It hardly seems worth the trouble to publish sources relevant primarily to a single question; a monograph exploring the question would be more to the point.

Let me hasten to add that large numbers of letters in these volumes are not touched by the reservations that I have indicated. Now published for the first time are a considerable number of letters by Boyle, and more by Wallis, Hevelius, and Auzout. Certainly they constitute an important addition to the published corpus of sources, and we should all be grateful for them. In view of the edition's title, it does seem worthy of note that nearly all of the important new letters were written, not by Oldenburg, but by his correspondents, and that they share only the spurious unity of being addressed to one man. I cannot refrain from adding that the availability of their contents is severely restricted by an inadequate index. It was only by going through the entire index, for example, that I found where the extensive discussions of barometers were listed; someone interested in what the correspondence contains relative to barometers might have given up the search before he thought to look under "Weather."

To comprehend the primary contribution of the *Correspondence*, we must look beyond what we have learned to consider as the main stream of science in the 17th century to the faustian naturalism and undirected Baconianism which modern science replaced. Oldenburg's own letters from the late 1650's present a medley of themes that we hardly expect from the man who was to be secretary of the Royal Society. There was no perpetual motion machine in Europe which he did not investigate, no alchemist whom he did not seek out. Writing to Hartlib in 1659, he discussed, among other things, the "Mercury of Antimony," a stone called the "Magnes aquae" which would draw up water when placed in a siphon, the condensation of sun beams, and a physician who reconciled two hostile brothers by mingling "the swet of each other into his Antagonists broath . . ." (vol. 1, p. 219). To a chemist named Tollé he sent "dried spirit of the world prepared in the double way . . ." (vol. 1, p. 367). The letters soliciting information, which Oldenburg sent out in the name of the Royal Society, strike a modern sound on the modern ear. The Royal Society, he told the German Sachs, "is about to reconstruct philosophy, not as it pertains to medicine alone, but as it concerns all that pertains to the usefulness and convenience of human life. Because it judges that there is no surer way to follow than that of thoroughly examining Nature itself and with great effort penetrating into her very sanctuary, to this end it is busy with nothing so much as building up a store and treasury of observations and experiments" (vol. 2, p. 401). Such passages sound a good deal less familiar when we consider the disordered medley of miscellaneous observations that Oldenburg's correspondence invited and welcomed. In details excessive to us but not to Oldenburg, Nathaniel Fairfax described every monstrous birth in Suffolk. From Fairfax again he received an edifying account of a man who ate toads, "saving ye bladder, gutts & skin. . . ." ("Be it known also," Fairfax added, "yt noe toad since yt in Saxmundham wood, being eaten, has purged him as yt did.") Something of a rustic epicure, the same man ate spiders as well, noting that "in summer tyme they ar fatter, or more thrifty, & sweeter yn in Winter" (vol. 3, p. 358). We understand little enough of the mentality out of which and in reaction to which modern science arose. In *The Correspondence of Henry Oldenburg*, the Halls provide a rich store of information concerning it.

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Ocean Fisheries and International Relations

In **The Common Wealth in Ocean Fisheries** (Johns Hopkins Press, Baltimore, Md., 1965. 295 pp., $6), the authors, Francis T. Christy, Jr., and Anthony Scott, are concerned with problems of growth and economic allocation. The volume was published by Johns Hopkins Press for Resources for the Future.

The fisheries in the world ocean, stimulated by subsidies in many countries of the industrialized world and by programs of assistance in the developing world (the United Nations and its family of specialized agencies, particularly the Special Fund and FAO, as well as many bilateral projects of assistance from the industrialized countries) are growing rapidly in response to the world need for animal protein. World fish production was about 4 million tons in 1900; 20.2 million tons in 1950; and 51.6 million tons in 1964.

The development proceeds as differential rates in different parts of the ocean, on different stocks of fish, and by different nations. The bulk of the resources supporting major fisheries lie in the high seas or are available to capture there at some stage in their life history. While in the high seas they are, under international law, the common property of all nations. Put another way, they are the property of the one who takes possession of them first.

The consequences are that disputes arise from the fisheries among individuals but must be carried on, and resolved, among nations; individuals can be the objects of international law, but only sovereign nations are its subjects. During the past 400 years such disputes have been the not infrequent cause of war and of much lesser international unrest. They have led to numerous arbitrations, and more than a dozen international fisheries commissions are now in operation to attend to some of these specific problems. A "Convention on Fishing and the Conservation of the Living Resources of the High Seas," designed to provide a mechanism for the peaceful settlement of such disputes came into force 20 March 1966, upon the deposit of the ratification of the Netherlands, the 22nd nation.

The authors, both economists (Christy, with Resources for the Future, and Scott, professor of economics, University of British Columbia), have examined these problems from the standpoint of the economist and have made numerous suggestions for improved solutions to them.

A difficulty is that the authors are better acquainted with fully developed and mature fisheries that are under conservation regulations than they are with underdeveloped fisheries. Since most of the fishery resources of the world ocean are not being fished, or are being fished at a stage well below the point of maximum sustainable yield, the treatment of fishery problems in the book is somewhat unbalanced. This is all the more so because the economics which applies to developed fisheries is different from that which applies to underdeveloped fisheries, and solutions provided for problems arising

out of the former (such as limited entry) do not appear to be very applicable to the latter.

Nevertheless the book is a stimulating one that deals with a quite important aspect of international relations which has not been previously accorded adequate attention by social scientists.

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The Fulbright Program

Twenty years ago, the 79th Congress passed the Fulbright Act which established a program of educational and cultural exchange. Grants made to scholars from this program are generally known as "fulbrights." Walter Johnson, professor of history at the University of Chicago and senior author of this book, **The Fulbright Program: A History** (University of Chicago Press, Chicago, 1965. 396 pp., $8.50), served as a member of the Board of Foreign Scholarships from 1947 to 1954, including 3 years as chairman; since 1962 Johnson has served as a member of the U.S. Advisory Committee on International Cultural Affairs. The collaborating author, Francis J. Colligan, was executive secretary of the Fulbright Board from 1948 to 1957 and is currently director of policy review and coordination in the Bureau of Educational and Cultural Affairs of the Department of State.

This history of the Board's activities during the period when the authors were chairman and executive secretary, respectively, depicts a confused conflict of many pressures (chap. 6). Strong forces were exerted by those who sought to use the cultural exchange program as an instrument to achieve the immediate and short-range objectives of our national policy. The program as established by Congress was open to scholars in all fields of cultural activity without restrictions. The generosity and wisdom of the United States in establishing a program free from requirements of national interest and propaganda purpose attracted worldwide praise and participation. Supporters of this cultural exchange program strongly urged that the character of the original program should be preserved. In 1951 the Board approved the use of the program for immediate and short-range support of national policies, and to this end it increased the number of lecturers and urged the expansion of programs in American studies. Within 2 years, the Board was strongly protesting the plans of the Department of State to make the educational exchange the "hard core" of the government's information agency. Unfortunately, the conflicts that are chronicled here were not resolved in the decade that is covered in the remainder of the book. There is, however, a very hopeful item at the end of this chapter on conflict, which mentions a study in progress by Charles Frankel, Columbia University, that will be published very shortly. Since Johnson and Colligan's book was published, Frankel has been appointed Assistant Secretary of State for Educational and Cultural Affairs.

The authors' intimate association with the establishment of the Fulbright Program has enabled them to give a very personal and direct account of these problems and conflicts. This is particularly true of the dramatic report of the conflicts of the McCarthy era (chap. 7). In a world that is again filled with international conflict and strained relations, it is helpful to recall the history of difficult periods and to note the courage of Senator Fulbright and the role of the Board of Foreign Scholarships and other scholars in maintaining "a program of scholarship and intellectual creativity." In the preface to the book Senator Fulbright expresses his continuing concern that "unfortunately the distinction between education and propaganda is sometimes forgotten and pressures are brought to bear to use educational exchange for short range and shortsighted political purposes."

Between 1950 and 1955 the authors played an important part, assisted by the Cultural Affairs Officers and other officers of the U.S. Information Service, in arranging seminars and conferences to encourage programs in American studies. Aided by grants from the Rockefeller and Ford Foundations, the field of American studies has grown so much in the past 10 years that it is now the largest activity of the Fulbright Program. This has led to the establishment in many countries of councils or associations for American studies. The recently organized British Association for American Studies (BAAS) and the American Association for American Studies (AAAS) should not be confused with the two scientific organizations that have the same initials, the British Association for the Advancement of Science and the American Association for the Advancement of Science, both of which were established well over a century ago.

The presentation of the history is generally chronological, but this leads to a shift in style from that of a historical presentation to journalism as one includes current events. Much of the material in latter sections represents progress reports and work being planned to meet the recognized problems. This volume is not a statistical analysis of the program and of the trends that indicate its future course. There are no graphs, and the brief table in the appendix is not very useful.

Many scientists have had the assistance of a Fulbright grant for research, study, and educational experience abroad. The statistics given indicate that the number of American lecturers and research scholars going abroad each year has increased throughout the 20 years. This gives the misleading impression that the opportunity for a grant is now better than in the past. The budgets for most countries have remained fixed, and inflation of costs and stipends has reduced the number of grants. The number of countries participating has increased, but the grants per country have decreased. The Binational Commissions in most countries have designated the major portion of their grants for the support of special programs, and the number of unassigned grants available for scholars in general have decreased. This is especially true for Western Europe, where few new binational programs have been established. Other U.S. programs now exceed the Fulbright program in their support of special fields, but the total contribution of the Fulbright Program still leads in its broad support of educational and cultural exchange.

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Crustaceans

The excellent popularization of science published as the Smithsonian Scientific Series (1931) contained a section on crustaceans written by Waldo Schmitt, then curator of marine invertebrates at the U.S. National