

Georges Bank

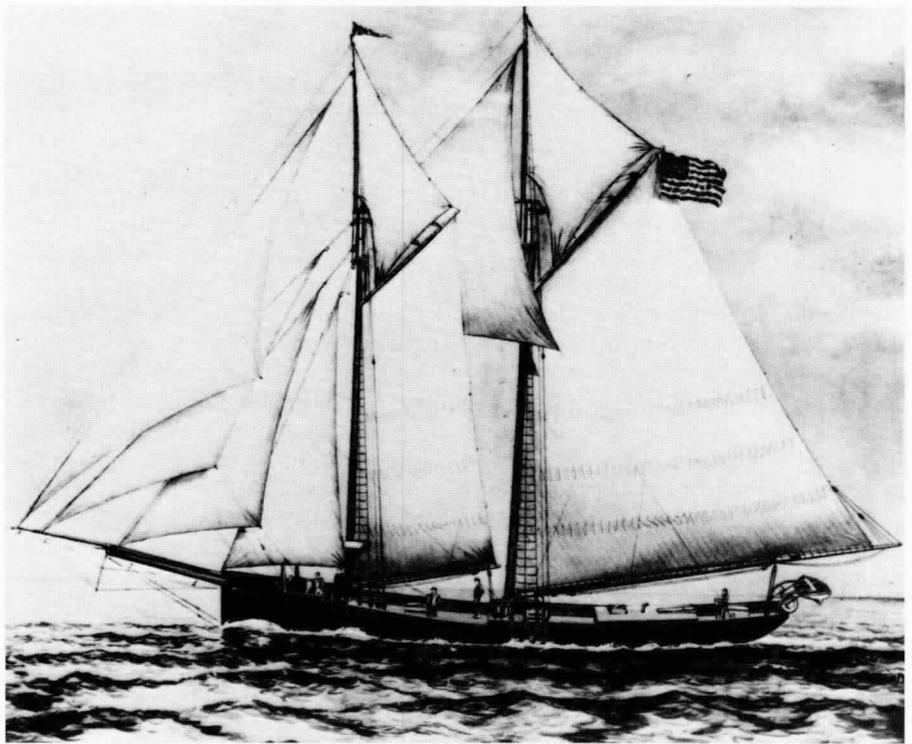
Richard H. Backus, Ed.,
1988, 593 pp., \$165, Hardbound,
MIT Press, Cambridge, MA.

Reviewed by David A. Brooks,
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Oil versus fish is the basal reason for this book's existence. By the time exploratory drilling began on Georges Bank in the summer of 1981, there already had been an unprecedented public uproar over the potential environmental impacts of petroleum exploration in an area known for centuries for its preeminent biological richness and diversity. Emotions ran high, international tempers flared, presidents and prime ministers parleyed. Public reaction ran the gamut from incredulous disbelief that we would consider fouling our own nest to smug satisfaction that we might finally shed our mid-eastern energy dependency. In the midst of the turmoil, and partly because of it, the United States and Canada declared overlapping jurisdictional claims over Georges Bank. The legal scrap that ensued was only recently settled by the International Court, which figuratively scratched a line in the sand across the top of the bank, dividing the turf but exacerbating the issues.

Science, of course, thrives on public attention, so it was impeccably good timing, in early 1980 when the debate was heating up, to propose a book summarizing what was known about Georges Bank. Largely because of work required to satisfy the mandated Environmental Impact Statements, a considerable new data set was being collected from the bank, and there was every reason to expect the emergence of a new level of insight and understanding of processes on the bank. Thus, the scientific value of a review book was unquestioned, and once again adversity spawned opportunity.

It helps to have the proper socio-political perspective in mind when your



The U.S. Fish Commission schooner Grampus, shown as rigged in 1888 (Photograph from painting by C.B. Hudson, U.S. National Museum, reproduced in the book Georges Bank). Probably the vessel was similarly rigged in 1912, when Henry Bigelow began his pioneering studies with her in the Gulf of Maine and on Georges Bank. The schooner shows her early heritage with an extended bowsprit, plumb stem, and an enormous fisherman's staysail set between topmasts. Later versions of "banks" fishing schooners typically retained an extensive tophammer, because of the additional speed provided and the incentive of being first to market; however, the abrupt forefoot gave way to raked "spoon" bows, and bowsprits shortened or disappeared altogether in the quest for safety in heavy weather. In the 1920's and 30's, the impetus for speed led directly to the popular international fisherman's races, which are best remembered for vigorous contests between the famous Canadian schooner Bluenose and her U.S. nemesis Gertrude L. Thebaud. The Grampus, named for a small species of whale related to the dolphin, distinguished herself in service on Georges Bank, in all seasons, sometimes with Bigelow as skipper as well as chief scientist. - DAB.

copy of *Georges Bank* arrives. In keeping with the scale of the debate, the book has coffee-table proportions, 39.3 x 34.6 x 4.1 cm, to be exact. It also has a ponderous heft, weighing in at 5 kg, and the attached invoice delivers an eye-popping bottom line of \$165, plus postage. On balance, the typography, paper quality, and artistic design of this book are of the first rank, with an uncrowded layout and a generous use of color. The MIT press (Cambridge, MA) deserves to share the credit for this masterfully produced book, which is especially distinguished by high quality maps, drawings, photographs, and artists' renderings. It has taken almost eight years to bring this book to fruition, an exceptionally long time in these days of instant verbiage, but the wait has been worthwhile. Ansel Adams is probably still secure on the coffee table, but *Georges Bank* threatens to cover many a desk. Editor Backus sums up the experience by quoting Melville's similar feelings about his *Moby-Dick*: "Oh, Time, Strength, Cash, and Patience!" The reviewer has exactly the same sensation.

The book's 593 pages cover the full

spectrum of oceanic interests pertaining to Georges Bank. The 57 chapters are organized into major textual divisions entitled Physical Science, Biology, The Fisheries, and Conflicting Uses; each division is book-sized on its own, with numerous individual papers on subtopics. The meat of science, which admittedly is indigestible in a few places, has been thoughtfully spiced with historical perspectives and anecdotal vignettes, and the combination goes down altogether palatably, with no undesirable aftereffects evident. For example, following a rather long slog (for a physical oceanographer, at least) through zooplankton, on to fishes and squids, then whales, and finally to seabirds, one comes to an absolutely refreshing history of the early fisheries on the bank. It's like a breath of fresh sea air after you've been trapped in the engine room for two days. Sailing history buffs will appreciate a 1910 photograph of a fine Maine "pinky" schooner. And if this isn't enough to recharge your intellectual batteries, there follows immediately a charming two page dramatic essay called "Bait Up!" about dory fishing on the bank,

complete with luminous illustrations from *Scribner's Magazine* and a one act play staged at sea.

The scale of coverage of this book is simply stupendous, beyond reasonable review in limited space. The Physical Science section, for example, has 19 chapters in 209 pages that cover the geologic history of the bank, weather and climate, tides, circulation and hydrography, sediment transport, and dissolved gasses and trace metals, to hit only the highlights. The other major sections are similarly comprehensive, with much material drawn from diverse literature but augmented in many cases by recent information that has received no other publication. Each chapter is accompanied by its own list of references, an appreciated convenience. There are a few cases of redundancy or overlap, inevitable in a review of this magnitude, but the editor, the authors, and the many reviewers have done an outstanding job of organizing and "smoothing" this book. To explicitly recognize their efforts, the reviewers' names are listed at the end of each chapter, and collectively in an appendix; this unusual "sunshine" philosophy not only gives due credit for long labors, it also enhances the scientific merit of the product, for the list of authors and reviewers is extensive and impressive.

The last section of the book deserves special comment. Backus has titled it "Conflicting Uses," mostly to reflect the flavor of articles dealing with the potential conflicts between petroleum and living things. I think the title also reflects the uncomfortable and sometimes contentious postures that inevitably arise when such topics are broached. Indicating the intensity of feelings, the authors in at least one case were accused of being "anti-oil." Backus has responded wisely to such criticism, first by acknowledging it openly, but more importantly by standing his ground and taking the conservative scientific position, not wanting to "underestimate possible hazards in the face of very imperfect information."

In the early 1980's, eight "dry" wells were drilled on the southern flank of Georges Bank. The initially enthusiastic estimates of large oil reserves on the bank were quickly scaled down by almost an order of magnitude, and the scheduled second sale of drilling leases was cancelled indefinitely. Today there are no drilling rigs on Georges Bank, and a tenuous truce is in effect. The environmentalists breathed a loud sigh of relief when the geologists were

proven wrong in their first attempts, but at the same time an uneasy glance at the map shows just how much territory of the bank remains untested. The political and economic times are different now, too; the mid-east oil cartel is weakened and crude prices are lower, so there is less pressure to take large risks for potentially modest gains. It is unclear how the United States and Canada, with their different approaches to environmental and petroleum issues, will react to the inevitable future pressure for oil exploration on the bank. It is certain that cooperation will be needed, because as this book clearly shows, the currents and fishes on the bank respect no imaginary boundaries. The consequences of a massive oil spill on the bank most likely would be devastating; they most assuredly would be international.

The book *Georges Bank* is of massive scale and corresponding importance. It provides in one source a comprehensive overview of the important scientific knowledge about the bank and its surrounding waters. Its very existence will affect future deliberations about oil exploration on the bank, because there is no better summary of the state of knowledge about the bank. In addition to such practical benefits, which have the advantage of immediacy, the book also provides a lasting contribution to the scientific literature of Georges Bank, the Gulf of Maine, and the two major channels that connect the gulf with the Atlantic Ocean.

It is important to note that this book is not an atlas, which its size alone might indicate; it is a competent review, with the bonus of much new information and insight about the region that is not available elsewhere. It is probably fair to say that *Georges Bank* will share the rarified company of Bigelow's masterful treatises on the fisheries and physical oceanography of the Gulf of Maine, although the impartial perspective of history will be necessary to judge this point.

Nevertheless, the book is a masterpiece in its genre, appropriate and recommended for those who have a scientific or practical curiosity about the region; it also is an obligatory reference source for libraries and oceanography programs. Beyond such solid scientific reasons for owning it, the book also contains valuable historical material, and there are flashes of brilliance in the well-written anecdotes and essays. On these terms I confidently recommend *Georges Bank*, in spite of its daunting price.

Editor's note: The following excerpts are taken from letters written in response to a limited survey, conducted in 1987, which requested opinions about the need for a professional society to represent ocean sciences. Approximately 100 responses were received, more than ninety percent of which embraced the concept of The Oceanography Society.

FORUM FOR EXCHANGE

The oceans community needs a forum for exchanging information on a regular and consistent basis. I can envision a number of areas where a professional journal could be of vital importance in getting out our story and in building support for ocean science activities.

John Carey
National Ocean Service, NOAA

POWERFUL ARGUMENT

I am convinced by your powerful arguments that, indeed, there can be a successful Oceanography Society. As a molecular biological oceanographer, I find that, indeed, there is a gap to be filled.

Rita Colwell
University of Maryland

HIGH TIME

We need a solid professional society of our own. At AGU meetings, our timetables are constrained by the needs of many other sections, the AMS air-sea interaction meetings duplicate or conflict with similar AGU or ASLO sessions, both JGR and JPO are bursting at the seams. It is high time we, ourselves, took responsibility for our meetings and our literature.

Gabriel Csanady
Old Dominion University

RECOGNIZED FORUM

I am inclined to agree with you that, now more than ever, there is a need for a sense of community and 'voice' for oceanography, so that the profession might seek its rightful place among the commonly recognized scientific disciplines. I believe that this evolution is necessary because of the emergence of the various global change assessment initiatives, the nature of the process of policy development and funding in the federal government, and the need for discussion of issues of national importance in a competent, representative, and recognized forum.

Richard Hayes
U.S. Naval Observatory

STRONG VOICE

Oceanographers badly need a strong voice on the national scene. We are a fragmented group due to the makeup of the subject area. A mechanism to bring focus on the entire ocean community is very much needed in my opinion. I don't know if the Oceanography Society can be that mechanism, but it is certainly worth trying. I support the proposal to establish the Society.

George Keller
Oregon State University

DO THE MOST GOOD

First of all, I unequivocally support an Oceanography Society. Your enclosure succinctly summarizes the rationale for such an organization. To paraphrase Sam Rayburn, you may use my name as either for or against the Society, whichever will do it the most good.

A.D. Kirwan
Old Dominion University