

Peptide Synthesis

Peptides 1968. Proceedings of the ninth European Peptide Symposium, Orsay, France, 1968. E. BRICAS, Ed. North-Holland, Amsterdam; Interscience (Wiley), New York, 1968. xvi + 348 pp., illus. \$17.50.

Since 1959, the European Peptide Symposia have provided an opportunity for investigators of peptide synthesis to discuss in detail advances and problems in their area of interest. Like the volumes based on previous symposia, the book under review gives attention to general methods for the protection of reactive groups (seven reports) and coupling procedures (five reports) in the synthesis of oligopeptides without the use of polymeric supports. The largest part of the book is devoted to recent applications of "classical" procedures of peptide synthesis to insulin and related peptides (five reports), to other biologically active peptides (glucagon, corticotropin, antamanid, caerulein, eleodisin, physalaemin, and the like; ten reports), and to bacterial cell-wall and antibiotic peptides (four reports). There are, in addition, nine reports on "solid-phase" peptide synthesis, including the application of this approach to the synthesis of insulin and other biologically active peptides. A series of nine reports on the conformation of peptides in solution, two reports on structure-function relations in the action of ribonuclease, and lectures on the genetic control of the biosynthesis of peptide bonds and on intermolecular forces in relation to the specificity of chymotrypsin round out the volume. Many of the reports give valuable technical details, whereas others are relatively brief announcements.

This reviewer found the reports on peptide conformation of special interest, for they provide empirical data needed to test the validity of various recent theoretical treatments of this problem. The experimental demonstration, through nuclear-magnetic-resonance studies in Kenner's laboratory, of a possible interaction between aromatic rings and the amide bond appears to be particularly significant.

Among the valuable new advances in the methodology of peptide synthesis are the use of *t*-butyloxycarbonyl fluoride for the preparation of Boc-amino acids (Sehnabel *et al.*), the use of *N*-carboxy anhydrides (Hirschmann), a new repetitive method of peptide synthesis involving the use of carboxyl-

terminal picolyl esters (Garner *et al.*), and the various improvements made in the synthesis of peptides with the aid of polymeric supports. Among the important new synthetic accomplishments is the total synthesis of glucagon (Wünsch *et al.*). The lectures on conformation (Goodman and Choi), biosynthesis of peptide bonds (Gros and Revel), bacterial cell-wall peptidoglycan (Ghuysen), and enzyme specificity (Knowles) are stimulating reviews of important problems.

It is clear that the art of peptide synthesis has made great advances since the first European Peptide Symposium but that much remains to be done to improve the available methods for the synthesis of long-chain peptides and of proteins. Of special importance is the problem of the criteria of identity and purity applied to such products. No doubt this question will be treated in future volumes in this valuable series.

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Technique for Chemistry

Analytical Reaction Gas Chromatography. VIKTOR G. BEREZKIN. Translated, with revisions by the author, from the Russian edition (Moscow, 1966). L. S. Ettre, Transl. Ed. Plenum, New York, 1968. x + 198 pp., illus. \$12.50.

Reaction gas chromatography involves the use of reactors in a chromatographic system to bring about specific chemical transformations of the components being analyzed. This process may allow qualitative identification of functional groups from changes in retention of components in the presence or absence of the reactor, or advantage may be taken of the change in retention to improve separation and analysis of the components of a mixture. Examples of reaction gas chromatography are reported in this text in which the effective sensitivity of detectors was modified through sample transformations so as to decrease sensitivity toward interferences or increase sensitivity toward trace components being sought.

Hydrogenation, dehydrogenation, ester formation, hydrolysis, dehydration, decarboxylation, and oxidation are among the reactions reviewed. Subtractive methods are also discussed in

which nonvolatile products are selectively formed and certain classes of compounds are removed, the qualitative identification of peaks in complex mixtures thus being facilitated. The analysis of polymers and other nonvolatile compounds through pyrolysis gas chromatography is covered, as are microanalytical techniques for carbon, hydrogen, nitrogen, oxygen, and sulfur in organic compounds.

Over 380 references are cited from the more than 800 papers which the author says were published on reaction gas chromatography prior to publication of the original Russian edition. Approximately 100 of the citations are of Russian publications. A new, four-page chapter on selective, chemically active sorbents has been added for the English edition. A few articles published as late as 1967 are reviewed, but the vast majority of the references in the text are to work published in 1965 or earlier. Translation and publication delays, of course, adversely affect the portion of a text devoted to applications to a greater extent than they affect the portion covering fundamental principles. The lack of an author index might be criticized, and the subject index is just barely adequate.

Since reaction gas chromatography is finding increased application as gas chromatographic techniques become more sophisticated, this reviewer thinks the text should be made available in most chemical research libraries. Research workers in this somewhat specialized area of gas chromatography will certainly want copies.

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Books Received

Acetylenes and Allenes. Addition, Cyclization, and Polymerization Reactions. Thomas F. Rutledge. Reinhold, New York, 1969. xvi + 432 pp., illus. \$21.50.

Advances in Cancer Research. Vol. 11. Alexander Haddow and Sidney Weinhouse, Eds. Academic Press, New York, 1968. xii + 516 pp., illus. \$24.

Advances in Hydrosience. Vol. 5. Ven Te Chow, Ed. Academic Press, New York, 1969. xiv + 306 pp., illus. \$17.50.

The Albanian Carpets. Ikbale Bihiku. Ethnographic Section, Institute of History and Linguistics, State University of Tirana, Albania, 1969. 144 pp., illus. Spiral bound.

(Continued on page 1041)

BOOKS RECEIVED

(Continued from page 1003)

Animal Bones in Archaeology. A Book of Notes and Drawings for Beginners. Michael L. Ryder. Published for the Mammal Society by Blackwell Scientific Publications, Oxford, ed. 2, 1969 (U.S. distributor, Davis, Philadelphia). xxiv + 68 pp. Paper, \$3.

Animal Discrimination Learning. Based on a conference, Sussex, England, 1967. R. M. Gilbert and N. S. Sutherland, Eds. Academic Press, New York, 1969. xvi + 502 pp., illus. \$19.50.

Animal Diversity. Milton Fingerman. Holt, Rinehart and Winston, New York, 1969. viii + 184 pp., illus. Paper, \$2.95. Modern Biology Series.

Annual Review of Medicine. Vol. 20. Arthur C. DeGraff and William P. Creger, Eds. Annual Reviews, Palo Alto, Calif., 1969. x + 500 pp., illus. \$8.50.

Annual Review of Pharmacology. Vol. 9. Henry W. Elliott, Windsor C. Cutting, and Robert H. Dreisbach, Eds. Annual Reviews, Palo Alto, Calif., 1969. viii + 594 pp., illus. \$8.50.

The Apologie and Treatise of Ambroise Paré. Containing the Voyages Made into Divers Places with Many of His Writings upon Surgery. Geoffrey Keynes, Ed. Dover, New York, 1968. xxiv + 244 pp., illus. Paper, \$2.50. Reprint of the 1952 edition.

Astrophysics and Stellar Astronomy. Thomas L. Swihart. Wiley, New York, 1969. x + 310 pp., illus. \$9.95. Space Science Text Series.

Atherosclerosis. Pathology, Physiology, Aetiology, Diagnosis and Clinical Management. F. G. Schettler and G. S. Boyd, Eds. Elsevier, New York, 1969. xx + 1032 pp., illus. \$69.50.

Atom, Man, and the Universe. The Long Chain of Complications. Hannes Alfvén. Translated from the Swedish edition (Stockholm, 1964) by John M. Hoberman. Freeman, San Francisco, 1969. viii + 112 pp. \$3.50.

Attitude Change. A Critical Analysis of Theoretical Approaches. Charles A. Kiesler, Barry E. Collins, and Norman Miller. Wiley, New York, 1969. xiv + 386 pp. \$8.95. Series in Psychology.

Bacterial Metabolism. H. W. Doelle. Academic Press, New York, 1969. xiv + 490 pp., illus. \$14.50.

Bacterial Physiology and Metabolism. J. R. Sokatch. Academic Press, New York, 1969. xii + 444 pp., illus. \$14.50.

Basic Microbiology. Margaret F. Wheeler and Wesley A. Volk. Lippincott, Philadelphia, ed. 2, 1969. xii + 412 pp., illus. \$8.75.

Basic Physiology and Anatomy. Ellen E. Chaffee and Esther M. Greisheimer. Lippincott, Philadelphia, ed. 2, 1969. xii + 634 pp., illus. \$9.40.

Beeinflussung des Stoffwechsels durch die Ernährung. A symposium, Bad Soden, 1967. J. C. Somogyi and H. D. Cremer, Eds. Karger, Basel, 1969 (U.S. distributor, Phiebig, White Plains, N.Y.). vi + 170 pp., illus. Paper, \$14.40. Bibliotheca "Nutritio et Dieta," No. 11. Institute of Nutrition Research of the Green Meadow Foundation, vol. 11.

Bibliographic Control of the Literature

of Oncology 1800-1960. Pauline M. Vailancourt. Scarecrow Press, Metuchen, N.J., 1969. 232 pp. \$5.

The Biochemistry of the Nucleic Acids. J. N. Davidson. Methuen, London, ed. 6, 1969 (U.S. distributor, Barnes and Noble, New York). xvi + 352 pp., illus. \$8.

Biology of Peromyscus (Rodentia). John A. King, Ed. American Society of Mammalogists, Stillwater, Okla., 1968 (available from Bryan P. Glass, Department of Zoology, Oklahoma State University, Stillwater). xiv + 594 pp., illus. \$15. Special Publication No. 2.

Biology of Termites. Vol. 1. Kumar Krishna and Frances M. Weesner, Eds. Academic Press, New York, 1969. xiv + 600 pp., illus. \$32.

Biophysique. I. Energétique Cinétique: Isotopes. Jacques Tonnelat. Masson, Paris, 1968. viii + 404 pp., illus. 80 F. Certificat de Biochimie Structurale et Métabolique.

Black's Medical Dictionary. William A. R. Thomson. Barnes and Noble, New York, ed. 28, 1969. xii + 1016 pp. + plates. \$7.

Carbohydrate Metabolism and Its Disorders. F. Dickens, P. J. Randle, and W. J. Whelan, Eds. Academic Press, New York, 1968. Vol. 1 (xvi + 578 pp., illus. \$20); vol. 2 (xiv + 394 pp., illus. \$16).

The Cell Cycle. Gene-Enzyme Interactions. G. M. Padilla, G. L. Whitson, and I. L. Cameron, Eds. Academic Press, New York, 1969. xx + 404 pp., illus. \$19.50. Cell Biology Series.

Cellular Immunology. Books 1 and 2. Macfarlane Burnet. Melbourne University Press, Carlton, Victoria, Australia; Cambridge University Press, New York, 1969. x + 728 pp., illus. + 8 plates. \$18.50.

Chemistry. Structure and Changes of Matter. Uno Kask. Barnes and Noble, New York, 1969. xvi + 608 pp., illus. Paper, \$5.95. Barnes and Noble International Textbook Series.

Coasts. E. C. F. Bird. M.I.T. Press, Cambridge, Mass., 1969. xvi + 246 pp., illus. \$7.50. An Introduction to Systematic Geomorphology, vol. 4.

Communication Satellites. Ingemar Dörfer, Almqvist and Wiksell, Stockholm, 1969. 56 pp. Paper. Stockholm International Peace Research Institute: Stockholm Papers, No. 1.

Complementarity in Biology. Quantization of Molecular Motion. James P. Isaacs and John C. Lamb. Johns Hopkins Press, Baltimore, 1969. x + 184 pp., illus. \$6.50.

Condensed Computer Encyclopedia. Philip B. Jordain. Michael Breslau, Ed. McGraw-Hill, New York, 1969. xvi + 608 pp., illus. \$14.50.

The Corrosion and Oxidation of Metals: First Supplementary Volume. Ulick R. Evans. St. Martin's, New York, 1968. viii + 488 pp., illus. \$20.

Cours de Théorie Relativiste Unitaire. Jean E. Charon. Michel, Paris, 1969. 230 pp., illus. 58.10 F. Progrès des Sciences et Techniques.

Creative Biology Teaching. Delma E. Harding, Roger P. Volker, and David L. Fagle. Iowa State University Press, Ames, 1969. viii + 344 pp., illus. \$10.50.

Currents in American Medicine. A Developmental View of Medical Care and Education. Julius B. Richmond. Harvard University Press, Cambridge, Mass., 1969.



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Decision Making and Administration in Higher Education. John D. Millett. Kent State University Press, Kent, Ohio, 1968. x + 162 pp. Cloth, \$5; paper, \$1.95.

Deformation of Solids. I. H. Hall. Barnes and Noble, New York, 1968. x + 230 pp., illus. \$7.95.

Delinquents and Nondelinquents in Perspective. Sheldon and Eleanor Glueck. Harvard University Press, Cambridge, Mass., 1968. xx + 268 pp. \$8.50.

The Design of Optical Spectrometers. J. F. James and R. S. Sternberg. Chapman and Hall, London, 1969. (U.S. distributor, Barnes and Noble, New York). xii + 240 pp., illus. \$10.50.

The Development and Use of Polyester Products. E. N. Doyle. McGraw-Hill, New York, 1969. xii + 372 pp., illus. \$16.

Dictionary of Nutrition and Food Technology. Arnold E. Bender. Archon, Hamden, Conn.; Butterworths, London, ed. 3, 1968. viii + 228 pp. \$9.50.

Differential and Integral Inequalities. Theory and Applications. Vol. 1, Ordinary Differential Equations. V. Lakshmikantham and S. Leela. Academic Press, New York, 1969. xii + 396 pp. \$18.50. Mathematics in Science and Engineering, vol. 55.

A Discrete-Time Approach for System Analysis. Michel Cuénod and Allen Durling. Academic Press, New York, 1969. xii + 226 pp., illus. \$13.50. Electrical Science Series.

Earth Materials. W. G. Ernst. Prentice-Hall, Englewood Cliffs, N.J., 1969. x + 150 pp., illus. Cloth, \$5.95; paper, \$2.50. Foundations of Earth Science Series.

Eastern Europe. Norman J. G. Pounds. Aldine, Chicago, 1969. xx + 912 pp., illus. + 20 plates. \$12.75. Geographies for Advanced Study.

Eclosion and Synthesis. Perspectives on the History of Knowledge. Salomon Bochner. Benjamin, New York, 1969. xiv + 274 pp. Cloth, \$10; paper, \$3.95.

Electrophoresis. Duncan J. Shaw. Academic Press, New York, 1969. viii + 144 pp., illus. \$4.95.

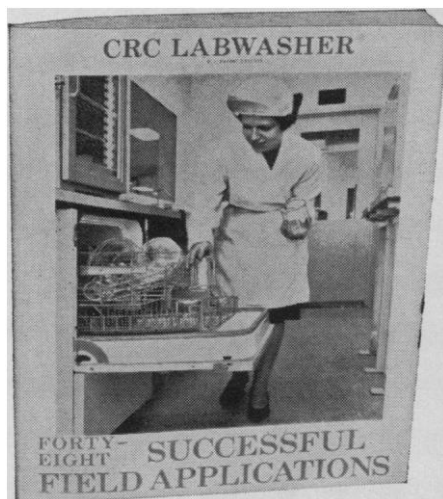
Elementary Differential Equations and Boundary Value Problems. William E. Boyce and Richard C. DiPrima. Wiley, New York, ed. 2, 1969. xvi + 592 pp., illus. \$10.95.

Eléments de Génétique Rationnelle. J. de Laguarigue. Dunod, Paris, 1969. x + 134 pp., illus. Paper, 28,00 F. Les bases scientifiques de l'agriculture et leurs conséquences immédiates.

Elements of Stereochemistry. Ernest L. Eliel, with a section by F. Basolo. Wiley, New York, 1969. vi + 98 pp., illus. Paper, \$2.95.

Elsevier's Dictionary of Chemical Engineering. In English, American, French, Spanish, Italian, Dutch, and German. Compiled and arranged on an English alphabetical basis by W. E. Clason. Elsevier, New York, 1968. Vol. 1, Chemical Engineering and Laboratory Equipment (x + 620 pp. \$25); vol. 2, Chemical En-

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Environment and Cultural Behavior. Ecological Studies in Cultural Anthropology. Andrew P. Vayda, Ed. Published for the American Museum of Natural History by Natural History Press, Garden City, N.Y., 1969. xviii + 486 pp., illus. Cloth, \$7.95; paper, \$2.95. American Museum Sourcebooks in Anthropology.

The Excavations at Helwan. Art and Civilization in the First and Second Egyptian Dynasties. Zaki Y. Saad. J. Frank Autry, Ed. University of Oklahoma Press, Norman, 1969. xvi + 208 pp., illus. \$6.95.

Expanding Dimensions in Rehabilitation. A Reference for the Health Professional. Based upon presentations made at the Institute in Advanced Techniques for Occupational Therapists, Cleveland, 1966. Lelia Jaffe Zamir, Ed. Thomas, Springfield, Ill., 1969. xiv + 202 pp., illus. \$12.

Experimental Cell Biology. An Elementary Laboratory Guide. William R. Bowen. Macmillan, New York; Collier-Macmillan, London, 1969. viii + 264 pp., illus. Paper, \$4.95.

Experiments in Microbial Genetics. A practical course, Hammersmith Hospital, London, 1960-64. R. C. Clowes and W. Hayes, Eds. Wiley, New York, 1968. xii + 244 pp., illus. Spiral bound, \$5.95.

Explanation and Human Action. A. R. Louch. University of California Press, Berkeley, 1969. x + 244 pp. Paper, \$2.65. Reprint of the 1967 edition.

Exploitable Molecular Mechanisms and Neoplasia. Twenty-second Annual Symposium on Fundamental Cancer Research, Houston, Texas, 1968. Published for the University of Texas M. D. Anderson Hospital and Tumor Institute by Williams and Wilkins, Baltimore, 1969. xiv + 626 pp., illus. \$17.

Exploring Light. Alexander Efron. Hayden, New York, 1969. viii + 140 pp., illus. Paper, \$3.95. Hayden Modern Physics Series.

Exploring Mechanics. Alexander Efron. Hayden, New York, 1969. x + 182 pp., illus. Paper, \$4.95. Hayden Modern Physics Series.

Faces. Roy U. Jordan. Illustrated by Brenda Jordan. Published by the author, Box 136, Emporia, Kansas, 1969. viii + 150 pp. Paper, \$1.95.

Farbfernseh-Servicetechnik. F. Möhring. Winter'sche Verlagshandlung, Braunschweig, 1969. viii + 248 pp., illus. DM 36.

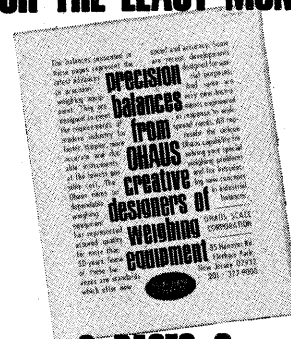
Fertility and Family Planning. A World View. A conference, Ann Arbor, Mich., 1967. S. J. Behrman, Leslie Corsa, Jr., and Ronald Freedman, Eds. University of Michigan Press, Ann Arbor, 1969. viii + 504 pp., illus. \$12.50. A Sesquicentennial Publication.

Fluorescent Antibody Techniques and Their Applications. Akiyoshi Kawamura, Jr., Ed. University of Tokyo Press, Tokyo; University Park Press, Baltimore, 1969. xiv + 204 pp., illus. \$16.50.

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Free Vibrations of Circular Cylindrical Shells. Anthony E. Armenakos, Denos C. Gazis, and George Herrmann. Pergamon, New York, 1969. xii + 212 pp., illus. \$14.

FROST A Two-Dimensional Few Group Neutron Diffusion Code. K. Andrzejewski. Institutt for Atomenergi, Kjeller Research Establishment, Kjeller, Norway, 1969. iv + 28 pp., illus. Paper. Kjeller Report No. 133.

Functions and Graphs. I. M. Gelfand, E. G. Glagoleva, and E. E. Shnol. Translated and adapted from the second Russian edition by Thomas Walsh and Randell Magee. M.I.T. Press, Cambridge, 1969. vi + 106 pp., illus. Cloth, \$6; paper, \$1.95. Library of School Mathematics, vol. 2.

Future Goals of Engineering in Biology and Medicine. Proceedings of an International Conference, Washington, D.C., 1967. James F. Dickson, III, and J. H. U. Brown, Eds. Academic Press, New York, 1969. xvi + 360 pp., illus. \$16.

Game Theory in the Behavioral Sciences. A conference, Montreal, 1966. Ira R. Buchler and Hugo G. Nutini, Eds. University of Pittsburgh Press, Pittsburgh, 1969. xvi + 268 pp., illus. \$8.95.

A General Theory of the Kinematics and Geometry of Gears in Three Dimensions. A. Dyson. Oxford University Press, New York, 1969. x + 142 pp., illus. \$8.80.

Hal-Farrug. A Village in Malta. Jeremy Boissevain. Holt, Rinehart and Winston, New York, 1969. xviii + 108 pp., illus. Paper, \$1.95. Case Studies in Cultural Anthropology.

Handbook of Applied Hydraulics. Calvin Victor Davis and Kenneth E. Sorensen, Eds. McGraw-Hill, New York, ed. 3, 1969. xii + 1584 pp., illus. \$37.50.

Handbook of Middle American Indians. Vol. 7, Ethnology, Part 1 (viii + 576 pp., illus. + 4 charts. \$15). Vol. 8, Ethnology, Part 2 (viii + pp. 577-968, illus. + 3 maps. \$15). Evon Z. Vogt, Ed. University of Texas Press, Austin, 1969.

A Handbook of MMPI Group Profiles. Richard I. Lanyon. University of Minnesota Press, Minneapolis, 1968. xiv + 82 pp., illus. \$7.50.

Herschel at the Cape. Diaries and Correspondence of Sir John Herschel, 1834-1838. Edited with an introduction by David S. Evans, Terence J. Deeming, Betty Hall Evans, and Stephen Goldfarb. University of Texas Press, Austin, 1969. xxxviii + 398 pp., illus. + 12 plates. \$10. History of Science Series, No. 1.

High-Speed Photography. Proceedings of the Eighth International Congress, Stockholm, 1968. N. Robert Nilsson and Lars Hogberg, Eds. Almqvist and Wiksell, Stockholm; Wiley, New York, 1969. xii + 504 pp., illus. \$31.

The Higher Learning, the Universities, and the Public. Carl Kaysen. Princeton University Press, Princeton, N.J., 1969. viii + 88 pp. Cloth, \$4.75; paper, \$1.95. Stafford Little Lectures at Princeton University, 1968.

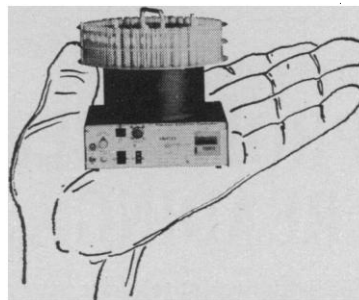
The History of the Abacus. J. M. Pullan. Praeger, New York, 1969. xiv + 130 pp., illus. \$4.95.

History Under the Sea. A Handbook for Underwater Exploration. Mendel Peterson. Smithsonian Institution Press,

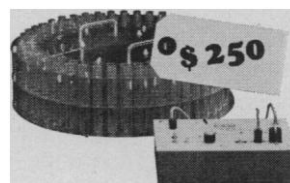
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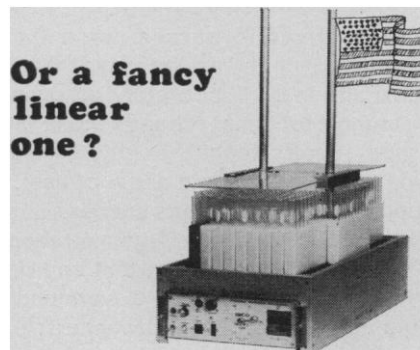
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Washington, D.C., 1969 (distributor, Random House, New York). xvi + 208 pp., illus. \$5.95. Smithsonian Publication 4538. Reprint of the 1965 edition.

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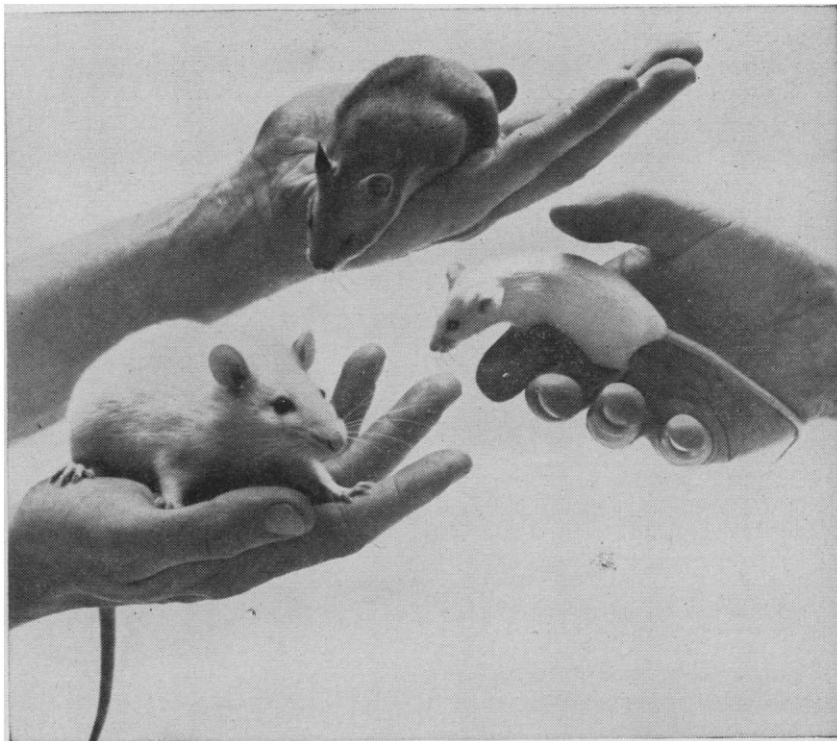
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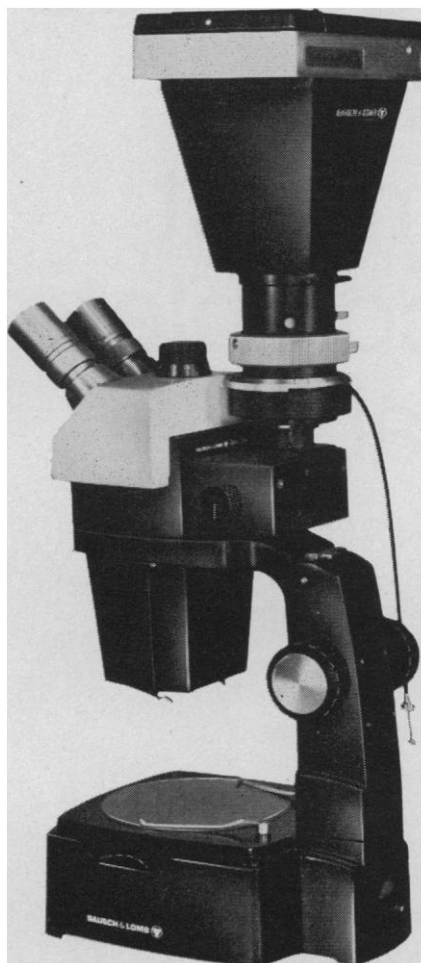
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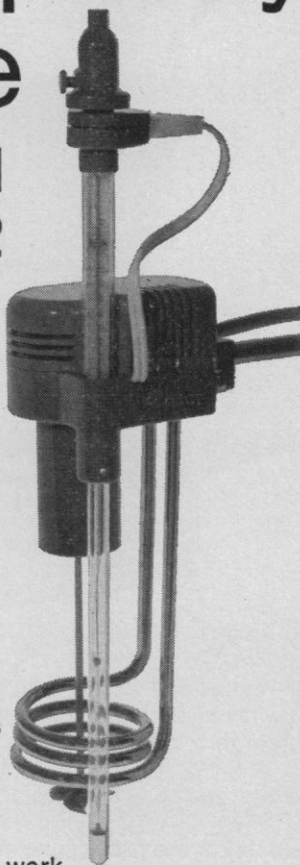
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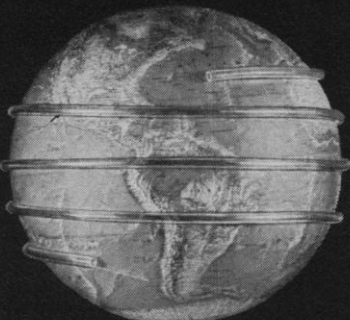
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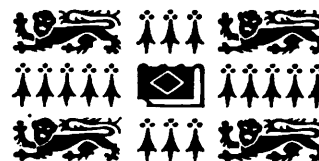
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