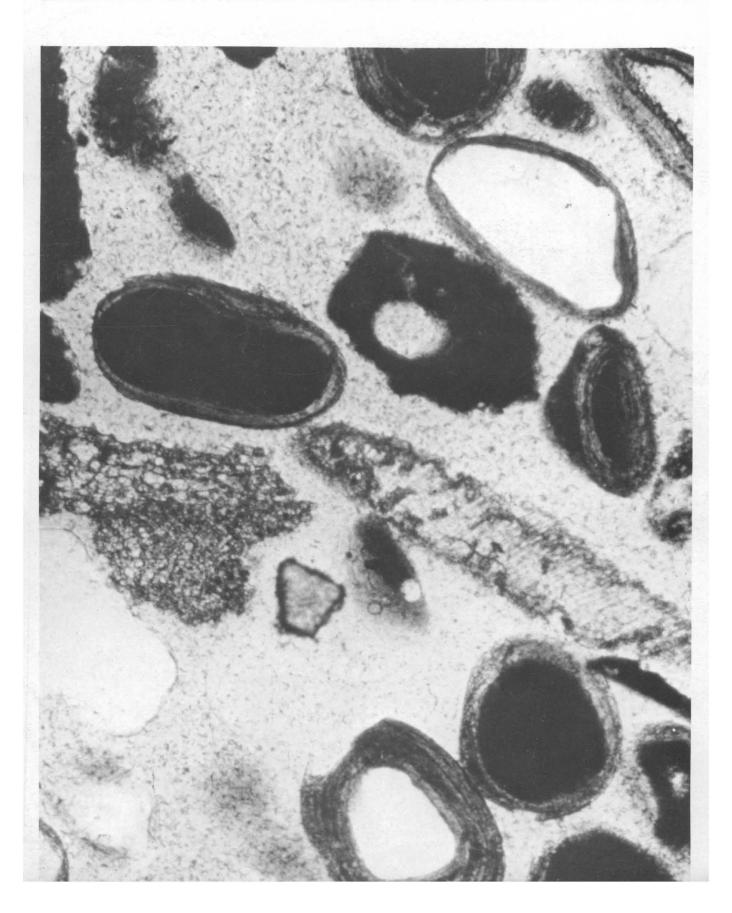
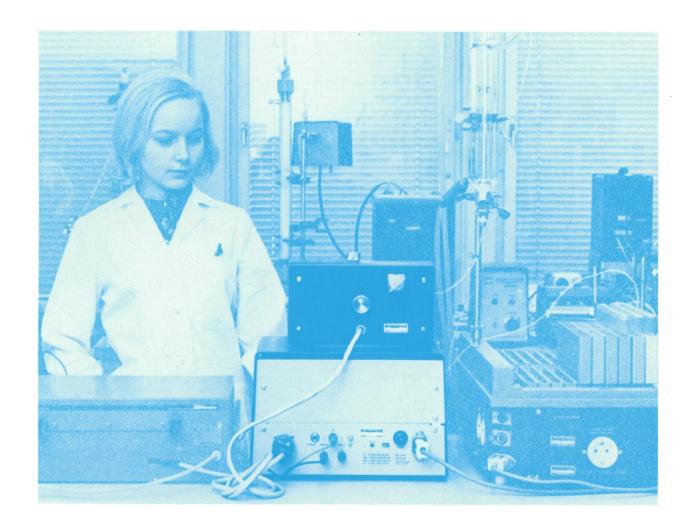
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#### COVER

Reworked early Holocene oöids in modern marine sand northeast of Djerke Island, Tunisia. (Thin section of grains embedded in polyester resin; normal light.) See page 757. [Frank H. Fabricius, Technical University, Munich, Germany; D. Berdau and Karl-Otto Münnich, Heidelberg University, Heidelberg, Germany]



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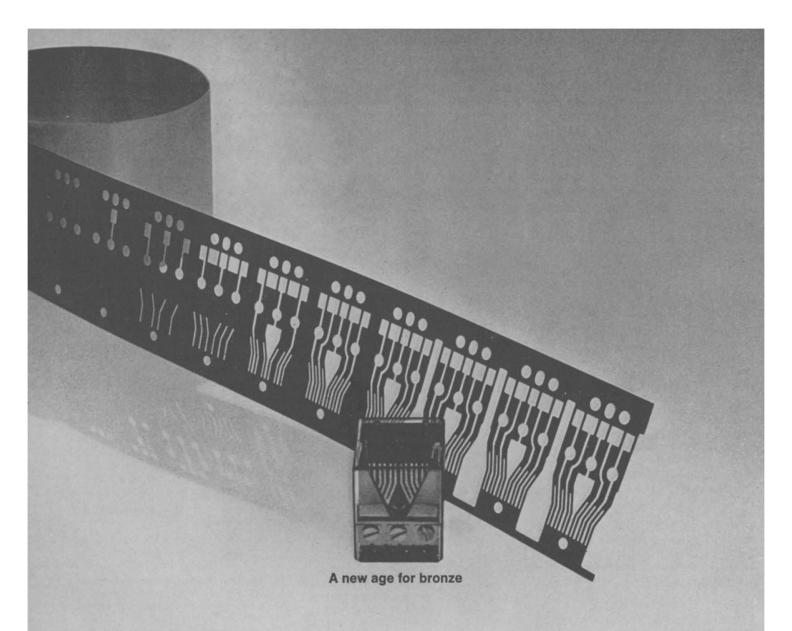
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Commercial metals consist of crystals whose properties, such as yield strength, may be greater in one direction than another. Because normal casting and forming tend to orient the crystals in a preferred alignment, metals often acquire directional properties or "texture."

Bell Laboratories scientists have been studying the laws that govern crystal alignment. By applying a computer technique called linear programming to a model of crystal deformation they can predict the result of metalforming operations and, hence, the properties of the end material. This indicates that texture can be controlled to produce stronger materials.

A practical result of these studies is the development, by Gilbert Chin, Robert Hart, and Bud Wonsiewicz, of an improved high-strength phosphor bronze. (This copper/tin mixture, known since about 3500 BC, was probably man's first alloy.) Formed into

springs for relays, connectors, and other devices, the improved alloy should give greatly increased life, savings in material, and new opportunities for miniaturization. (Photo shows a miniature relay and the steps in stamping relay springs from a sheet of the new bronze.)

Relay springs are continually flexed, so the bronze must have high yield strength (force needed to permanently deform a sample of given area). Up to a certain force, the crystal—and hence the bulk metal—is elastic. Beyond that, there is slip or shear along crystallographic planes: the metal bends permanently.

To strengthen the bronze, the Bell Labs scientists prescribed severe rolling to develop texture. A 97% reduction in thickness increased the metal's yield strength to 11/2 times the value attained in usual commercial practice, where 70% is the maximum reduction. As the computerized model predicted,

greatest yield strength was transverse to the direction of rolling.

Moreover, the additional rolling enhanced particle precipitation in the crystal matrix. Hence, heat treatment after the extensive rolling increased the yield strength of the bronze an additional 40%. The material became more resistant to slip or strain. This cannot be achieved with less heavily worked material.

Tests at Bell Laboratories indicate dramatic increases in the life of these important components of telephone systems. And Western Electric, manufacturing and supply unit of the Bell System, has used the new alloy in pilot runs of miniature relays.

For the Bell System, such improvements in basic materials mean better service in communications.

From the Research and Development Unit of the Bell System:



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Durrum Instrument Corporation 3950 Fabian Way Palo Alto, Calif., 94303 11). For balance, here are some typical attitudes of conservationists in opposition to a proposed project:

The program, no matter how proposed, must not be enacted.

Progress is no concern of ours, only preservation of the environmental status quo.

No need is so important as to outweigh the least potential ill effect on the environment.

No one supports the program, except the officers and shareholders of the sponsors.

Data used to predict dire effects of the program are the only valid, pertinent data.

It is not necessary to prove nor offer strongly suggestive evidence that the development will damage the environment; the allegation is enough.

It is always possible to base opposition on some possible effect—no matter how improbable—that the sponsor has not considered.

If the program as presented is not susceptible to attack, assume some unstated future development and attack that.

Whether or not applicable alternatives to the program can be found is no concern of ours.

GEORGE ELWERS

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#### Polywater: Ideal Research Topic

Joel Hildebrand, a distinguished elder statesman of science, recently dismissed anomalous water research in a disparaging manner (Letters, 19 June), and offered an explanation of the phenomenon which appears to have been disproved even by research workers who vigorously doubt the existence of a new form of water (1). Unfortunately that attitude and its presentation outside the framework of usual scientific discussion characterize much of the scientific community's approach to this phenomenon.

A detailed analysis of current research certainly leads one to believe that there is no better than an equal—probably much lower—chance of its existence, but it is notable that even the popular press has displayed a more objective viewpoint (2) than that often heard among prominent scientists. There is ample evidence (not involving the present correspondent) that scientists holding opinions similar to Hil-

debrand's have strongly influenced the research proposal evaluation panels of numerous federal agencies.

It is interesting to step back from the specific scientific issue and view anomalous water as an example of research judgment: It is concerned with the possibility of a genuinely new phenomenon of widespread potential importance; the subject has relevance to many currently active research areas; specific research questions can be clearly identified; effective research can be carried out with simple and inexpensive equipment. It almost seems like a model for the ideal research topic that one always tells one's bright young students to be looking for.

LELAND C. ALLEN Department of Chemistry, Princeton University, Princeton, New Jersey 08540

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- D. L. Rousseau and S. P. S. Porto, Science 167, 1715 (1970).
   W. Sullivan, New York Times (24 June 1970), p. 24; ibid., (28 June 1970), sec. 4, p. 7.

#### Radiochemicals: Quality Control

Recent letters from D. M. Prescott (12 June) and I. Goldman (16 Jan.) concerning problems with radiochemicals prompts me to relate our approach to this problem. It originally began when one of our scientists, who was using a commercial <sup>14</sup>C labeled sample, questioned the low count rate in the <sup>14</sup>C channel of a liquid scintillation spectrometer and the high count rate in the <sup>3</sup>H channel. Eventually, the "<sup>14</sup>C" sample was shown to contain both <sup>3</sup>H and 14C.

After this experience, our practice has been to assay, before use, all commercial samples that can reasonably be examined, for: (i) total radioactivity; (ii) chemical and radiochemical purity, usually by a chromatographic separation and detection, followed by a radioscan; and (iii) the radioisotopic purity by examining either the beta-ray spectrum, which results by coupling a liquid scintillation spectrometer to a multichannel analyzer, or the gamma-ray spectrum using a multichannel analyzer. It is possible to detect about 1 percent 3H or 14C in the presence of the other by comparing the sample spectrum to that of known mixtures.

The problems that we encountered generally have been corrected promptly when brought to the supplier's attention. It is important to recognize that these problems are not unique to radiochemicals. As has been stated many times in the past, to avoid surprises, all chemicals should be examined prior to use. EDWARD J. MERRILL

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#### FDA: Maligned "Giant"

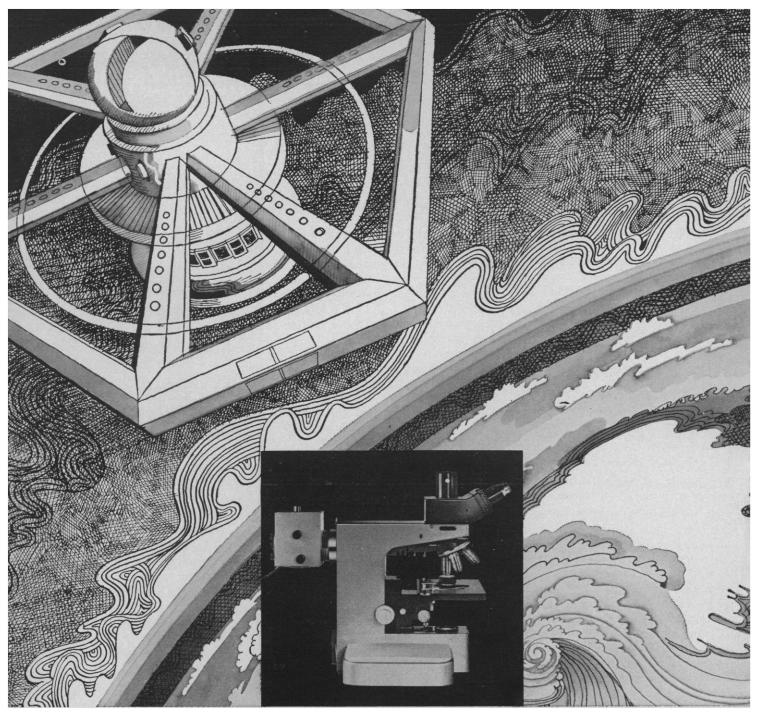
There may be many who agree with Muzik (Letters, 19 June) that "the current view of the general populace is that the Food and Drug Administration is an irascible, irresponsible, and dictatorial giant. . . ." But Muzik's statement is based on several misconceptions about the FDA:

- 1) The decision to ban the sale of foods containing cyclamates was not an FDA action, but was made by the Secretary of Health, Education and Welfare after consultation with a number of authorities both within and outside the FDA.
- 2) The FDA has no power to ban or even curtail the use of DDT, 2,4,5-T, or any other pesticide. The authority to prohibit the registered use of a pesticide is vested solely in the Department of Agriculture.
- 3) The "Delaney Amendment" of the Food Additive Amendment to the Food, Drug, and Cosmetic Act compels the FDA to proscribe the use of any food additive which is carcinogenic to any test animal at any level, including "astronomically high doses."
- 4) Unfortunately, the FDA can hardly be called a "giant." Its current budget is approximately \$80 million and much of this is budgeted for programs not directly related to the enforcement of the FDC Act. Compare this modest sum with the \$100 million or more annually allocated for meat inspection, or the \$1 billion recommended for the next fiscal year for air and water pollution control activities. The only "giant" is the nearly \$100 billion industry which must be regulated by the FDA.
- 5) The FDA has the enormous responsibility of protecting the American consumer with inadequate funds and with authority which is susceptible to reversal by at least two administrative levels between the office of the Commissioner of the FDA and the office of the Secretary of HEW.

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#### Science and Immediate Social Goals

A decade ago, science and technology were perceived as the means for achieving the principal national goals of the time, including better health, more affluence, improved defense, and adventurous space exploration. Since it was highly relevant, research was accorded prestige, funds, and considerable freedom. Society now is most concerned with a new set of problems, and science and technology no longer seem so central. Correspondingly, their prestige, funds, and freedom have been eroded. Of the three, the loss of freedom is the most damaging. When a scientist cannot work at what to him is most interesting and important, he is not effective. Loss of freedom has come in two ways. Some scientists have placed expediency above freedom and have chosen work for which they have little talent. More serious has been increasing pressure by the public and politicians through the control of federal funds to force scientists to work on "relevant" projects.

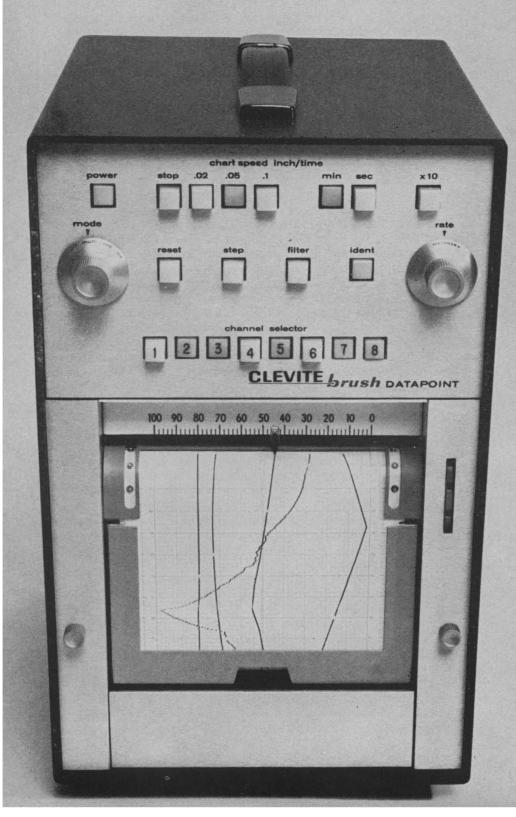
The public and the politicans in general are not sufficiently well informed to make good judgments as to the potential of science and technology in meeting societal needs. They seize on slogans as a substitute for thought. Because of some dramatic feats, there is excessive confidence in the power of technology. The typical response to the successful Apollo mission was, "If we can go to the moon, we can do anything." Subsequently, as the public contemplated such matters as the environment, it became impatient for instant change. Any performance short of the miraculous seemed to indicate lack of good will or an inappropriate set of priorities.

The public needs to understand that science and technology cannot be applied successfully to the fulfillment of every wish. In part this is because the "state of the art" is not sufficiently advanced. This is true of sociology and social problems. It also is true of medicine, where our desires for magical cures will always exceed what the wisest men can deliver. Even in the physical sciences, which give man enormous power for accomplishments, there are limitations. One that has not been emphasized sufficiently is the long period of time needed to harness effectively the technology to meet a social goal. This matter was discussed recently by Harvey Brooks, dean of the School of Applied Physics at Harvard University. He pointed out that there is ample evidence to show that it takes about 10 years to arrive at a technological goal having significant impact on society. He has listed a number of the major goals of 10 years ago in education and in lunar exploration, all of which were achieved. However, even before the goals were reached, the public was turning its attention toward new goals. As Brooks puts it, technology is being asked to shoot at moving targets. When such targets come and go within a period of a few months, there is an impossible mismatch with the long time span required for research to be converted into practical application.

Commenting on the need to achieve a reasonable balance between demands for relevance and the need to maintain a viable scientific enterprise, the National Goals Research Staff has said,\* "To the extent that society insists that basic scientists do work that is more relevant to present social needs . . . scientists will be less able to work where nature appears willing to answer their questions. They may be required to work on relevant questions that perhaps cannot be answered at all at present, or can be answered only with uneconomic use of resources. Thus, excessive efforts to make science more productive in terms of immediate social goals may actually make it far less productive in the long run."—Philip H. Abelson

<sup>\* &</sup>quot;Toward Balanced Growth: Quantity with Quality," report of the National Goals Research Staff (U.S. Government Printing Office, Washington, D.C., 4 July 1970).

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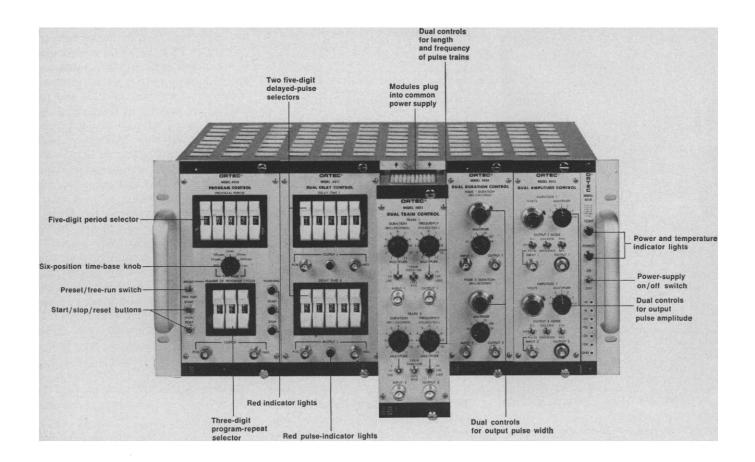
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4-10. International Astronautical Congr., 21st, Constance, Germany. (E. M. Knoernschild, Inst. of Energy Conversion and Electric Propulsion, D.V.1, Allmandstrasse 124, 7 Stuttgart-Vaihingen, Germany)

5-6. **Brain Tumor** Symp., Columbus, Ohio. (W. G. Bingham, Jr., 410 W. Tenth Ave., Columbus 43210)

5-6. Electron Microscope Soc. of America, Houston, Tex. (G. G. Cocks, Olin Hall, Cornell Univ., Ithaca, N.Y. 14850)

5-7. Mervin J. Kelly Communications Conf., Rolla, Mo. (J. R. Betten, Univ. of Missouri, 123 EE Building, Rolla 65401)

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5-7. International Symp. of Facial Nerve Surgery, Osaka, Japan. (H. Hazama, Japan Travel Bureau, 19 Azuchi-Machi, 4-chome, Higashi-ku, 541)

5-7. International Symp. on Gallium Arsenide and Related Compounds, 3rd, Aachen, Germany. (H. Beneking, Technische Hochschule Aachen, 5100 Aachen)

5-7. University Education and Research in the Nuclear Fuels Cycle, Norman, Okla. (L. E. Weaver, Univ. of Oklahoma, 202 W. Boyd, Room 107, Norman 73069)

5-7. Symposium on Feature Extraction and Selection in **Pattern Recognition**, Argonne, Ill. (S. S. Yau, Dept. of Electrical Engineering, Northwestern Univ., Evanston, Ill. 60201)

5-8. Canadian Pulp and Paper Assoc., 2nd, Ottawa, Ont. (R. A. Joss, 2300 Sun Life Bldg., Montreal, P.Q., Canada)

5-8. Recent Developments in Research Methods and Instrumentation, Bethesda, Md. (D. R. Watson, Supply Management Branch, Public Health Service, Natl. Inst. of Health, Bethesda, Md. 20014)

5-9. American Dietetic Assoc., Cleveland, Ohio. (R. M. Yakel, ADA, 620 N. Michigan Ave., Chicago, Ill.)

5-9. Electron Microscopy Soc. of America, Houston, Tex. (M. L. Rudee, Rice Univ., 112A Space Science Bldg., Houston 77001)

5-9. Symposium on Economic Integration of Nuclear Power Stations in Electric Power Systems, Vienna, Austria. (J. H. Kane, Div. of Technical Information, U.S. Atomic Energy Commission, Washington, D.C. 20545)

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5-9. Plutonium and Other Actinides, 4th intern. conf., Santa Fe, N.M. (F. W. Schonfeld, Los Alamos Scientific Lab.,

P.O. Box 1663, Los Alamos 87544) 5-9. Research Equipment and Instrument Symp., 20th, Bethesda, Md. (J. B. Davis, Chief, Supply Management Branch, Natl. Inst. of Health, Bethesda, Md. 20014)

5-10. Precision Measurements and Fundamental Constants, Gaithersburg, Md. (L. M. Branscomb, A-363 Physics Bldg., Natl. Bureau of Standards, Washington, D.C. 20234)

5-10. Society for Applied Spectroscopy, 9th, New Orleans, La. (G. G. Guibault, Chemistry Dept., Louisiana State Univ.,

New Orleans)

6-9. Phytochemical Soc. of North America, 10th annual, Beltsville-College Park, Md. (T. C. Tso, Room 104, South Bldg., Plant Industry Sta., Beltsville 20705)

7. California Acad. of Sciences, San Francisco. (G. E. Lindsay, The Academy, Golden Gate Park, San Francisco 94118)

7. High Molecular Weight Plastics, Baltimore, Md. (W. C. McKay, 430 Severnside

Dr., Severna Park, Md. 21146)
7-10. National Council on Family Relations, Chicago, Ill. (Mrs. V. Jewson, NCFR, 1219 University Ave., SE, Minneapolis, Minn. 55414)

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11-15. Society of American Foresters, Las Vegas, Nev. (H. R. Glascock, Jr., SAF, 1010 16th St., NW, Washington, D.C. 20036)

11-15. American Soc. for Information Science, 33rd annual, Philadelphia, Pa. (E. Garfield, Inst. for Scientific Information, 325 Chestnut St., Philadelphia, Pa. 19106)

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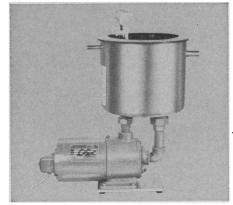
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25-28. National **Lubricating Grease** Inst., 38th, Atlanta, Ga. (C. V. Pickell, 4635 Wyandotte St., Kansas City, Mo. 64112)

25-29. Institute of Sanitation Management, Cleveland, Ohio. (H. C. Rowe, 1710 Drew St., Clearwater, Fla. 33515)
25-30. American College of Chest

25-30. American College of Chest Physicians, Los Angeles, Calif. (A. Soffer, ACCP, 112 E. Chestnut St., Chicago, Ill. 60611)

25-30. International Congr. of Internal Medicine, 11th, New Delhi, India. (H. Ludwig Burgerspital Resel Switzgeland)

Ludwig, Burgerspital, Basel, Switzerland)
26–27. Interagency Chemical Rocket
Propulsion Group, Pasadena, Calif. (A.
Broido, Pacific Southwest Forest and
Range Experiment Sta., U.S. Forest Service, P.O. Box 245, Berkeley, Calif.
94701)

26-28. Electronic and Aerospace Systems, Washington, D.C. (R. A. Stampfl, Natl. Aeronautics and Space Administration, Washington, D.C.)

26–28. Spectroscopy, 17th symp. and exhibition of instrumentation, 17th, Ottawa, Ont., Canada. (J. L. Dalton, 555 Booth St., Ottawa 4)

26-29. Instrument Soc. of America, Philadelphia, Pa. (H. S. Kindler, ISA, 530 William Penn Pl., Pittsburgh, Pa. 15219)

26-30. Symposium on the Use of Nuclear Techniques in the Measurement and Control of Environmental Pollution, Salzburg, Austria. (J. H. Kane, Div. of Technical Information, U.S. Atomic Energy Commission, Washington, D.C. 20545)

26-30. American College of Preventive Medicine, Houston, Tex. (E. A. Piszcek, 6410 N. Leona Ave., Chicago, Ill. 60646)

26-30. American Public Health Assoc., 98th, Houston, Tex. (B. F. Mattison, 1740 Broadway Ave., New York 10019)

26-30. American Water Resources Conf., 6th, Austin, Tex. (W. S. Butcher,



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Civil Engineering Dept., Univ. of Texas, Austin 78712)

27-28. Society of Plastics Engineers, Cherry Hill, N.J. (A. E. Whitney, Jr., 31 Alexander Ave., Nutley, N.J.)

27-29. Western Space Congr., 1st, Santa Maria, Calif. (C. E. Ewing, P.O. 1134, Santa Maria 93454)

27-31. Congress of Neurological Surgeons, Inc., 20th, St. Louis, Mo. (J. M. Thompson, 1955 Blossom Way, St. Petersburg, Fla. 33712)

28-30. Electron Devices, Washington, D.C. (Inst. of Electrical and Electronics Engineers, Electron Devices Group, 345 E. 47 St., New York 10017)

28-30. Sociedad Argentina de Investigaciones Bioquimicas, La Plata. (R. R. Brenner, Instituto de Fisiologia, Facultad de Cienias Medicas, Calle 60 y 120, La Plata)

28-30. Meteoritical Soc., Skyland, Va. (L. S. Walter, Planetology Branch, Code 644, NASA/Goddard Space Flight Center, Greenbelt, Md.)

28-30. Operations Research Soc. of America, Detroit, Mich. (R. M. Oliver, Dept. of Industrial Engineering, Univ. of California, Berkeley 94720)

28-30. Planetology and Space Mission Planning, 3rd conf., New York, N.Y. (R. D. Enzmann, Raytheon Corp., Bedford, Mass.)

28-1. Federation of Societies for Paint Technology, 48th annual, Boston, Mass. (R. W. Matlack, 121 S. Broad St., Philadelphia, Pa. 19107)

29-30. Joint Engineering Management Conf., 18th annual, Chicago, Ill. (G. J. Lukas, Keebler Co., 677 Lank Ave., Elmhurst, Ill. 60126)

29-2. Association of American Medical Colleges, 9th annual, Los Angeles, Calif. (D. E. Mattson, Div. of Educational Measurement and Research, AAMC, 2530 Ridge Ave., Evanston, Ill. 60201)

#### November

1-4. American Soc. of **Tropical Medicine and Hygiene**, San Francisco, Calif. (M. M. Brooke, P.O. Box 15208, Emory Univ., Atlanta, Ga. 30333)

4-5. American Assoc. for the Study of Liver Diseases, Chicago, Ill. (F. Schaffner, Mount Sinai School of Medicine, Fifth Ave. and 100th St., New York 10029)

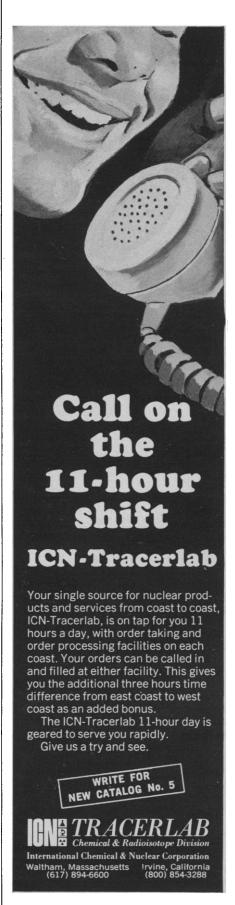
5-7. Symposium on Nutritional and Environmental Problems of the Inner City, Nashville, Tenn. (H. A. Moses, Meharry Medical College, Nashville 37208)

5-8. Italian Soc. of Urology, 43rd congr., Florence, Italy. (M. Rizzo, Instituto di Urologia Universita degli, Studi di Firenze, Firenze)

6-7. Central Soc. for Clinical Research, Chicago, Ill. (J. W. Eckstein, Dept. of Internal Medicine, Univ. of Iowa Hospitals, Iowa City 52240)

6-7. National Conf. on Management of Oclusive Arterial Disease, Nashville, Tenn. (W. A. Dale, 2010 Church St., Nashville 37203)

12-15. American Soc. of **Therapeutic Radiologists**, Phoenix, Ariz. (C. R. Bogardus, 800 NE 13th St., Oklahoma City, Okla. 73104)



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#### BOOKS RECEIVED

(Continued from page 756)

Development of Lanternfishes (Family Myctophidae) in the California Current. Part 1, Species with Narrow-Eyed Larvae. H. Geoffrey Moser and Elbert H. Ahlstrom. Los Angeles County Museum of Natural History, Los Angeles, 1970. vi + 146 pp., illus. Paper, \$6. Bulletin of the L.A. County Museum of Natural History: Science, No. 7.

Digest of Technical Papers. Institute of Electrical and Electronics Engineers International Solid-State Circuits Conference, Philadelphia, February 1970. J. A. A. Raper and B. K. Winner, Eds. Lewis Winner, New York, 1970 (available from H. G. Sparks, Moore School of Electrical Engineering, University of Pennsylvania, Philadelphia, and the IEEE, New York). 212 pp., illus. Paper, \$10 to IEEE members; \$15 to nonmembers.

Early Vegetation of the Lower Illinois Valley. A Study of the Distribution of Floral Resources with Reference to Prehistoric Cultural-Ecological Adaptations. April Allison Zawacki and Glenn Hausfater, assisted by J. Thomas Meyers. Illinois State Museum Society, Springfield, 1969. viii + 68 pp., illus. Paper, \$2.50. Reports of Investigations, No. 17. Illinois Valley Archaeological Program Research Papers, vol. 1.

East Is a Big Bird. Navigation and Logic on Puluwat Atoll. Thomas Gladwin. Harvard University Press, Cambridge, Mass., 1970. xviii + 242 pp., illus. \$9.95.

Elementary Differential Equations with Linear Algebra. Albert L. Rabenstein. Academic Press, New York, 1970. xii + 444 pp. \$10.50.

Éléments de polarographie. Théorie, technique instrumentale et applications analytiques. R. Pointeau and J. Bonastre. Masson, Paris, 1970. viii + 396 pp., illus. 120 F. Collection de chimie physique.

Errors, Measurement and Results in Chemical Analysis. K. Eckschlager. R. A. Chalmers, Transl. Ed. Van Nostrand Reinhold, New York, 1969. 156 pp., illus. \$10.50. Van Nostrand Series in Analytical Chemistry.

Essai de Classification et de Nomenclature des Virus. H. Lapierre and D. Spire. Institut National de la Recherche Agronomique, Paris, 1969. 112 pp. Paper, 35 F. Supplement to Annales de Phytopathologie.

Experiments and Techniques in Parasitology. Austin J. Macinnis and Marietta Voge, Eds. Freeman, San Francisco, 1970. xvi + 232 pp., illus. Paper, \$5.25.

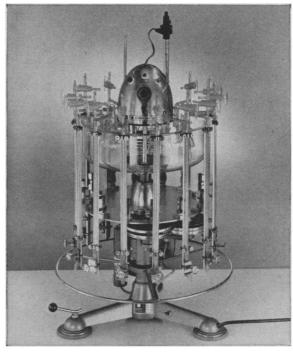
Fields and Functions. A Course in Precalculus Mathematics. Crayton W. Bedford, Edmond E. Hammond, Jr., George W. Best, and J. Richard Lux. Macmillan, New York; Collier-Macmillan, London, 1970. xiv + 626 pp., illus. \$9.95.

Fortschritte der Geburtshilfe und Gynäkologie. Vol. 41. Part 1, Fortschritte auf
dem Gebiete der Plazenta-Physiologie. Part
2, Neue Forschungsergebnisse über den
mütterlichen Plazentakreislauf. H. Lemtis
et al. Karger, Basel, 1970 (U.S. distributor,
Phiebig, White Plains, N.Y.). vi + 118 pp.,
illus. Paper, \$7.80. Bibliotheca Gynaecologica, No. 54.

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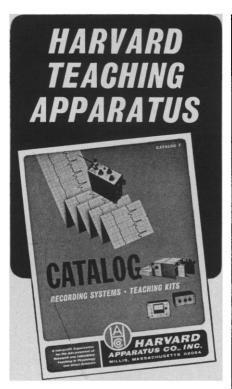
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Deductive Treatment. O. Penrose. Pergamon, New York, 1970. x + 262 pp., illus. \$11.50. International Series of Monographs in Natural Philosophy, vol. 22.

Frontiers in Geographical Teaching. Richard J. Chorley and Peter Haggett, Eds. Methuen, London, ed. 2, 1970. xii + 386 pp., illus. Cloth, \$8; paper, \$4.

Fundamentals of Commercial Chemical Development. A symposium, New York, September 1969. Newman H. Giragosian, symposium chairman. Division of Chemical Marketing and Economics, American Chemical Society, Washington, D.C., 1970 (order from P.O. Box 607, New York 10017). viii + 120 pp., illus. Paper, \$9.50.

Future Fields of Control Application. A symposium, Cambridge, Mass., February 1969. National Aeronautics and Space Administration, Washington, D.C., 1969 (available as NASA SP-211 from Clearinghouse for Federal Scientific and Technical Information, Springfield, Va.). vi + 146 pp., illus. Paper, \$3.

General Botany Manual. Exercises on the Life Histories, Structures, Physiology, and Ecology of the Plant Kingdom. Paul C. Lemon and Norman H. Russell. Mosby, St. Louis, ed. 3, 1970. xii + 220 pp., illus. Paper, \$4.85.

General Psychology. Modeling Behavior and Experience. William N. Dember and James J. Jenkins. Prentice-Hall, Englewood Cliffs, N.J., 1970. xvi + 784 pp., illus. \$9.95.

Geology of the North-Eastern Part of the Amadeus Basin, Northern Territory. A. T. Wells, L. C. Ranford, A. J. Stewart, P. J. Cook, and R. D. Shaw. Bureau of Mineral Resources, Geology and Geophysics, Canberra, Australia, 1967. viii + 94 pp. + plates. Paper, \$A5.25. BMR Report No. 113.

Hazards of Handling Simians. Proceedings of a symposium, Brighton, England, April 1969. F. T. Perkins, P. N. O'Donoghue, W. I. B. Beveridge, C. R. Coid, L. G. Goodwin, C. L. Greening, and C. E. Gordon Smith, Eds. Laboratory Animals Ltd., London, 1969. 268 pp., illus. Paper, 45 s. Laboratory Animal Handbooks, No. 4.

"Het Varken." Fysiologische, Zoötechnische, Ziektekundige en Vleeshygiënsche Aspecten. Lectures from a postgraduate course, Utrecht, Netherlands, June 1969. Bureau of the Faculty of Veterinary Medicine, Utrecht, 1969. iv + 336 pp., illus. Paper, 10 G.

High Speed Testing. Vol. 7, The Rheology of Solids. Seventh international symposium, Boston, March 1969. Rodney D. Andrews, Jr., and Frederick R. Eirich, Co-Chairmen. Interscience (Wiley), New York, 1969. x + 310 pp., illus. Paper, \$10. Applied Polymer Symposia, No. 12.

How to Live with Your Special Child. A Handbook for Behavior Change. George von Hilsheimer. Appendices by Hulda R. Clark and Sol D. Klotz. Acropolis, Washington, D.C., 1970. 272 pp., illus. \$7.50.

Human Sexual Inadequacy. William H. Masters and Virginia E. Johnson. Little, Brown, Boston, 1970. xii + 468 pp., illus. \$12.50.

**Ideas in Mathematics**. Avron Douglis. Saunders, Philadelphia, 1970. xxvi + 788 pp., illus. \$11.

Illustrated Tumor Nomenclature. Her-

wig Hamperl and Lauren V. Ackerman. Springer-Verlag, New York, ed. 2, 1969. xxxvi + 284 pp., illus. \$14.50.

xxxvi + 284 pp., illus. \$14.50.

Immunoassay of Gonadotrophins. A symposium, Stockholm, September 1969. E. Diczfalusy and A. Diczfalusy, Eds. Reproductive Endocrinology Research Unit, Stockholm, 1969. 384 pp., illus. Paper. Karolinska Symposia on Research Methods in Reproductive Endocrinology. Acta endocrinologica (Kbh.), Suppl. 142.

Industrial Marketing. An Analytical Approach to Planning and Execution. Lawrence Fisher. Brandon/Systems Press, Princeton, N.J., 1970. xiv + 274 pp., illus. \$8.95.

Influence des Changements de Phase sur les Propriétés Physiques des Corps Solides. Séminaire de Chimie de l'Etat Solide No. 3, 1968-1969. J. P. Suchet, Ed. Masson, Paris, 1970. vi + 196 pp., illus. Paper, 65 F.

Inhibitors—Tools in Cell Research. Proceedings of the 20th Colloquium, Mosbach/Baden, Germany, April 1969. Th. Bücher and H. Sies, Eds. Springer-Verlag, New York, 1969. x + 416 pp., illus. \$14.90.

In the Name of Science. H. L. Nieburg. Quadrangle, Chicago, ed. 2, 1970. x + 434 pp. Paper, \$2.95.

Instructor's Manual for Principles of Climatology. A Manual in Earth Science. Hans Neuberger and John Cahir. Holt, Rinehart and Winston, New York, 1970. viii + 84 pp., illus. Paper.

Integrated Basic Science. Stewart M. Brooks. Mosby, St. Louis, ed. 3, 1970. xiv + 510 pp., illus. \$10.

The Intensive and Multilateral Development of Romanian Agriculture. Oprea Parpală. Meridiane, Bucharest, 1969. 64 pp. + plates. Paper.

International Conference on Hong Kong Influenza. Atlanta, Ga., October 1969. World Health Organization, Geneva, 1969 (U.S. distributor, American Public Health Association, New York). Paper, \$9. Bulletin of the World Health Organization, vol. 41, Nos. 3-5, pp. 335-748 + plates.

International Review of Research in Mental Retardation. Norman R. Ellis, Ed. Vol. 4. Paul S. Siegel, Ivar Arnljot Björgen, and Neil O'Connor, Eds. Academic Press, New York, 1970. xvi + 392 pp., illus. \$15.

Introduction to Formal Grammars. M. Gross and A. Lentin. Translated from the French edition (Paris, 1967) by M. Salkoff. Springer-Verlag, New York, 1970. xii + 232 pp., illus. \$10.50.

Introduction to Kinetic Theory. Stochastic Processes in Gaseous Systems. Toyoki Koga. Pergamon, New York, 1970. xvi + 298 pp., illus. \$13.50. International Series of Monographs in Natural Philosophy, vol.

An Introduction to the Philosophy of Charles S. Peirce. Interpreted as a System. James K. Feibleman. M.I.T. Press, Cambridge, Mass., 1970. xxiv + 504 pp. Cloth, \$12.50; paper, \$2.95. Reprint of the 1946 edition.

Introduction to Textiles. Evelyn E. Stout. Wiley, New York, ed. 3, 1970. xiv + 434 pp., illus. \$9.95.

Introductory Experimental Chemistry. Robert J. Ouellette, Carole W. Bohn, and John S. Swenton. Harper and Row, New York, 1970. vi + 186 pp., illus. Paper, \$4.95.

Iroquois False-Face Masks. Robert Ritzenthaler. Milwaukee Public Museum, Milwaukee, 1969. 72 pp., illus. \$7.50. Publications in Primitive Art, No. 3.

Laboratory Manual to Accompany Introduction to Natural Science. Part 2, The Life Sciences. V. Lawrence Parsegian, Paul R. Shilling, and Floyd V. Monaghan. Academic Press, New York, 1970. x + 110 pp., illus. Paper, \$2.95.

Landforms and Landscapes. Sherwood D. Tuttle. Brown, Dubuque, Iowa, 1970. viii + 136 pp., illus. Paper, \$1.95. Brown Foundations of Earth Science Series.

Leading Issues in Economic Development. Studies in International Poverty. Gerald M. Meier. Oxford University Press, New York, ed. 2, 1970. xx + 764 pp. \$9.95

Lehrbuch der Angewandten Geologie. Vol. 2, Geowissenschaftliche Methoden, part 2. A. Bentz and H. J. Martini, Eds. Enke, Stuttgart, 1969. xxii + pp. 1356–2151, illus. DM 157.

The Life of the Jungle. Paul W. Richards. Published in cooperation with the World Book Encyclopedia by McGraw-Hill, New York, 1970. 232 pp., illus. \$4.95. Our Living World of Nature. \$4.95.

Lithic Analysis and Cultural Inference: A Paleo-Indian Case. Edwin N. Wilmsen. University of Arizona Press, Tucson, 1970. xii + 88 pp., illus. Paper, \$6. Anthropological Papers of the University of Arizona, No. 16.

Machine Tool Structures. Vol. 1. F. Koenigsberger and J. Tlusty. Pergamon, New York, 1970. viii + 520 pp., illus. \$32.

Manual of Comparative Anatomy. A General Laboratory Guide. Bruce M. Harrison. Mosby, St. Louis, ed. 3, 1970. xiv + 208 pp., illus. Paper, \$5.75.

Marine Biology. An Introduction to Its

Marine Biology. An Introduction to Its Problems and Results. Hermann Friedrich. Translated from the German edition (Berlin, 1965) by Gwynne Vevers. University of Washington Press, Seattle, 1969. xii + 476 pp., illus. \$9.50. Biology Series.

The Mathematical Theory of Non-Uniform Gases. An Account of the Kinetic Theory of Viscosity, Thermal Conduction and Diffusion in Gases. Sydney Chapman and T. G. Cowling. Third edition, prepared in cooperation with D. Burnett. Cambridge University Press, New York, 1970. xxiv + 424 pp., illus. \$16.

Mechanical Seals. Ehrhard Mayer. Iliffe, London; Elsevier, New York, 1970. xviii + 206 pp., illus. \$13. The Mechanism of Protein Synthesis. A

The Mechanism of Protein Synthesis. A symposium, Cold Spring Harbor, New York, June 1969. Leonora Frisch, Ed. Cold Spring Harbor Laboratory, Cold Spring Harbor, 1969. xxiv + 856 pp., illus. \$22. Cold Spring Harbor Symposia on Quantitative Biology, vol. 34.

Medical X-Ray and Gamma-Ray Protection for Energies up to 10 MeV. Structural Shielding Design and Evaluation Handbook. Recommendations of the National Council on Radiation Protection and Measurements. NCRP, Washington, D.C., 1970. vi + 122 pp., illus. Paper, \$1.50. NCRP Report No. 34.

Mental Health and the Deaf. Approaches and Prospects. A conference, Houston, February 1968. Kenneth Z. Altshuler and



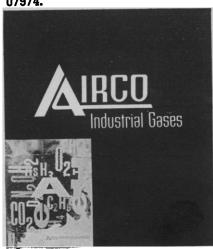
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John D. Rainer, Eds. Social and Rehabilitation Service, U.S. Department of Health, Education, and Welfare, Washington, D.C., 1969. xii + 164 pp.

Métallurgie générale. J. Bénard, A. Michel, J. Philibert, and J. Talbot. Masson, Paris, 1969. x + 610 pp., illus. 98 F. Maîtrise ès sciences; Certificat de métallurgie.

Methodology in Evaluating the Quality of Medical Care. An Annotated Selected Bibliography, 1955–1968. Isidore Altman, Alice J. Anderon, and Kathleen Barker. University of Pittsburgh Press, Pittsburgh, ed. 2, 1969. x + 214 pp. \$3.95.

Methods in Experimental Embryology of the Mouse. Keen A. Rafferty, Jr. Johns Hopkins Press, Baltimore, 1970. xiv + 98 pp., illus. \$8.50.

Methods in Microbiology. J. R. Norris and D. W. Ribbons, Eds. Vol. 2. Academic Press, New York, 1970. xii + 432 pp., illus. \$17.

Microbial Toxins. Samuel J. Ajl, Solomon Kadis, and Thomas C. Montie, Eds. Vol. 1, Bacterial Protein Toxins. Academic Press, New York, 1970. xxii + 522 pp., illus. \$23.

Microeconomics. Theory and Applications. Edwin Mansfield. Norton, New York, 1970. xvi + 480 pp., illus. \$7.95.

Mining Engineers and the American West. The Lace-Boot Brigade, 1849–1933. Clark C. Spence. Yale University Press, New Haven, Conn., 1970. xiv + 408 pp. + plates. \$12.50. Yale Western Americana Series, No. 22.

Molecular Approaches to Learning and Memory. William L. Byrne, Ed. Academic Press, New York, 1970. xxx + 362 pp., illus. \$18.

Multiple-Beam Interference Microscopy of Metals. S. Tolansky. Academic Press, New York, 1970. x + 150 pp., illus. \$6.50.

The Natural History of Sharks. Thomas H. Lineaweaver III and Richard H. Backus. Lippincott, Philadelphia, 1970. 256 pp., illus. \$6.95.

Neurobiology of Cerebellar Evolution and Development. Proceedings of an international symposium, Chicago, March 1969. R. Llinás, Ed. Institute for Biomedical Research of the American Medical Association/Education and Research Foundation, Chicago, 1969. xii + 932 pp., illus. \$35.

The Ore Minerals and Their Intergrowths. Paul Ramdohr. Translated from the third German edition by a team organized by Chr. Amstutz. With additions and corrections by the author. Pergamon, New York, 1969. xviii + 1174 pp., illus. \$54.

The Origins of Alchemy in Graeco-Roman Egypt. Jack Lindsay. Barnes and Noble, New York, 1970. xii + 452 pp., illus. \$10.

1967 Report on the World Social Situation. Department of Economic and Social Affairs, United Nations, New York, 1969. viii + 208 pp. Paper, \$3.

Palaeontological Papers, 1965. Bureau of Mineral Resources, Geology and Geophysics, Canberra, Australia, 1968. vi + 228 pp., illus. \$A3.25. BMR Bulletin 80.

Parenteral Nutrition. Proceedings of a symposium, Nashville, Tenn., April 1968. H. C. Meng and David H. Law, Eds. Thomas, Springfield, Ill., 1970. xx + 596 pp., illus. \$24.75.

The Pharmacology of Synapses. J. W. Phillis. Pergamon, New York, 1970. xii + 360 pp. + plates. \$16. International Series of Monographs in Pure and Applied Biology: Zoology, vol. 43.

Phenolic Substances in Grapes and Wine, and Their Significance. Vernon L. Singleton and Paul Esau. Academic Press, New York, 1969. x + 286 pp. \$14.50. Advances in Food Research, Suppl. 1.

Physical Acoustics. Principles and Methods. Warren P. Mason and R. N. Thurston, Eds. Vol. 6. Academic Press, New York, 1970. xxii + 386 pp., illus. \$19.50.

York, 1970. xxii + 386 pp., illus. \$19.50.

Physics of the Earth. T. F. Gaskell.
Funk and Wagnalls, New York, 1970. 216
pp., illus. \$6.95. World of Science Library.

Pictorial Atlas of Pathogenic Microorganisms. Georg Henneberg, Ed. Vol. 3. P. Giesbrecht, M. Kludas, H. Dobberstein, and F. Lentze, Contributors. Translated by A. Mayr-Harting. Gustav Fischer Verlag, Stuttgart, 1969 (U.S. distributor, Abel, Portland, Ore.). Unpaged, unbound, boxed. \$33.50.

Plant Form and Function. An Introduction to Plant Science. Gerard J. Tortora, Donald R. Cicero, and Howard I. Parish. Macmillan, New York; Collier-Macmillan, London, 1970. x + 566 pp., illus. \$10.95. Macmillan Biology Series.

Poverty and Wealth in America. Harold L. Sheppard, Ed. Quadrangle, Chicago, 1970. viii + 280 pp. Cloth, \$6.95; paper, \$2.45. A New York Times Book.

Principal Diseases of Marine Fish and Shellfish. Carl J. Sindermann. Academic Press, New York, 1970. xii + 372 pp., illus. \$17.50.

The Principles of Human Biochemical Genetics. Harry Harris. North-Holland, Amsterdam; Elsevier, New York, 1970. xiv + 330 pp., illus. Cloth, \$15; paper, \$6.95. Frontiers of Biology, vol. 19.

Probability Tables for Locating Elliptical Targets with Square, Rectangular and Hexagonal Point Nets. Donald A. Singer and Frans E. Wickman. Mineral Sciences Experiment Station, Pennsylvania State University, University Park, 1969. iv + 100 pp., illus. Spiral bound, \$4.50. Special Publication No. 1-69.

Problems in Community Wastes Management. World Health Organization, Geneva, 1969 (U.S. distributor, American Public Health Association, New York). 92 pp. Paper, \$2. Public Health Papers, No. 38.

Proceedings of the Sixth Cellulose Conference. Syracuse, N.Y., October 1968. R. H. Marchessault, Ed. Interscience (Wiley), New York, 1969. x + 338 pp., illus. Paper, \$13.50. Journal of Polymer Science, part C: Polymer Symposia, No. 28.

Profession of Medicine. A Study of the Sociology of Applied Knowledge. Eliot Freidson. Dodd, Mead, New York, 1970. xxii + 410 pp. \$12.50.

Proteins in Normal and Pathological

Proteins in Normal and Pathological Urine. Y. Manuel, J. P. Revillard, and H. Betuel, Eds. Karger, Basel; University Park Press, Baltimore, 1970. xvi + 356 pp., illus. \$21.

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Psychology. B. von Haller Gilmer.

Harper and Row, New York, 1970. xii +
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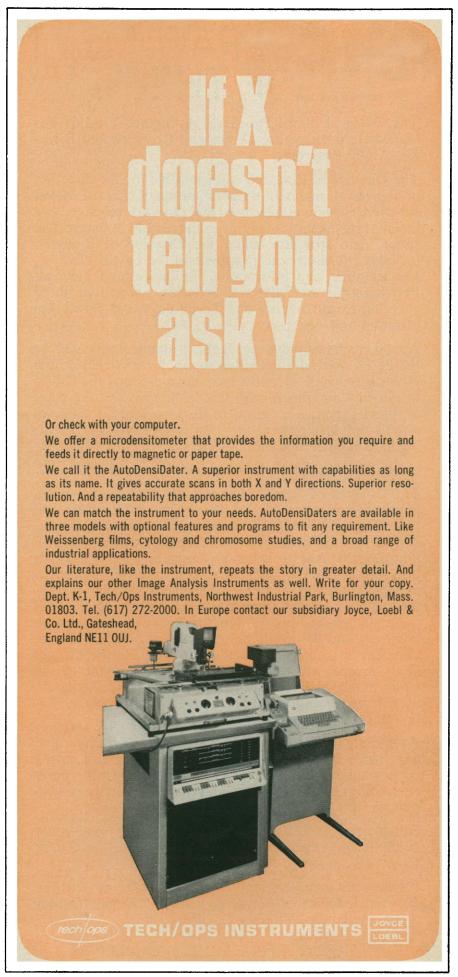
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