Meetings

Shallow-water Oceanography

The First Coastal and Shallow-water Research Conference, which was supported by the National Science Foundation and the Office of Naval Research through grants to Florida State University, appears to have been a unique event for at least two important reasons. In order to reduce the aggregate of individual travel, especially of graduate students, and to provide meetings of appropriate size and still permit as many American students and scientists as possible to share the knowledge and opinions of foreign participants, the conference was convened successively on three university campuses. And though the conference title was couched in broad terms to accommodate the interests of other than strictly marine aquatic scientists, principal emphasis centered in an endeavor that has come to be called shallow-water oceanography. To my knowledge this field has not been featured before in a conference of international or national scope. It is evident now, however, that a significant number of investigators wish to be identified with this field, but it seems likely that no attempts will (or should) be made to formalize the group.

There appears to be general agreement that the domain of shallow-water oceanography lies between the point of maximum penetration of sea salt into river systems and the outer edge of the continental shelf. Moreover, even though this field has solid academic bonds to deep-sea investigation and training, it does have in practice special interests, techniques, and facility requirements that cannot be disregarded.

The conference met at Johns Hopkins University from 19 to 21 October, at Florida State University from 23 to 25 October, and at the University of Southern California from 27 to 29 October 1961. Donn S. Gorsline served as general chairman, led the Florida State meeting, and will edit the proceedings volume. D. W. Pritchard and R. B. Tibby were regional chairmen at the Baltimore and Los Angeles meetings, respectively. Admittedly, the formal parts of the regional programs were choked by a steady flow of papers, with little time for discussion, but many participants joined informal discussion groups that dealt with problems of curriculum at the undergraduate and grad-

uate level and the relative merits of the institute or department affiliation of an oceanographic group with a university.

The participants were separable into two categories: (i) scientists from the United States and abroad who received special invitations to comprise the Traveling Group that attended all regional meetings, and (ii) the Regional Groups, constituted of scientists who, for the most part, attended only the regional meeting nearest their home institutions. The Traveling Group had 19 members, but only 17 were able to complete the circuit. Members of this group delivered papers at all three meetings and thus provided a unifying thread. Members of the Traveling Group, in addition to the general and regional chairmen, were as follows: W. W. Anderson, chief, U.S. Bureau of Commercial Fisheries Biological Laboratory, Brunswick, Georgia; J. L. Barnard, associate director, Beaudette Foundation for Biological Research, Solvang, California; R. A. Bryson, head, department of meteorology, University of Wisconsin; A. M. Christensen, Marine Biological Laboratory, Elsinore, Denmark; P. E. Cloud, Jr., head, department of geology, University of Minnesota; K. O. Emery, department of geology, University of Southern California; G. Gunter, director, Gulf Coast Research Laboratory, Ocean Springs, Mississippi; J. W. Hedgpeth, director, Pacific Marine Station, Dillon Beach, California; W. Krauss, Institute for Marine Studies, University of Kiel; D. F. Leipper, head, Department of Meteorology and Oceanography, A & M College of Texas; H. Niino, Tokyo University of Fisheries; H. T. Odum, director, Institute of Marine Science, Port Aransas, Texas; W. E. Pequegnat, head, department of biological sciences, State University of New York, Oyster Bay; E. L. Pruitt, chief, Geography Branch, Office of Naval Research; R. J. Russell, director, Coastal Studies Institute, Louisiana State University, Baton Rouge; and A. Voipio, Marine Institute, Helsinki, Finland.

A total of 586 participants, of whom 164 were graduate students, registered at the three regional meetings; they were about equally distributed among the three meetings. The breadth of institutional interest in shallow-water oceanography is demonstrated by the breakdown in affiliation of the approximately 200 registrants at the southern California meeting: colleges and universities, 34; industrial laboratories, 21; federal laboratories, 16; state, county, and

municipal laboratories, 6; private laboratories, 4.

Federal agencies demonstrated considerable interest in the conference. Representatives of no less than eight agencies presented papers. The list of these agencies, together with the number of papers sponsored by each, is as follows: U.S. Geological Survey (several branches), 11; U.S. Coast and Geodetic Survey, 3; U.S. Bureau of Commercial Fisheries, U.S. Fish and Wildlife Service, U.S. Naval Electronics Laboratory, 2 each; and Office of Naval Research (Geography Branch), 1. In addition, there were representatives from the National Science Foundation, the Atomic Energy Commission, other branches of the Office of Naval Research, and numerous state agencies.

It is not possible to give here even brief descriptions of the 120 different papers presented; it is possible, however, to give some idea of the coverage, by classifying the papers and citing a few examples in each category. The papers can be divided into three groups, according to the principal emphasis of the subject.

1) Description in broad terms of the research and training activities planned or in progress at a given institution. Examples here, by title and author, are as follows: "Shallow-water research at the Chesapeake Bay Institute," D. W. Pritchard; "Teacher participation in research at the Pacific Marine Station," J. W. Hedgpeth; "Marine biological research in Scandinavia," A. M. Christensen; and "Shallow-water oceanography," D. F. Leipper.

2) Discussion of individual or group research projects, or reviews of relatively narrow areas of research. Examples are: "Origin of beach rock," R. J. Russell; "A physical control of sublittoral epifaunas," W. E. Pequegnat; "Spectra of turbulence and internal waves in the Baltic Sea," W. Krauss; and "Relation of seaward and landward flow of groundwater to the salinity of Biscayne Bay," F. A. Kohout.

3) Description of new techniques or instruments applicable to shallow-water oceanography. Examples in this category are: "The Savonius Rotor current meter," R. D. Gaul; "New instruments in use by the U.S. Coast and Geodetic Survey," A. C. Poling; "An empirical method of determining momentary discharge of tide-affected streams," S. E. Rantz; and "Applications of soil analytical techniques to sediments," B. W. Nelson.

One special paper, delivered by L. A. Walford, called for establishment of a committee to develop a plan for a comprehensive study of the oceanography of the Atlantic continental shelf. Such a committee was created, and meetings have already been scheduled.

The distribution of the papers among the principal subdisciplines of oceanography is of considerable interest. Geology accounted for 33 percent of the total, biology for 27 percent, physics and meteorology for 17 percent, and chemistry for 7 percent; 16 percent were truly interdisciplinary.

The geological papers ranged in scope from "Mineralogy of carbonate sediments along the western margin of Florida Bay" (W. Taft), through "Recent history of San Quintin Bay, Baja, California" (D. S. Gorsline), to "Sediments of continental shelves" (K. O. Emery). Topics of direct interest to biologists were exceedingly diverse; a number of the papers dealt with matters of economic concern. The majority were more nearly referable to biological oceanography than to marine biology. Typical of the biological component were "Biological shrimp studies conducted by the Florida State Board of Conservation Marine Laboratory"

(B. Elred); "Research on productivity" (H. T. Odum); and "Results in benthic biology in Southern California" (O. Hartman). Physical oceanography and meteorology were represented by an interesting array of papers, among which were "Internal waves" (E. C. LaFond) and "Oceanographically oriented research in the University of Wisconsin department of meteorology" (R. A. Bryson). Chemists rounded out the program by discussing "The distribution of silicate in the Baltic" (A. Voipio) and "Continuous recording of salinity in an estuary" (N. H. Beamer).

Several other features of the conference contributed to its success. At each regional meeting there was a banquet, open to all participants, followed by a special lecture delivered by one of the foreign members of the Traveling Group. At two conference sites the Traveling Group was privileged to confer with the university staff on educational problems and inspect the facilities of the host institution the day before the plenary sessions. Of considerable value, also, were the displays of oceanographic equipment arranged by industrial organizations and the host schools.

When the conference was first envisaged in the form described here, the following objectives were set forth: (i) to obtain some conception of the number of scientists who consider themselves to be engaged in shallow-water oceanographic research and training; (ii) to review the nature of the work in this field currently being carried out; (iii) to review methods of sampling, observing, and data handling presently employed; and (iv) to serve as a stimulus for future research and training in the field. It appears that these objectives were met quite adequately. We can now estimate that the number of scientists in the United States who are active in this field lies between 200 and 300. The nature of the current work has been only briefly outlined here. Soon a more complete survey will be available to all interested persons—the proceedings volume, scheduled to appear early in 1962. In addition to approximately 200 abstracts of papers devoted to training and research, the volume will contain individual reports on the conference by members of the Traveling Group. It will provide a permanent record of the types, scope, and geographic distribution of coastal and shallow-water studies and of the persons active in the special fields. Requests for the proceedings volume

should be directed to Donn S. Gorsline.

Written comments received by the general chairman since the close of the conference have been overwhelmingly laudatory. Furthermore, unexpected interest in holding another meeting has been expressed by a large number of correspondents. In response to this interest, tentative plans have been made for a single-site conference on the Atlantic Coast to be held in the spring of 1963, possibly with the University of Georgia acting as host; this will be followed by a similar meeting at an as yet undesignated place on the Pacific Coast, in the fall of 1964.

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Forthcoming Events

March

24–31. Symbolic Languages in Data Processing, symp., Rome, Italy. (Secretary, Provisional Intern. Computation Center, Palazzo degli Uffici, Zona dell'-EUR, Rome)

25–30. National Education Assoc., Dept. of Audio-Visual Education, Kansas City, Mo. (Chief of Information, Dept. of the Army, Washington 25)

26–27. High Energy Nuclear Physics, symp., London, England. (C. C. Butler, physics Dept., Imperial College, London, S.W.7)

26–29. Circum-Pacific Petroleum Exploration, Amer. Assoc. of Petroleum Geologists–Soc. of Economic Paleontologists and Mineralogists, annual, San Francisco, Calif. (G. B. Oakeshott, State Div. of Mines and Geology, Ferry Bldg., San Francisco 11)

26–29. Institute of Radio Engineers, intern., New York, N.Y. (E. K. Gannett, IRE, 1 E. 79 St., New York 21)

26–29. Recent Advances in Acarology, symp., Ithaca, N.Y. (J. Naegele, Dept. of Entomology, Cornell Univ., Ithaca)

26–20. World Meteorological Organization, Commission for Synoptic Meteorology, Washington, D.C. (WMO, 41, Avenue Giuseppe Motta, Geneva, Switzerland)

27–29. American Physical Soc., Div. of High-Polymer Physics, Baltimore, Md. (H. D. Keith, Bell Telephone Laboratories, Murray Hill, N.J.)

27–29. American Power Conf., American Soc. of Mechanical Engineers, Chicago, Ill. (A. B. Conlin, Jr., ASME, 29 W. 39 St., New York 18)

27–30. Cellular Basis and Aetiology of the Late Somatic Effects of Ionizing Radiations, symp., London, England. (P. Alexander, Chester Beatty Inst., Inst. of Cancer Research, Royal Cancer Hospital, Fulham Rd., London, S.W.3)

28–12. International Conf. on the Prevention of Pollution of the Sea by Oil, London, England (Intergovernmental Maritime Consultative Organization, Chancery House, Chancery Lane, London, W.C.2)