include an outline of matters that must be taken into account in devising and presenting a "program" for a proposed facility. There follow a chapter on service systems—electrical and mechanical, ventilation and exhaust, waste disposal, fire protection, water purification, and so on—by Joseph P. Loring *et al.* and one on lighting by Newton F. Watson *et al.* Most appealing to casual readers is likely to be Bradbrooke's "Design in practice," a 56-page array of photographs, plans, and sections of six modern research facilities, with brief descriptive text. The volume concludes with an appendix presenting a comparison of three types of environmental and service-distribution systems—service corridor or central core, interstitial, and vertical—with respect to flexibility, safety, and construction and maintenance costs. The volume generally is extensively illustrated and includes an index.—K.L.

Harvard University Press. A History. MAX HALL. Harvard University Press, Cambridge, MA, 1986. xii, 257 pp., illus. $20.

Readers with a curiosity about how academic book publishing is carried on have a relatively small literature to turn to. One historical example that comes to mind is *Development of Science Publishing in Europe* (A. J. Meadows, Ed.; reviewed in *Science* **212**, 776 [1981]). For the contemporary scene there are Coser *et al.*'s *Books: The Culture and Commerce of Publishing* (reviewed in *Science* **216**, 862 [1982]) and Walter W. Powell's *Getting into Print: The Decision-Making Process in Scholarly Publishing* (University of Chicago Press, 1985), a case study of two commercial houses. The present account of one of the larger university presses is largely an administrative history with relatively little information about day-to-day operations, but in naming names and titles it provides some concreteness lacking in the works by Coser *et al.* and Powell, whose characters are kept discreetly anonymous. As with other university presses, Harvard's activities have been centered on areas other than natural sciences. Readers with a particular interest in science publishing will, however, find some information about the press's first concerted efforts in science publishing following World War II, some background on the development of its publications in evolution and animal behavior, and an account of how the press came not to publish *The Double Helix*. Observers of scientists and their doings more broadly might find interest in the account of the fortunes of the press during the Harvard presidency of James B. Conant, who, already dissatisfied with the press, was led by the lack of enthusiasm with which his own collection of patriotic lectures to undergraduates was greeted to the conclusion that "one might just as well drop the book into the Atlantic Ocean" as to have it published by the press.—K.L.

Books Received

Acid Deposition. Long Term Trends. Committee on Monitoring and Assessment of Trends in Acid Deposition, National Research Council. National Academy Press, Washington, DC, 1986. xiv, 506 pp., illus. Paper, $24.50.

Adenovirus DNA. The Viral Genome and Its Expression. Walter Doerfler, Ed. Nijhoff, Dordrecht, 1986 (U.S. distributor, Kluwer, Hingham, MA). xiv, 458 pp., illus. $72.50. Developments in Molecular Virology.

Alexis Carrel. L'Ouverture de L'Homme. Yves Christen, Ed. Félin, Paris, 1986. 205 pp., illus. F 89. Les Hommes de Connaissance.

American Archaeology Past and Future. A Celebration of the Society for American Archaeology, 1935–1985. David J. Meltzer, Don D. Fowler, and Jeremy A. Sabloff, Eds. Published for the Society for American Archaeology by the Smithsonian Institution Press, Washington, DC, 1986. 479 pp., illus. $35; paper, $19.95.

Amorphous Silicon Solar Cells. K. Takahashi and M. Konagai. Wiley-Interscience, New York, 1986. xii, 225 pp., illus., + plates. $68. Translated with revisions from the Japanese edition (Tokyo, 1983) by F. R. D. Apps.

An Analysis of the Early Cultural Sequence of the Nepeña Valley, Peru. Donald A. Proulx. Department of Anthropology, University of Massachusetts, Amherst, 1985. viii, 359 pp., illus. Paper, $15. Department of Anthropology Research Report no. 25.

Animal Behavior. Psychobiology, Ethology and Evolution. David McFarland. Benjamin/Cummings, Menlo Park, Calif., 1985. xiv, 576 pp., illus. $28.95.

Arms Control Verification. A Guide to Policy Issues for the 1980s. William F. Rowell. Ballinger (Harper and Row), Cambridge, MA, 1986. xviii, 169 pp., illus. $24.95. A Harvard Program on Information Resources Policy Book.

Antarctic Treaty System. An Assessment. Polar

(Continued on page 235)