ent in city building was the legislative authority that directed the planners and builders toward imaginative and socially useful design rather than to the restoration of mediocrity, monotony, and chaos.

Johnson-Marshall underscores Spreiregen's point that a legislative framework must exist for comprehensive, socially functional, and visually inspiring urban design—and that the three elements interact. One could read into Spreiregen's work, with its concern for principles of urban growth and design, a subliminal authoritarian bias to allow the master architect to work his will on the city. Johnson-Marshall's more empirical work suggests a tempering of this bias, however.

Two statements from Johnson-Marshall's studies of London and Coventry, respectively, make the vital point that building cities is not and cannot be the prerogative of a single intelligence, a single discipline, or a single approach. In discussing the rebuilding of the area about the Tower of London, he attributes as much importance to the blight-removing efforts of the Reverend "Tubby" Clayton of the Church of All Hollows as to the Nazi bombs. Commenting on the complex problems of personal and intergovernmental relations involved in developing and executing the redevelopment program, he concludes thus—"Truly, planning in the modern city is very much a diplomatic activity, apart from the highly complex technical design problems involved." The point is driven home in the study of Coventry—"The lessons of Coventry are clear. Cities are at heart a design problem and need teams of imaginative, devoted and practical designers, with outstanding leadership and with enlightened public patrons in order to create a civilized environment, but all this must be backed by legislation and adequate finance."

In the year of the demonstration city and the urban observatory, those devoted to the improvement in the quality of urban civilization can find both inspiration and practical counsel in the words and pictures of *Urban Design* and *Rebuilding Cities*.

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Honors Programs and Higher Education

The spread of honors programs, education designed to provide the abler student with special experiences, is a remarkable characteristic of the current campus scene. The editor of **The Superior Student in American Higher Education** (McGraw-Hill, New York, 1966. 299 pp., $7.95), Joseph W. Cohen, reports that the number of such programs has more than tripled in the period 1957 to 1965. These were the eight years of the Inter-University Committee on the Superior Student (ICSS), and Cohen, first chairman of the committee, has given us a book that ably summarizes the work of this group. The ICSS served as a clearinghouse for information about honors programs and certainly did much to stimulate their development.

Contributors to the volume detail the organization and operation of honors programs in universities (including professional schools as well as arts colleges), in small, private colleges, and even in a surprising number of secondary schools. In doing so, the philosophy of such programs is well stated, and any reader curious about how the concept of honors has evolved in American higher education will be amply rewarded for his effort. Unfortunately, one curious about the effectiveness of such educational modifications must turn from the book frustrated. Although a very fine chapter is devoted to the evaluation of honors programs, it is something of a disappointment that the focus of the discussion by Paul Heist and Lois Langland had to be how evaluative research *ought* to be done rather than the results of such studies. Too often neglected in the research to date are the absolute requirement that educational goals be translated into testable hypotheses about changes in the behavior of participants, the recognition that the study of change demands careful pre- and post-experience assessment, and, finally, an appreciation for the insights that stem from a comparison of these changes with changes afforded by control groups —"non-honors" students in honors programs and "honors" students in non-honors programs. The growing popularity of such special programs, together with their expense (one contributor estimated the cost for the honors student is one-third greater than that for the student in the usual curriculum), offer the expectation that the academic community must soon have more complete evaluation.

Lest these comments tar me as anti-honors, the evaluation of superior student programs is probably no more deficient than the evaluation of remedial courses or, for that matter, than that of just about any of our conventional college programs. The ever-increasing enrollment pressures that confront American higher education suggest that such ignorance may be only too preciously purchased.

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History of Science

Volumes 1, 2, and 3 of **The Correspondence of Henry Oldenburg** (University of Wisconsin Press, Madison, 1966), edited by A. Rupert Hall and Marie Boas Hall, mark the beginning of another major project to publish the sources of the scientific revolution. Inevitably the reviewer must ask himself what the contribution of such an edition is. The correspondence of Newton, the works of Kepler—with them the reviewer need not put such questions; their justification is so obvious that they require no rationale. But why the correspondence of Henry Oldenburg? As I plowed wearily through volume 1 (558 pp., $12.50), which covers the years 1641 to 1662, I could not help asking the question, and asking it again. Certainly the letters in volume 1 would furnish a major source to the biographer of Henry Oldenburg, but most of them hardly appear worthy of the time, labor, and expense invested in their publication. The Halls are recognized and acclaimed historians of science, and I for one would have preferred to see, not the raw material of biography, but the product they could have made it yield. In volume 2 (704 pp., $12.50), 1663 to 1665, and volume 3 (679 pp., $12.50), 1666 and 1667, Oldenburg the man fades into Oldenburg the secretary of the Royal Society, but many of the letters continue to raise the same query. True, as material relevant to one specific question their value is high; through them we see the growth of an international community of science. Nevertheless, the authors of most of the letters, which come from the corners of Europe and beyond, are obscure, and the scientific content of many of their letters approaches zero.

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