

SCIENCE

26 April 1957

Volume 125, Number 3252

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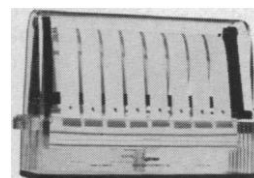
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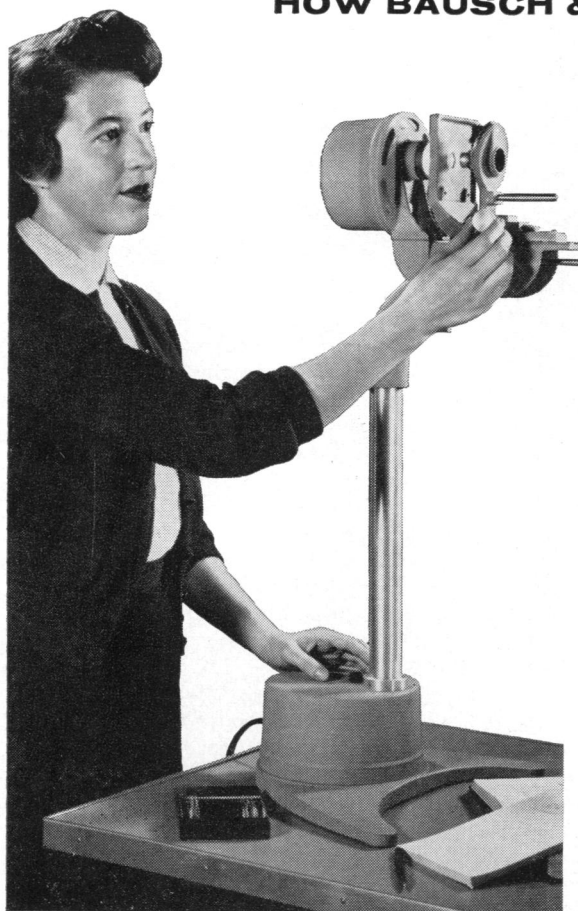
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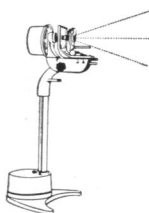
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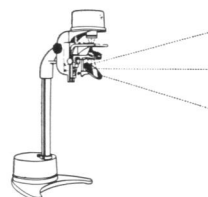
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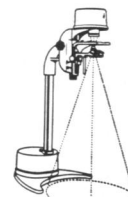
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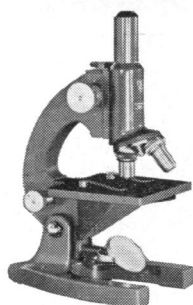
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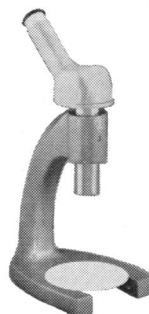


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student finds little or nothing to help him in his encounters with the fragmentary remains of extinct American bisons, sloths, camels, and other Pleistocene forms. At best, only certain Old World species are available in some intercontinental families.

There are additional faults. The book lacks an index, and, for any volume intended as a handbook of instruction, such a lack is crippling indeed. One cannot avoid the impression that, from the standpoint of a short course intended to transmit a maximum of practical information to workers in another discipline, the volume is excessively bookish. More careful selection would have obviated this difficulty, shortened the book, and intimidated fewer beginners. Although considerable attention is paid to the human skeleton, there has been no attempt to discuss certain anomalies and pathologies which occasionally excite attention in the field— anomalies such as the metopic suture or parietal fenestrae for example. No account is given of the use of the *Dryopithecus* pattern in primate-human identifications, nor does the author mention the crenulation which is so typical of orang teeth. A number of the illustrations of the occlusal surface of the primate dentition are so small that detail is obscured. There are other sins of omission and commission which will force the instructor to return to the older, more standard osteologies, such as Flower, or augment his material from other sources.

Cornwall has obviously expended a great deal of labor and time upon his book. I do not wish to minimize the difficulties he must have encountered or the compromises he must have had to make. A start in a somewhat unorthodox instructional field is always difficult. It may well be that only when such a course as Cornwall teaches is more widely installed in archeological departments will we be in a position to pool our experience in a more satisfactory and useful textbook. Cornwall has made a brave, singlehanded start, and I, for one, hope he will not be deterred from future revisions of his pioneering attempt by any grumbling from the sidelines.

Turning now to von Koenigswald's little volume, *Meeting Prehistoric Man*, we enter on an exciting world in which von Koenigswald himself has played a leading role as an explorer and discoverer in the Pleistocene fossil beds of Java. We owe largely to his efforts and to those of his faithful Javanese assistants the discovery of *Homo modjokertensis* (Weidenreich's *Homo robustus*) from the Sangiran deposits that predate the Trinil beds which yielded Dubois' original specimen. We also owe to him the recognition of *Gigantopithecus*

blacki, from China, and of *Meganthropus paleojavanicus*. He contributed to the investigation of the Ngandong beds which yielded *Homo soloensis*.

This volume, therefore, instead of being one of that numerous and perennial crop of fossil-man books turned out by itinerant journalists, is the valuable record of a man who was on the spot at great discoveries and who is a professional scientist. The book is a simple, straightforward account of von Koenigswald's travels, discoveries, and contacts with other distinguished workers in the field. We are told of the cantankerous and eccentric behavior of Eugene Dubois, who seems to have viewed all fossils but his own with suspicion and dislike. We see Davidson Black, the first describer of *Sinanthropus*, laboring, with broken health, to complete his studies and dying alone in 1934 in Peking, with the precious skull clutched in his hand. We haggle for "dragon bones" in Chinese drugstores. We contend with native collectors who strive to augment their income by breaking the precious fossils into smaller pieces in order to be paid for each fragment. The world of the bone-hunter—its hopes, frustrations, disappointments, and assorted eccentrics—passes before our eyes.

From the professional standpoint, von Koenigswald clarifies the position of the Sangiran beds in relation to Trinil and contends that the massive-faced *Pithecanthropus* of that level (*modjokertensis*) is ancestral to the later *erectus*. He clings to the now doubtful position that *Gigantopithecus* is a giant form because "all extant Primates exhibit an harmonious relationship between size of dentition and body size." Curiously enough, the author, in a later chapter on the South African man apes, discusses the extremely massive mandible of the normal-sized *Paranthropus crassidens* without ever returning to a consideration of the point just quoted, about which questions would now have to be raised.

Von Koenigswald regards the Australopithecines as not on the main line of human ascent, in this way differing from most of his South African colleagues. Human paleontology is far from being an exact science, and, as finds multiply, anatomic and geologic complications are often viewed differently by careful and sincere workers. It is so in this case. Points can be made on both sides of this argument, which threatens to be much in evidence for some time to come. The reader is urged to consult this volume and form his own opinions on many such disputed topics.

A few small errors of a factual and typographic nature should be noted, for correction in future editions. On page 66 the term *Pleistocene* has been inadvertently used when *Pliocene* was in-

tended. Unfortunately, this can confuse students. On page 90 it is intimated that the American sabre-toothed tigers could scarcely open their mouths because of their huge canine teeth. This is a piece of paleontological folklore which persists in spite of being erroneous. As Colbert, among others, has pointed out, the jaw of *Smilodon* was mechanically specialized to permit a very wide gape. The notion propounded by von Koenigswald that the sabre-tooths were carrion feeders who used their canine teeth only to slit open the bellies of putrescent carcasses has a certain morbid and Poe-esque charm. It accords ill, however, with American anatomic studies of these powerful, big game-hunting cats.

In the introduction, influenced by G. G. Simpson, von Koenigswald abjures orthogenesis. There are times, nevertheless, as in the story of the cats who died because their teeth had grown too long, when the ghost of this doctrine seems to haunt a few pages. In general, the book is wonderfully informative, and at the present stage of his science, what student of human paleontology can ever lay claim to being totally consistent! Von Koenigswald has blessed us with an intimate, modest, and friendly book. It is a great pity that the state of the world should have interrupted the investigation in Java of an area so rich in the remains of Pleistocene humanity. Without the labors so casually narrated in this little volume, our science would be a great deal poorer than it is.

LOREN EISELEY

University of Pennsylvania

New Books

Report of the Conference on Recent Developments in Cloud-Chamber and Associated Techniques. Comprising collected papers of the conference held under the joint auspices of the Physical Society of London and University College London in March 1955. N. Morris and M. J. B. Duff, Eds. University College, London, 1956 (order from Secretary, Physics Department, University College, London). 227 pp. 30s.

Molecular Structure and Functional Activity of Nerve Cells. A symposium organized by the American Institute of Biological Sciences and sponsored by the Office of Naval Research. Held in Washington, D.C., 3-4 June 1955. Publ. No. 1. Robert G. Grenfell and L. J. Mullins. American Institute of Biological Sciences, Washington, 1956. 169 pp. \$4.75.

Vapor Phase Chromatography. Proceedings of the symposium sponsored by the Hydrocarbon Research Group of the Institute of Petroleum held at the Institution of Electrical Engineers, London, 30 May-1 June 1956. D. H. Desty, Ed.; assisted by C. L. A. Harbourn. Academic Press, New York; Butterworths, London, 1957. 436 pp. \$12.

Principles of PLANT PATHOLOGY

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Physics, a Modern Approach. L. Paul Elliott and William F. Wilcox. Macmillan, New York, 1957. 658 pp. \$5.12.

Magnetohydrodynamics. T. G. Cowling. Interscience, New York, 1957. 115 pp. \$3.50.

An Introduction to Electrostatic Precipitation in Theory and Practice. H. E. Rose and A. J. Wood. Essential Books, Fairlawn, N.J., 1956. 166 pp. \$2.80.

The Fight for Fluoridation. Donald R. McNeil. Oxford University Press, New York, 1957. 241 pp. \$5.

Aspects of River Pollution. Louis Klein. Academic Press, New York; Butterworths, London, 1957. 621 pp. \$14.50.

Handbook of Snakes of the United States and Canada. vols. I and II. Albert H. Wright and Anna Allen Wright. Comstock Publishing Associates, Cornell University Press, Ithaca, N.Y., 1957. 1105 pp. \$14.75.

Sir Richard Gregory, His Life and Work. W. H. G. Armytage. Macmillan, London; St. Martin's Press, New York, 1957. 241 pp. \$5.

Modern Pulp and Paper Making. John B. Calkin, Ed. (previous editions by George S. Witham, Sr.), Reinhold, New York; Chapman & Hall, London, ed. 3, 1957. 549 pp. \$10.

Disaster. A psychological essay. Martha Wolfenstein. Free Press, Glencoe, Ill., 1957. 231 pp. \$4.

Chromosomes. Lectures held at the Conference on Chromosomes, Wageningen, Netherlands, 16-19 April 1956. Uitgevers-Maatschappij W. E. J. Tjeenk Willink, Zwolle, Netherlands, 1956. 231 pp.

Psychology You Can Use. Dorothy H. Yates. Crowell, New York, 1957. 248 pp. \$3.95.

A Glossary of Mycology. Walter H. Snell and Esther A. Dick. Harvard University Press, Cambridge, Mass., 1957. 171 pp. \$5.

Boy's Book of Frogs, Toads, and Salamanders. Percy A. Morris. Ronald Press, New York, 1957. 240 pp. \$4.

Ernest Rutherford, Atom Pioneer. John Rowland. Philosophical Library, New York, 1957. 160 pp. \$4.75.

Foundations of Radio. M. G. Scroggie. Iliffe, London; Philosophical Library, New York, 1957. 349 pp. \$10.

The Horse-Flies (Diptera: Tabanidae) of the Ethiopian Region. vol. II, Subfamilies: Chrysopinae, Sepsidinae and Pangoniinae and a Revised Classification. H. Oldroyd. British Museum (Natural History), London, 1957. 489 pp. £4 10s.

Inventors and Inventions. C. D. Tuska. McGraw-Hill, New York, 1957. 174 pp. \$3.75.

Psychological Tests and Personnel Decisions. Lee J. Cronbach and Goldine C. Gleser. University of Illinois Press, Urbana, 1957. 165 pp. \$3.50.

The Fundamentals of Electric Log Interpretation. M. R. J. Wyllie. Academic Press, New York, ed. 2, 1957. 176 pp. \$4.50.

Expectant Motherhood. Nicholson J. Eastman. Little, Brown, Boston, ed. 3, 1957. 198 pp. \$1.75.

Index of Books Reviewed in SCIENCE, 27 April 1956 through 19 April 1957

Astronomy

Astrophysical Quantities. C. W. Allen (Athlone), 27 Apr. 1956, 735

The Changing Universe. J. Pfeiffer (Random House), 21 Sept. 1956, 541

Expanding Universes. E. Schrödinger (Cambridge Univ. Press), 24 Aug. 1956, 370

Gaseous Nebulae. vol. 3, L. H. Aller (Wiley), 16 Nov. 1956, 986

The Moon. H. P. Wilkins and P. Moore (Macmillan), 14 Sept. 1956, 490

The New Astronomy. Editors of *Scientific American* (Simon and Schuster), 27 Apr. 1956, 729

Biochemistry and Microbiology

Advances in Enzymology and Related Subjects of Biochemistry. vol. 17, F. F. Nord, Ed. (Interscience), 19 Oct. 1956, 730

Advances in Virus Research. vol. 3, K. M. Smith and M. A. Lauffer, Eds. (Academic), 27 Apr. 1956, 739

The Alkaloids, Chemistry and Physiology. vol. 5, R. H. F. Manske, Ed. (Academic), 4 May 1956, 805

Amino Acid Handbook. R. J. Bleck and K. W. Weiss (Thomas), 12 Apr. 1957, 702

Androgens. R. I. Dorfman and R. A. Shipley (Wiley; Chapman & Hall), 27 Apr. 1956, 738

Bacterial Anatomy. E. T. C. Spooner and B. A. D. Stocker, Eds. (Cambridge Univ. Press), 7 Sept. 1956, 445

Biochemical Preparations. vol. 4, W. W. Westerfeld, Ed. (Wiley; Chapman & Hall), 11 May 1956, 852

Biochemistry and the Central Nervous System. H. McIlwain (Little, Brown), 27 Apr. 1956, 737

The Biochemistry and Physiology of Bone. G. H. Bourne, Ed. (Academic), 8 Mar. 1957, 450

Chemical Methods of Blood Analysis. S. D. Balakhovskii and I. S. Balakhovskii (State Publishing House of Medical Literature, Moscow), 18 May 1956, 899

Currents in Biochemical Research 1956. D. E. Green, Ed. (Interscience), 9 Nov. 1956, 942

Elements d'Immunologie Générale. P. Gastinel, R. Fasquelle, P. Barbier (Masson), 31 Aug. 1956, 412

Enzymes: Units of Biological Structure and Function. O. H. Gaebler, Ed. (Academic), 2 Nov. 1956, 896

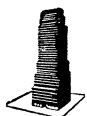
Essays in Biochemistry. S. Graff, Ed. (Wiley; Chapman & Hall), 27 July 1956, 184

Fibrous Proteins and Their Biological Significance. No. 9, Society for Experimental Biology (Academic), 18 May 1956, 899

Immunology and Serology. P. L. Carpenter (Saunders), 27 Apr. 1956, 738

Lectures in Immunochemistry. M. Heidelberger (Academic), 15 Mar. 1957, 506

Methods of Biochemical Analysis. vol. 3, D. Glick, Ed. (Interscience), 28 Sept. 1956, 591



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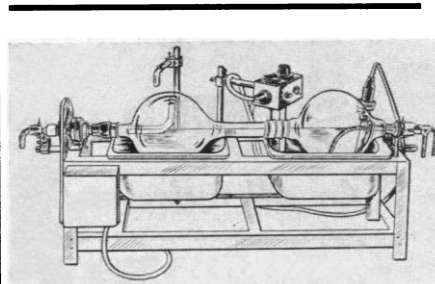
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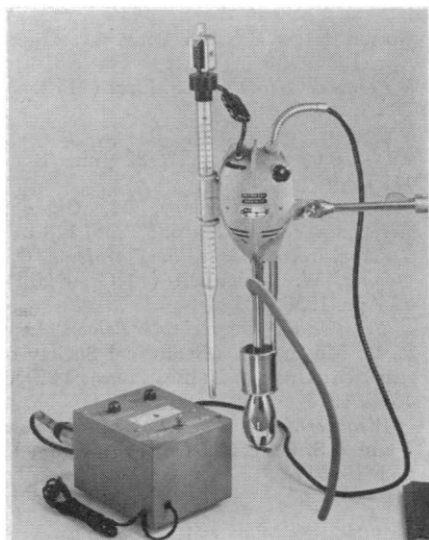
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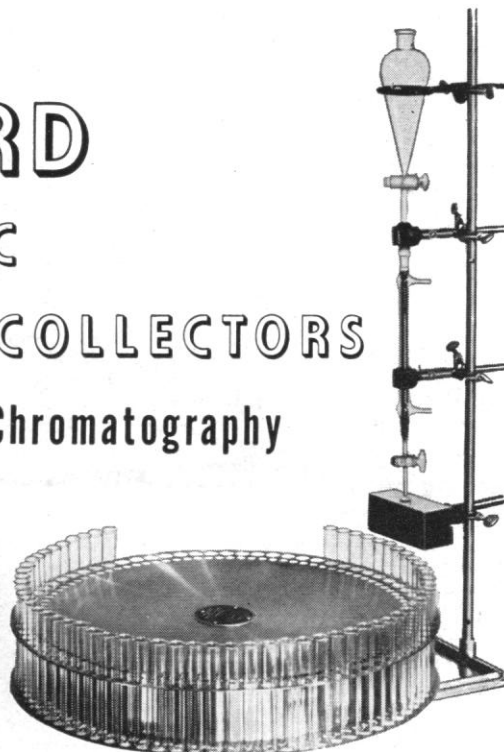
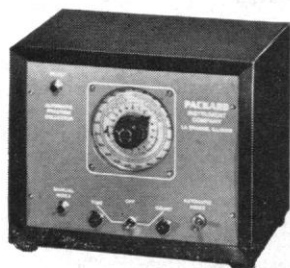
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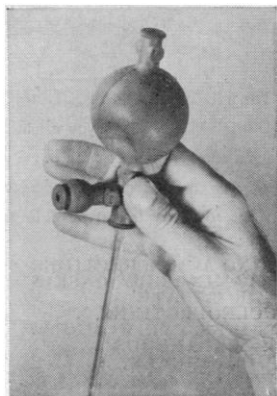
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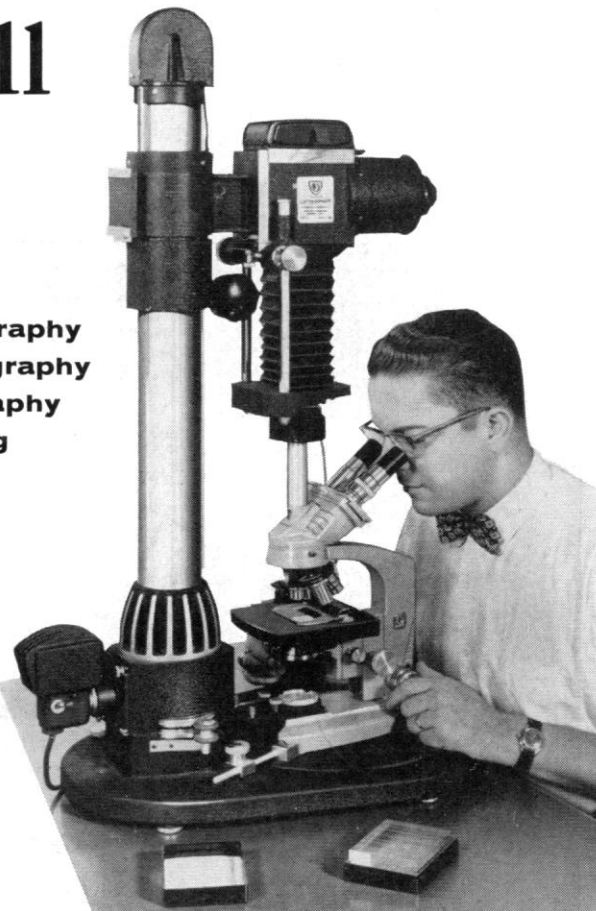
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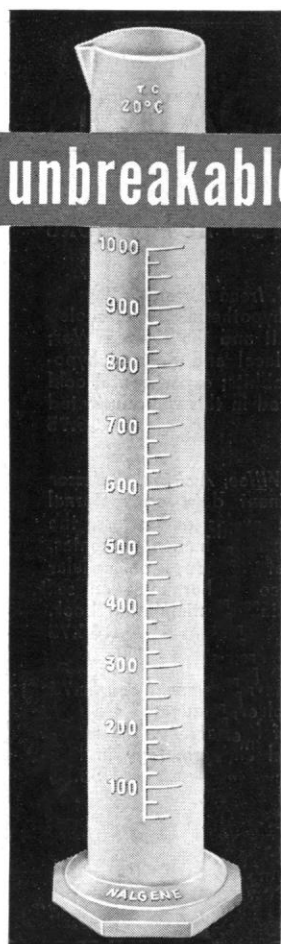
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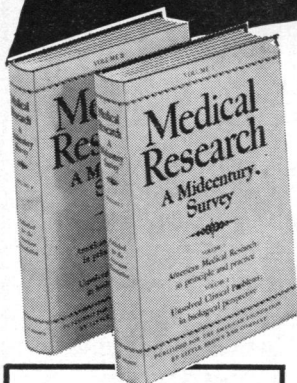
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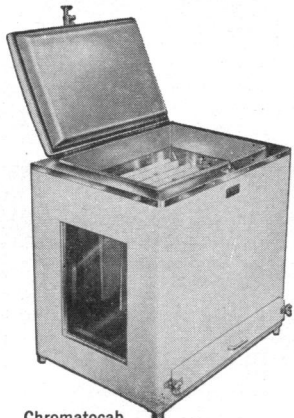
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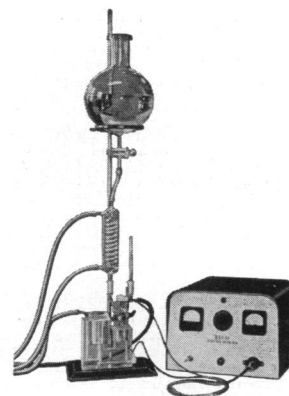
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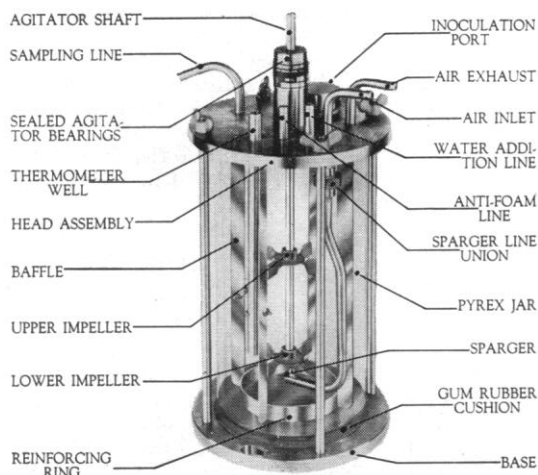
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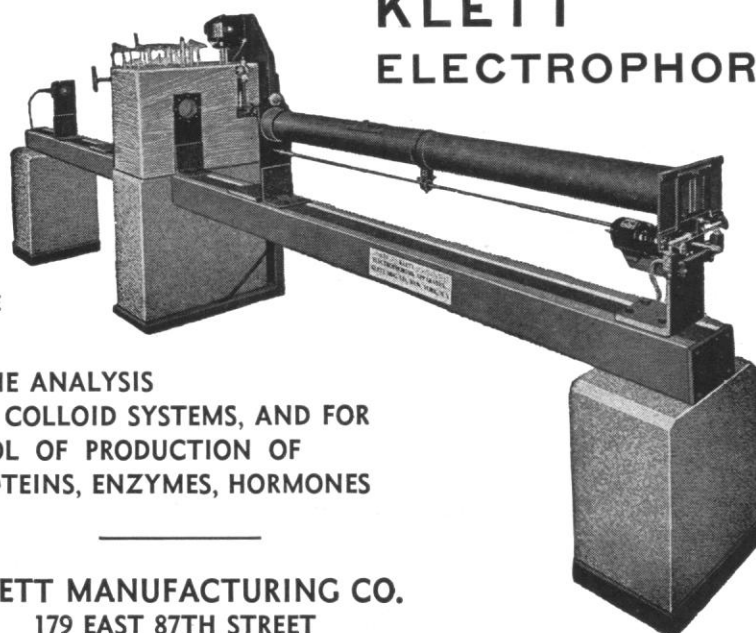
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