starting in 1967) receive sufficient financial support so that it may more effectively report on and discuss "the influence of governmental, political, economic, and social actions, decisions, trends, and policies on the nature of science and technology and the opportunities and limitations that confront them." The publication is circulated to nearly one-half million engineers.

A paper by Alan R. Putnam (American Society for Metals) was delivered by John H. Fellows; he discussed the value and uses of membership profile studies. ASM had concluded such a study in 1963, the results of which, Putnam said, "surprised us . . . and had a healthy effect on the planning of activities." A profile was developed on such important statistics as educational level, length of memberships, technical information needs, and metals of interest to members. Membership surveys, Putnam disclosed, can be used to reveal member interests that are not being served or that are being "over-served"; they give business staffs deeper insights into the market accorded to advertisers; and they may be used for planning purposes and even recruitment efforts.

Cautions were also noted. Changes in a membership profile occur with time, and important minorities may not be revealed. Surveys, moreover, tend to be poor instruments for detecting future or emerging interests of members. To overcome this last drawback, ASM has created an Advisory Technical Awareness Council whose sole function is to identify new and emerging areas of science and technology that may require the attention of the society. Also, Putnam warned, membership profiles cannot answer philosophical questions for the society, and they are not substitutes for good editorial judgment, reasonable business acumen, or effective long-range planning.

In the conference's most sweeping analysis of the societies' publications efforts, Derek J. de Solla Price (Yale University) claimed that "80 percent of the value and function of the scientific paper lies outside the realm of communication." Speaking specifically about science, Price charged that it has become a purchased commodity whose appeal is no longer solely intellectual in nature. A consequence of society's (in the larger sense of the word) largesse in supporting science is the demand for publication regardless of the merits of what it is that's being published. Rather than maintain the current Alice-in-Wonderland publishing pace, Price suggested that a wiser attitude would be to explore more deeply the new technologies of preprint exchanges in small groups and selective use of citation methods to provide alerting services. To provide for the dissemination of research front findings, whose useful life-span tends to be ephemeral, Price called for the establishment of a science daily newspaper. Its size, Price calculated, need be no greater than that of the Wall Street Journal. Meanwhile, he added, research communications of lasting value would be published in a relatively small archive consisting of a few journals of high-status quality.

In discussing the literature of technology, Price was even more severe in his condemnations. "Nobody seems to know what the technologist wants to read nor why there seems to be such an enormous mass of technological literature that satisfies so little of his appetite. . . . I suggest that most of the literature is there for accidental reasons or because some people think it should be there rather than because of any need or actual use." The answers to typical engineering questions-"What is the torsional breaking strength of the human ankle?"-Price said, are to be found not in an archive, but in a data bank.

Earlier in the session, Walter M. Carlson (U.S. Defense Department) had reported findings of DOD studies that lent support to Price's comments. The DOD had sampled the informationgathering habits of engineers associated with the defense industry (about one-quarter of the engineering population). "We are finding," Carlson said, "that engineers make little or no effective use of information that is thrust upon them by one of our so-called information systems or that is packaged in one of the general media such as technical journals. . . ." Referring to the content of society publications, Carlson observed, "You could become quite convinced that the 64,000 engineers in research and teaching are the only people in the profession. . . . Development, consulting, design, production, sales and management people do not make very large use of journals and similar formal media established to provide useful general communications." STANLEY KLEIN

Engineers Joint Council, New York, New York

### **Forthcoming Events**

#### April

11-13. Nursing Service and Hospital Administration, American Hospital Assoc., Chicago, Ill. (E. J. Lanigan, AHA, 840 N. Lake Shore Dr., Chicago 60611) 12-14. Optical Soc. of Amer., Colum-

bus, Ohio. (Miss M. Warga, OSA, 1155
 16th St., NW, Washington, D.C. 20036)
 12-14. Shock Tube Symp., 6th intern.,

Freiburg, West Germany. (R. G. Fowler, Dept. of Physics, Univ. of Oklahoma, Norman 73069)

13-14. Teaching of Mathematics to Physicists, Inst. of Physics and Physical Soc. and Inst. of Mathematics and Its Applications, conf., Exeter, England. (Meetings Officer, Inst. of Physics and Physical Soc., 47 Belgrave Sq., London, S.W.1, England)

13-15. American Assoc. for Cancer Research, 48th annual mtg., Chicago, Ill. (Secretary-Treasurer, The Association, 7701 Burholme Ave., Philadelphia, Pa. 19111)

13-16. British Medical Assoc., annual clinical conf., Londonderry, Northern Ireland. (Secretariat, Tavistock Sq., London, W.C.1, England)

14-15. Echoencephalography, intern. symp., Univ. of Erlangen-Nurnberg, West Germany. (W. Schiefer, 8520 Erlangen, Krankenhausstrasse 12, West Germany) 14-21. French Physical Soc., 61st exhibition, Paris. (The Society, 33 rue Croulebarbe, Paris 13°)

15-16. American Soc. for Artificial Internal Organs, annual mtg., Atlanta, Ga. (P. M. Galletti, Dept. of Physiology, Emory Univ., Atlanta)

15-16. Histochemical Soc., 18th annual mtg., Chicago, Ill. (G. M. Lehrer, Div. of Neurochemistry, Mount Sinai School of Medicine, 11 E. 100 St., New York 10029) 15-16. Nucleic Acids Symp., Santa Monica, Calif. (M. S. Dunn, 9325 Venice Blvd., Culver City, Calif.)

15-16. Scientific Photography, 2nd symp., Pacific Northwest Chapter of Biological Photographic Assoc., Univ. of Washington, Seattle. (J. W. McKim, Symp. on Scientific Photography, Univ. of Washington, Seattle 98105)

16-21. American **Physiological** Soc., spring mtg., Chicago, Ill. (The Society, 9650 Rockville Pike, Bethesda, Md. 20014)

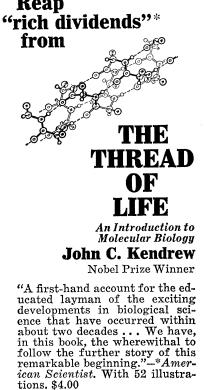
16–21. Federation of American Societies for **Experimental Biology**, annual mtg., Chicago, Ill. (FASEB, Convention Office, 9650 Rockville Pike, Bethesda, Md. 20014) 16–21. International **Cartographic** Assoc., general assembly and technical conf., Amsterdam, Netherlands. (F. J. Ormeling, Secretary-Treasurer, Bachlaan 39, Hilversum, Netherlands)

16-21. Society of Motion Picture and Television Engineers, 101st semiannual conv., New York, N.Y. (Executive Secretary, 9 E. 41 St., New York 10017)

16-21. Society for Pharmacology and Experimental Therapeutics, spring mtg., Chicago, Ill. (The Society, 9650 Rock-ville Pike, Bethesda, Md. 20014)

17-19. Elementary Particles, Inst. of Physics and Physical Soc., conf., London,





HARVARD UNIVERSITY PRESS 79 Garden Street Cambridge, Mass. 02138

# DO YOU HAVE AN INSTRUMENT PROBLEM...

which is not covered by the ads in this issue? Write to us directly, giving full details and we will try to see that you receive the information you need.

### SCIENCE MAGAZINE

Room 1740 11 West 42 Street New York, N.Y. 10036 England. (Meetings Officer, Inst. of Physics and Physical Soc., 47 Belgrave Sq., London, S.W.1)

17-19. Technical Assoc. of **Pulp** and **Paper Industry**, 4th annual water conf., Philadelphia, Pa. (Technical Secretary, 360 Lexington Ave., New York 10017)

17-19. Institute of Electrical and Electronics Engineers, Jackson, Miss. (J. E. May, 1120 Auburn Dr., Jackson)
17-19. Urban Transportation, 2nd

17–19. Urban Transportation, 2nd intern. conf., Pittsburgh, Pa. (W. H. Shepard, P.O. Box 1291, Pittsburgh 15230)

17-20. American **Geophysical Union**, annual mtg., Washington, D.C. (F. R. Boyd, Eastern Natl. Mtg. Committee, AGU, 1145 19th St., NW, Washington, D.C. 20036)

17-21. American Assoc., of Immunologists, Chicago, Ill. (Executive Secretary, Massachusetts General Hosp., Boston)

17-21. American Inst. of Nutrition, annual mtg., Chicago, Ill. (Secretary, The Institute, Dept. of Foods and Nutrition, Michigan State Univ., East Lansing)

Michigan State Univ., East Lansing) 17–21. American Soc. of **Biological Chemists**, Chicago, Ill. (Secretary, The Society, c/o Harvard Univ., 12 Oxford St., Cambridge, Mass.)

17-21. Central Service Management, American Hospital Assoc., Miami Beach, Fla. (E. J. Lanigan, Conv. and Mtg. Bureau, 840 N. Lake Shore Dr., Chicago, Ill. 60611)

17-21. Use of Isotopes and Radiation in **Plant Pathology** Studies, Intern. Atomic Energy Agency and Food and Agriculture Organization, symp., Vienna, Austria. (J. H. Kane, Chief, Conf. Branch, Div. of Technical Information, Atomic Energy Commission, Washington, D.C. 20545)

18–2. International Hydrographic Bureau, intern. conf., Monte Carlo, Monaco. (Contre-Amiral Charles Pierre, Quai des Etats Unis, Monte Carlo, Monaco)

18–19. Applications Related Phenomena in **Titanium Alloys**, American Soc. for Testing Materials, symp., Los Angeles, Calif. (The Society, 1916 Race St., Philadelphia, Pa. 19103)

18-20. Computer Conf., Atlantic City, N.J. (American Federation of Information Processing Societies, 211 E. 43 St., New York 10017)

18–20. Space Instrumentation for Industry, southeastern instrument conf., Cocoa Beach, Fla. (A. L. Keith, 1127 S. Patrick Dr., Satellite Beach, Fla. 32935) 18–21. National Council of Teachers of Mathematics 45th annual Las Vegas

Mathematics, 45th annual, Las Vegas, Nev. (J. D. Gates, NCTM, 1201 16th St., NW, Washington, D.C. 20036) 19. Intensity of Casual Relationships in

Schizophrenia: Living in Imagination, Assoc. for the Advancement of Psychoanalysis, New York, N.Y. (The Association, 329 E. 62 St., New York 10021)

19. **Oral Cancer** Symp., 5th, St. Francis Hospital, Poughkeepsie, N.Y. (M. A. Engelman, 1 E. Academy St., Wappingers Falls, N.Y.)

19–20. 1967 Electronics and Instrumentation Conf. and Exhibit, Cincinnati, Ohio. (G. McVey, Procter & Gamble Co., Ivorydale Technical Center, Cincinnati 45227)

19-21. Extended Care Facilities in General Hospitals, American Hospital Assoc., Miami Beach, Fla. (E. J. Lanigan, Conv.

SCIENCE, VOL. 155

and Mtg. Bureau, 840 N. Lake Shore Dr., Chicago, Ill. 60611) 19-21. Child Dental Health, intern.

19-21. Child Dental Health, intern. symp., London, England. (D. S. Berman, British Paedodontic Soc. London Hospital Dental Inst., Stepney Way, London, S.E.1) 19-21. Institute of Electrical and Elec-

tronics Engineers, southwestern conf., Dallas, Tex. (Office of Technical Activities Board, IEEE, 345 E. 47 St., New York 10017)

20–21. Middle Atlantic States Textile Industry Conf., Charlotte, N.C. (G. L. Bassett, Micro Switch, 2410 Dunavants, Charlotte 28203)

20–22. Biological Energy Conversion, conf., NASA Ames Research Center, Moffett Field, Calif. (Letters and Science Extension, Univ. of California, 2223 Fulton St., Berkeley)

20-22. Ohio Acad. of Science, 76th annual mtg., Dayton, Ohio. (J. H. Melvin, Executive Officer, The Academy, 505 King Ave., Columbus, Ohio 43221)

20-23. German Roentgen Soc., 48th congr., Baden Baden. (H. Poppe, 34 Göttingen, Gosslerstrasse 10, West Germany)

tingen, Gosslerstrasse 10, West Germany) 21-24. American Oil Chemists' Soc., Memphis, Tenn. (C. H. Hauber, Executive Secretary, 35 E. Wacker Dr., Chicago, Ill.) 23-26. European Congr. of Neurosur-

23-20. European Congr. of Penrosulgery, 3rd, Madrid, Spain. (S. Obrador, Eduardo Dato, 23, Madrid 10) 23-27. American Soc. of Mechanical

**Engineers**, Chicago, Ill. (Meetings Manager, The Society, 345 E. 47 St., New York 10017)

27-28. Care of Animals for Medical Research, symp., Kingston, Ont., Canada. (D. B. Jennings, Dept. of Physiology, Queen's University, Kingston)

27-29. Southwestern Psychological Assoc., 14th annual, Houston, Tex. (Mrs. C. Cleland, Southwestern Psychological Assoc., 2104 Meadowbrook Dr., Austin, Tex. 78703)

27-29. Wildflower Pilgrimage, 17th annual, Great Smoky Mountains Natl. Park. (Dept. of Botany, Univ. of Tennessee, Knoxville 37916)

28–29. Biology Colloquium, 28th annual mtg., Corvallis, Ore. (W. P. Lowry, 1967 Biology Colloquium, Dept. of Statistics, Oregon State Univ., Corvallis 97331)

28–29. Physics of Superconducting Devices, symp., Univ. of Virginia, Charlottesville. (B. S. Deaver, Jr., Organizing Committee, Dept. of Physics, Univ. of Virginia, Charlottesville 22903) 28–30. Wisconsin Acad. of Sciences,

28-30. Wisconsin Acad. of Sciences, Arts and Letters, annual mtg., Wisconsin State Univ., Oshkosh. (J. Thompson, Birge Hall, Univ. of Wisconsin, Madison 53706)

29. American Soc. for Clinical Nutrition, annual mtg., Atlantic City, N.J. (A. B. Eisenstein, 818 S. Meramec Ave., St. Louis, Mo. 63105)

Louis, Mo. 63105) 29-4. American Ceramic Soc., 69th annual mtg., New York, N.Y. (Technical, Secretary, The Society, 4055 N. High St., Columbus 14, Ohio)

30-3. Underwater Technology Conf., American Soc. of Mechanical Engineers, Hampton, Va. (Meetings Manager, The Society, 345 E. 47 St., New York 10017) 30-5. International College of Surgeons,

30-5. International College of Surgeons, congr., Bal Harbor, Fla. (S. E. Henwood, 1516 Lake Shore Dr., Chicago, Ill. 60610)

31 MARCH 1967

ON THE WATERFRONT AT ANNAPOLIS-



## growth opportunities for research engineers and scientists

The expansion of the research and development program of the U.S. Navy Marine Engineering Laboratory, Annapolis, Maryland, has created openings for engineers and scientists at salaries ranging from \$6,387 to \$12,873 in the types of positions described below:

**Chemical Engineer** — Research and development work in chemical and electrochemical processes; gas and fluid flow systems and equipment; air and water treatment systems; semi-conductor materials; lubrication; fuel cell power plant systems and processes; filtration, hydraulic fuel systems.

Electrical Engineer — Research and development in electrical power and its control; magnetic fields; ship control systems; instrumentation; electrochemical processes; electro or electromechanical equipment silencing; or other naval or shipboard electrical applications.

Electronic Engineer — Research and development in electronics, servomechanisms, electro and mechanical devices; instrument and panel illumination, pressure measurement, and fluid flow measurement.

**Chemist**—Engaged in application of chemical principles to the areas of water treatment and purification, corrosion and deposition in naval equipment, atmosphere purification, thermoelectric materials, fuel cell power generation, lubrication, fuels, hydraulic fluids, and instrumental analysis. Mechanical Engineer — Research and development work in shipboard propulsion machinery; pneumatic and hydraulic systems; friction and wear equipment and devices; machinery silencing; cryogenic systems; or other naval and shipboard mechanical applications.

Metallurgist — Research and development work in the area of new or improved alloys for ship hull and machinery applications involving considerations of physical and mechanical properties of metals and alloys, fatigue and corrosion characteristics, and weldability.

**Physicist** — Application of physical principles to the areas of sound, electronics, optics, mechanics, instrumentation, or electricity and magnetism.

Mathematician—Applies the techniques of mathematics to the solution of scientific and engineering problems in the support of research and development programs of the Laboratory. Analyzes physical problems and develops mathematical equations and formulas suitable for numerical analysis and computation. Programs for solution by digital computer when appropriate.

Each appointee receives the complete benefits of career Civil Service and regular salary increases in grade. Applicants must be college graduates. All qualified applicants will receive consideration for employment without regard to race, color, or national origin. Relocation expenses will be paid.

Write to: W. M. SIESKO

Head, Employment Branch U.S. Navy Marine Engineering Laboratory Annapolis, Maryland 21402