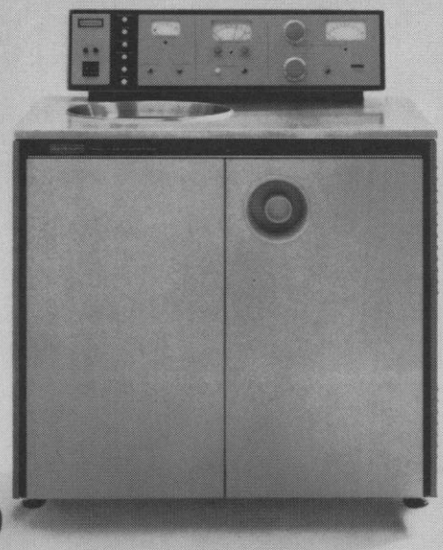
SCIENCE

21 July 1967

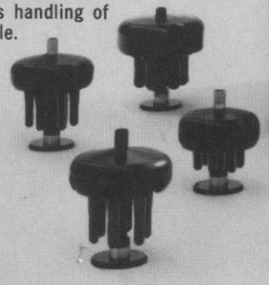
Vol. 157, No. 3786

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

The ten new shapes in ultracentrifugation



New swinging bucket rotors—four of them—shaped to hold six buckets, to carry six samples to forces as high as 420,000 *g*. Buckets are designed to hook onto the body of the rotor—a convenience that also minimizes handling of the sample.

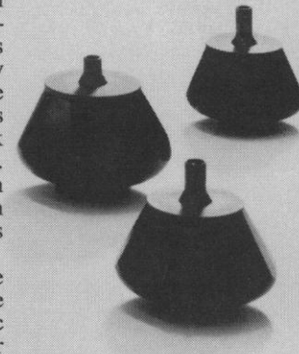


New B-14 and B-15 Rotors—The squat round shape identifies them as the rotors that bring large scale zonal capabilities to the standard preparative ultracentrifuge. Internal compartments are sector-shaped to minimize convective disturbances.

New Beckman Model L2-65B—with a crisp new external design reflecting the many innovations inside. As a result of those innovations the new L2-65B provides such remarkable control over experimental conditions that better band resolution and peak movement can be demonstrated. With its new rotors, the L2-65B can also do more work faster, so it is an investment in economy as well as in excellence.

Features of the L2-65B include infrared radiometric temperature control, independent electronic overspeed control, removable rotor stabilizer, solid state circuitry throughout, 65,000 rpm drive and large, extra-strength rotor chamber. Counting the nine new rotors shown here, the new Model L2-65B can handle twenty-three Beckman rotors to serve an unprecedented range of applications.

Whatever the scope of your work—traditional preparative, density gradient, large scale zonal—Beckman can offer you the instrument and the rotors. To get more information, call your local Spinco Division representative or write for Data File L2-65B.



New high-performance fixed angle rotors—three of them. The multi-planed sides readily distinguish these rotors from their predecessors. The new design enables them to operate on a higher level of force and capacity than has ever been attained before.

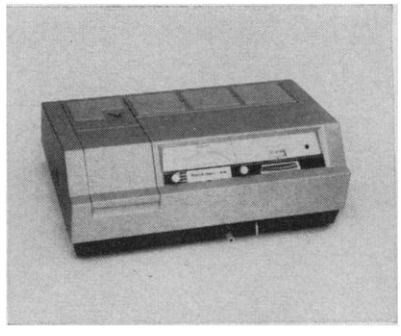
Beckman® INSTRUMENTS, INC.

SPINCO DIVISION

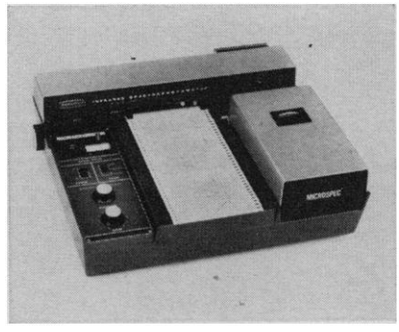
PALO ALTO, CALIFORNIA • 94304

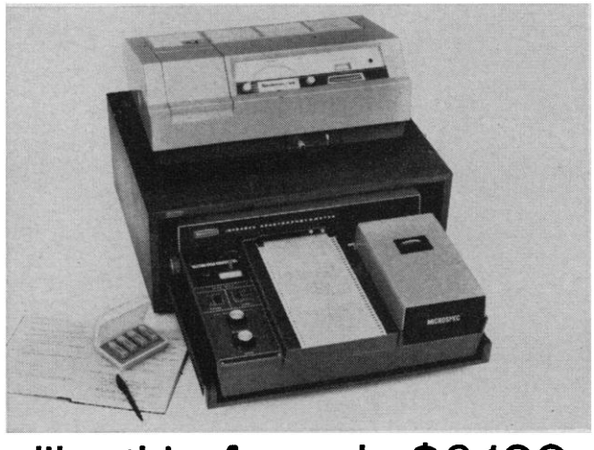
INTERNATIONAL SUBSIDIARIES: GENEVA; MUNICH; GLENROTHES, SCOTLAND; TOKYO; PARIS; CAPETOWN; LONDON; MEXICO CITY

Want to save $3,500?



Beckman has combined UV and IR into one compact package...





like this, for only $6,100

Now for the first time you can get UV and IR analysis capability in one simple compact instrument package—with a convenient switch to employ the integral recorder for either mode. Only Beckman offers it.

And you can get this package—a complete UV-IR spectroscopy laboratory—for $3500 less than you can get a combination of instruments to do the same job from ANY other source.

We simply combined Beckman's DB® spectrophotometer and the Microspec™ IR spectrophotometer in this new way, and added the oiled-walnut cabinet. Both instruments are proven for the educational, experimental, or commercial laboratory. Proven for versatility. Proven for reliability and accuracy. And we included a book of practical UV-IR experiments—plus most of the required sample handling equipment.

You can't find an instrument package (or price) to match this anywhere else. So contact your nearby Beckman Sales and Service Office, or send for Data File No. 34, and learn all about it *now*.

Beckman INSTRUMENTS, INC.
SCIENTIFIC INSTRUMENTS DIVISION
FULLERTON, CALIFORNIA • 92634

INTERNATIONAL SUBSIDIARIES: GENEVA; MUNICH; GLENROTHES, SCOTLAND; TOKYO; PARIS; CAPETOWN; LONDON; MEXICO CITY

21 July 1967
Vol. 157, No. 3786

SCIENCE

SCIENCE is published weekly on Friday and on the fourth Tuesday in November by the American Association for the Advancement of Science, 1515 Massachusetts Ave., NW, Washington, D.C. 20005. Now combined with **The Scientific Monthly**®. Second-class postage paid at Washington, D.C. Annual subscriptions $8.50; foreign postage, $1.50; Canadian postage, 75¢; single copies, 50¢ (back issues, $1), except **Guide to Scientific Instruments**, which is $2. School year subscriptions: 9 months, $7, 10 months, $7.50. Provide 4 weeks' notice for change of address, giving new and old address and zip codes. Send a recent address label. SCIENCE is indexed in the **Reader's Guide to Periodical Literature.**

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

COVER

New York City traffic patterns, vicinity of Park Avenue north of the Grand Central Station area. Aerial photographs are being used to collect data needed for the development and testing of mathematical models of traffic flow. See page 273. [Sky Count Aerial Studies Group, The Port of New York Authority]

Probing the puzzles of polyethylene

Western Electric has been tracking solutions to problems of processing plastic for some years now. Our experiments have required thousands of pounds of polyethylene, a computer, and what is probably the world's most highly instrumented plastics extruder. But all of this showed us better ways to insulate and jacket telephone cables for the Bell System.

What's more, from all the data we collected, our engineers gained basic knowledge about what happens to plastic inside the extruder. They started with a mathematical model assembled from various published theories. As the experiment progressed, they improved the model and developed new theories (see SPE Journal Vol. 21, Nos. 10, 11, and 12).

The information gained aids us in predicting the effects of three operating and four machine design variables. Now we can design extrusion screws that will produce high-quality coatings more economically.

Western Electric is one of industry's largest users of polyethylene. Most of it is used to protect telephone circuits from shorts and corrosion. With our improved extrusion processes we help the Bell System continue to give you the world's most reliable telephone service at low cost.

Western Electric
MANUFACTURING & SUPPLY UNIT OF THE BELL SYSTEM

21 July 1967, Volume 157, Number 3786 **SCIENCE**

The Tortoise and the Jet

The tortoise beat the hare. Can it also beat the jet? The racetrack is Aldabra, an uplifted coral atoll in the Indian Ocean, 260 miles northwest of Madagascar and 400 miles east of Africa. The tortoise is the giant land tortoise, and Aldabra is its only remaining home in the Indian Ocean. The jets are of the United States and British air forces, which want to develop Aldabra for military use.

Obscure and almost uninhabited, Aldabra has a rich and unique ecosystem. It is the breeding place of the frigate bird for the entire Indian Ocean, and home of the last colony of flightless birds in the Indian Ocean. Of its 22 species of land birds, 12 species or subspecies are found nowhere else. About a quarter of its species of invertebrates are believed to be found only on the island. Aldabra is a major breeding place of the increasingly rare edible green turtle and the hawksbill turtle. Of some 175 species of higher plants known on the island, 18 or more are unique. When still undisturbed, such islands provide ideal opportunities to study evolutionary processes. Aldabra is the ecologically richer of the last two nearly undisturbed uplifted coral atolls in the world. Raymond Fosberg, of the National Academy of Sciences staff, calls the island "scientifically, the most important area of its size remaining in that part of the world." The Royal Society is sending an expedition there in August and would like to establish a small, permanent research station.

With support from the National Academy of Sciences, the Smithsonian Institution, and several international organizations, the Royal Society has proposed that Aldabra be totally preserved for scientific investigations, and in May it so recommended to the British Secretary of State for Defence. The air forces, however, need an airfield in that region and consider other islands much less satisfactory. The Secretary promised to consider the Royal Society recommendation and said that, if the decision is made to go ahead with military development, "our object . . . would be to make sure that changes in the ecosystem of the island are kept to a minimum."

But it is doubtful that there can be dual use. The atoll is too small. Road, harbor, causeway, and other construction would bring major physical alterations and connect the now separated islands of the atoll. The larger birds would be a hazard to aircraft, and some species would probably have to be exterminated. The home of the giant land tortoise is precisely the best part of the island for airfield construction. The suggestion that the airfield be surrounded by a wall seems unsatisfactory. A wall could exclude the tortoise, the flightless birds, and some other animals, but could not contain their imported enemies. Nor is temporary development and use a satisfactory compromise; once a species is destroyed, or an environment drastically invaded, there is no return to the original state. The current program to study what little remains of native Hawaiian plant and animal life is evidence of the need to study island ecologies before invasion brings ecological chaos.

Will the jet replace the tortoise on Aldabra? Perhaps. Military needs rightfully have high priority, and man has powerful weapons. He can win over tortoises, passenger pigeons, the blue whale, the Great Auk, the Moa, and other animals, and he can win most easily in the fragile ecology of a small island. The decision between the tortoise and the jet will be a governmental and a political one. The jet can win, but the more virgin areas we destroy, the more we impoverish our natural heritage. British and American government councils must weigh this fact in deciding whether to build on Aldabra or elsewhere.—DAEL WOLFLE

sediment deposited under the influence of a mat of algae was questioned by several participants. Laminated structures termed "stromatolites" in the field may consist largely of fossil algae, and both Rezak and Logan showed illustrations of laminated caliche that could easily be misinterpreted as algal stromatolites.

The conference was sponsored by the Department of Geology of Johns Hopkins University with support from the Shell Companies Foundation.

ROBERT N. GINSBURG
Department of Geology, Johns Hopkins University, Baltimore, Maryland 21218

Calendar of Events

Courses

Bio-Medical Telemetry, Applications and Techniques, Boston Univ., 27–30 Sept. Intended for scientists, physicians, and engineers. Fee: professional, $125; student, $60. (Bio-Medical Telemetry Course, Office of Conference Development, Metrocenter, Boston Univ., 755 Commonwealth Ave., Boston, Mass. 02215)

Source Sampling and Analysis of Sulfur Oxides, Cincinnati, Ohio, 1–4 Aug. Intended for engineers and chemists. (Chief, Training Program, National Center for Air Pollution Control, 4676 Columbia Parkway, Cincinnati 45226)

Computer-Aided Integrated Circuit Design, Stevens Inst. of Technology, 11–15 Sept. Intended for engineers, physicists, and applied mathematicians. Fee: $200. *Deadline*: 1 Aug. (G. J. Herskowitz, Dept. of Electrical Engineering, Stevens Inst. of Technology, Hoboken, N.J. 07030)

Inflammatory Diseases of the Eye, San Francisco, 5–9 Sept. (S. M. Farber, Continuing Education in Health Sciences, Univ. of California, San Francisco Medical Center, San Francisco 94122)

Nonlinear Estimation, Chicago, 11–12 Aug. Sponsored by Chemical Div., American Soc. for Quality Control. (F. Medgin, Research and Development Center, Swift and Company, Exchange and Packers Aves., Chicago, Ill. 60609)

Engineering with Adhesives, Hopatcong, N.J., 13–17 Nov. Fee: $200. (L. S. Buchoff, Saul Gordon Associates, P.O. Box 566, Hopatcong 07843)

General Practice of Hospital Pharmacy, Chicago, 13–18 Aug. Intended for community pharmacists serving small hospitals and extended care facilities. Fee: $85. (American Soc. of Hospital Pharmacists, Dept. of Education and Training, 4630 Montgomery Ave., Washington, D.C. 20014)

Scientific Photography for Research and Engineering, Hopatcong, N.J. 14–18 Aug. Instruction in techniques of photography and their application to scientific research, development, and engineering. Fee: $200. (D. W. Mayer, Program Coordinator, Saul Gordon Associates, P.O. Box 566, Hopatcong 07843)

Personnel Placement

POSITIONS WANTED

Peace Corps Volunteer returning from West Africa 20 August. Young man desires position in scientific or educational firm. Biology major B.A. English-Chemistry minors, experienced in photography. Norman Meyn, 700 Juniper Road Glenview, Ill. 60025. X

Position Teaching/Research, pharmacology, physiology, microbiology. Ph.D., veteran, young, postdoctoral training; experienced; publications. Box 513, SCIENCE. 7/21

POSITIONS OPEN

POSITIONS OPEN

Biochemist skilled in radioisotope technique to work with groups studying radiolabelled brain constituents of animals and excretion of labelled indole compounds of human beings. Also biochemist skilled in chromatographic techniques to work with group studying urinary constituents of human beings. **Write H. E. Himwich, M.D., Research Hospital, Galesburg, Illinois 61401.**

BIOLOGIST, Ph.D. or M.S. to teach undergraduate general biology including lecture and laboratory, beginning Sept. 1967. Salary $5000 to $9000 for 9 months. Apply to **Chairman, Department of Biology, Xavier University, Cincinnati, Ohio 45207.**

COLLEGE TEACHERS WANTED
M.S. OR Ph.D. MANY LOCATIONS
SEPT. POSITIONS

BIOLOGY	**MATHEMATICS**
CHEMISTRY	**PHYSICS**
ENGINEERING	**PSYCHOLOGY**
GEOLOGY	**OTHER DISCIPLINES**

WRITE NOW FOR FREE APPLICATION
CITY & SUBURBAN TEACHERS AGENCY
500 FIFTH AVENUE, N.Y., N.Y. 10036

ENZYME CHEMIST (RESEARCH)—Ph.D. or M.D. with experience. To work in the field of tissue enzymes, as related to lipoidoses. Full-time position at well-known hospital-affiliated Research Institute in New York City. Salary—$12,000 per annum plus fringe benefits and increments. Send detailed curriculum vitae and references to:
Box 516, SCIENCE.

Postdoctoral position available in biochem/biophysics to study surface chemistry of cells in relation to immunology. Salary—$7,000-$9,000. Apply: **Dr. David J. Wilkins, New England Institute for Medical Research, Box 308, Ridgefield, Connecticut 06877, U.S.A.**

ELECTRON MICROSCOPY TECHNICIAN

For basic medical research program. College graduate with major in Biology or related field. Two years of direct experience in electron microscopy. Ability to supervise the work of others. Excellent benefits and working conditions. Send complete resume with approximate salary requirement to: Director of Personnel, **UNIVERSITY OF PENNSYLVANIA, 3025 Walnut Street, Philadelphia, Pa. 19104.** *An equal opportunity employer.*