sibility in all these areas and suggests that the government “find a mechanism for facilitating as promptly as possible our programs in population research, education, and public service, perhaps by the appointment of a person at a high national level with specific responsibility for leadership in implementing population programs.”

In thrusting itself into the middle of domestic discussions on population the Academy has joined ranks with a great many other institutions that have only recently abandoned attitudes of unconcern or neutrality. Chief among these is, of course, the government, which was committed by President Johnson’s State of the Union Message to “seek new ways to use our knowledge to help deal with the explosion in world population and the growing scarcity in world resources,” and which is now providing birth control assistance to foreign governments who request it, through the Agency for International Development. In addition the American Medical Association, the American Public Health Association, and a number of other agencies and institutions have begun to take an interest in the population problem. The direction of the next effort by the Academy committee has not yet been determined, but it is certain that it will attempt to provide what amounts almost to a new “movement” with the same enlightened leadership that has characterized its first two efforts.—Elinor Langer

Announcements

Vannevar Bush, retired president of the Carnegie Institution, will present the first Warren G. Magnuson Lecture 1 June at the Pacific Science Center, Seattle, Washington. The lecture, on science and government, will begin a series, and honors Senator Magnuson’s “continuing, resourceful leadership on behalf of science, the Pacific Science Center’s development, and the Pacific Northwest,” according to Edward E. Carlson, president of the Pacific Science Center Foundation.

Erratum: Figure 3 of the article, “Computerized bibliographic services for biomedicine,” by L. Karel et al. (7 May, p. 769), is a composite of two sets of data. The cards (lower right), both labeled “National Library of Medicine,” should have been designated to set them off from data on “Therapy of Chromoblastomycosis.” The last item under “Therapy of Chromoblastomycosis” is incomplete.
Are you a "nucleic acid genealogist" too?

That is, do you study the genealogy of nucleic acid and its relatives? Or anything else about them?

We do a lot of this. So much so that we now have the world's largest selection of nucleic acids and their precursors. These are available to you. Promptly. Most are labeled with C14, H3 or P32.

We are particularly proud of our new C14-labeled deoxyribonucleoside triphosphates. These nicely complement our extensive line of nucleic acids, nucleotides, nucleosides, purines and pyrimidines. Also RNA metallic nucleates. We've got a useful 5' nucleotides properties chart that you're welcome to too. And/or ask for our complete catalog.

Incidentally, every time you get something from us, it's accompanied by a Product Analysis Report. This gives you all the quality control data pertaining specifically to the material you receive. You even get (when appropriate) a radiochromatogram with 0.5% sensitivity. This precise evidence of quality enables you to use all your time doing research. You can leave the quality control to us.

And if you're in a real hurry for one of our products, or wish additional information, feel free to call us collect at 914-359-2700. Ask for Maryann.

Schwarz BioResearch, Inc.
Orangeburg, New York 10962
New Products

Compact explosion-proof refrigerator, Fisher model 17-182V2, with 4.5-ft³ capacity; outside dimensions: 23 by 24.5 by 34.5 inches high (59 by 62 by 88 cm). Designed for under-the-counter, free-standing, or built-in use. Explosion-proof inside and out; approved by Underwriters' Laboratories for protection against class I, group C and D hazards. There is a static condenser in the rear of the unit and a rugged compressor on the bottom. All arcing points fully enclosed; all conduits explosion-proof. Self-defrosting; has only one control for temperature adjustment. Interior has one-piece polystyrene liner. Fiberglass insulation. Reaches normal operating temperature (40°F) in 30 minutes. Two shelves, one movable; permanent shelf is a storage tray, with a glass top. Additional storage space in the door liner. Door held closely by a positive magnetic latch; opens 200 deg. Door easily adjustable to open from left or right. Available with various counter tops. Unit warranted for 1 year; the sealed compressor, for 5 years. List: $465.—D.J.P. (Fisher Scientific, Dept. S417, 415 Fisher Building, Pittsburgh, Pa. 15219)

Liquid scintillation spectrometer, a controlled-temperature, automatic-manual system designed primarily for counting soft-beta-emitting isotopes. Available with one, two, or three completely separate channels of pulse-height analysis. Plug-in channel modules simplify the expansion of one or two channel systems as the need arises. All systems include full electronic computation and display of counts per minute in all modes, including preset count. Typewriter output is standard. Electronics are completely transistorized, and mounted on plug-in printed-circuit boards. Detector assembly, sample changer, and data-presentation panel mounted in a single console, with set-up controls, operating controls, and displays on the front panel. Scintillation-detector assembly incorporates two photomultiplier tubes in a shielded detecting chamber [2-inch (5-cm) virgin lead] which is completely light-sealed. An automatic light shutter above the detecting-chamber entrance allows operation under room lighting. Summation of output pulses from both photomultiplier tubes provides isotope separation, and efficiency for counting low-energy isotopes. Pulses from both tubes are used to establish scintillation coincidence and reject tube noise. Automatic external-ratio standardization measures the degree of quenching and calibrates the counting efficiency of the system. A sealed gamma standard automatically moves to a precisely reproducible position in the counting chamber after each sample count is recorded. With the standard in position, a count is made on the sample to determine the quenching. Net counts generated by the gamma source are recorded in two separate calibration channels. The ratio of these two channels is electronically computed, displayed, and printed out. A highly stable, logarithmic pulse-amplification method permits discriminator adjustment over the complete energy range from tritium to $^{131}$ with a single dial. The overall resolving time of the system is less than 0.5 μsec, insuring less than 1-percent dead-time counting loss per 1 million count/min. Plug-in modules provide fixed discrimination channels for separating known isotopes, including tritium, $^{14}$, and $^{32}$. Modules with adjustable discriminators are also available for facilitating analysis of the less-common isotopes. The 200-sample changer allows complete automatic or manual operation. Electronic computation computes the count-per-minute rate every 1.2 seconds, providing continuous digital presentation of count rate during the counting cycle. The count-per-minute rate for each channel is computed in both preset time and preset count modes, with automatic background subtraction. Total data-process-
ing time, including complete sample-changing and print-out, 7 seconds. Sample number, counting time, channel identification, automatic external standardization ratio, and counts or count rate and 26 statistical counting errors for each channel are typed on the Teletype-33 typewriter and indicated on the display panel. The system automatically checks and rejects samples with less than a preselected activity level. An adjustable reject-level control is provided for each data channel.—D.J.P. (Beckman Instruments, Inc., Scientific and Process Instruments Div., Dept. S430, Fullerton, Calif. 92634)

Needle and pipette puller (Brinkmann model 111) facilitates the making of glass needles and pipettes with tips of various lengths and shapes. Two controls: one regulates current to the nichrome heating coil; one determines the force of the electromagnet that automatically separates the glass as it softens in the heating coil. Combinations of these controls determine the bore, length, and shape of the tip. Once the desired configuration is defined and the dials are set, a number of pipettes and needles can be pulled quickly. Consists of a single housing measuring 7.38 by 4.75 by 6 inches high (19 by 12 by 15 cm). List: $275.—D.J.P. (Brinkmann Instruments, Dept. S422, Cantiague Road, Westbury, N.Y.)

Modular thermobalance, an automatic recording instrument for thermogravimetric analysis; records changes in weight of a sample as a function of time or temperature, in vacuum or controlled atmospheres, at temperatures to 1000°C. This is a basic unit that will operate with the user's present accessories (recorders, vacuum systems). The basic unit which includes the weighing system, temperature programmer, furnace, glassware, and thermocouples, provides for low-temperature (600°C maximum), non-vacuum programming in air or controlled atmospheres. Linear temperature programming at 1.5, 3, 6, and 12°C/min; constant temperature at any point within the operating range. Selection of "hold" or "shutdown" at endpoint temperature. Handles 10-g samples, with lighter samples requiring use of tare weights. Detects weight changes from 0.5 to 200 mg ± 1 percent. Readability: 2 mg on most sensitive scale; 1-inch pen deflection for 10- to 40-mg change. Temperature regulation in pyrex glass housing by means of a water jacket with circulating water.
NEW FROM CANALCO...

3 high-resolution electrophoresis microdensitometers for disc, agar, cellulose acetate, cleared starch and acrylamide slabs

Only Canalco offers you a choice from three versatile, high-resolution microdensitometers for all modern electrophoresis techniques.

And these are the only instruments on the market which can resolve and accurately report the fine bands found in Disc Electrophoresis of serum, spinal fluid, and other complex protein systems.

Select the low-cost Model D to use with the recorder you already have, as well as with its own optical density meter. For faster scans, choose the Model E with high-speed built-in recording system. For wide-chart presentation, you'll want the Model F, featuring a full ten-inch chart.

All three models give you true high resolution—only possible with multiplexed, multi-slit optical systems—plus many other exclusive features vital to accurate densitometry.

All three models have 15-micron resolution; they can actually see and record bands only 15 microns thick, invisible to other densitometers. They let you view and photograph enlarged images without accessories or added cost. All three include integrators as standard equipment. Illumination with parallel light, plus the ability to align fine bands parallel to the measuring slit, give you accurate measurements free from artifacts caused by band overlap. The Model E and Model F have unique normalizing systems that let you equalize chart records from specimens of unequal length and band intensity for direct, side-by-side comparison.

In addition to their utility for electrophoresis, the Model D, E and F are equally suitable for densitometry of ultracentrifuge UV films and similar transparent samples up to 1 x 3 inches overall.

If you're planning now to buy an electrophoresis densitometer that will not be obsolete when you switch to the Disc technique, ask us for an interesting brochure that describes the Model D, E and F in detail. We'll include a test film strip you can use yourself to compare the performance of the Canalco microdensitometers with any other instrument.

Whatever your needs, you'll find a Canalco microdensitometer the best investment. Challenge us to prove it to you! Write:

CANAL INDUSTRIAL CORPORATION
Dept. E-52 4935 Cordell Avenue
Bethesda, Maryland / (301) 656-2333

Sample temperature recorded by thermocouple with ice-point reference junction; visual monitoring on pyrometer indication. With addition of the accessory modules, high-temperature (1000°C maximum) vacuum operation (down to 100 μ-Hg) and addition; recording capabilities are possible. Additional modules include: quartz furnace tube and crucible holder, vacuum-pump assembly, sample-temperature and ice point reference panel, time-base generator, extra furnace, precision springs (fc samples > 10 g or changes > 200 mg x-y or strip-chart recorders, and magnetic damping assembly. List: basic uni S4165.—D.J.P. (American Instrument Co., Inc., Dept. S432, 8030 George Ave., Silver Spring, Md.)

Ultrimicrotome. Reichert Om-U2 uses glass and diamond knives for preparing a long series of, or individual ultrathin sections for electron or light microscopy; accurately adjustable thickness for areas up to 2 mm². Inertial free, infinitely variable thermal feed with positive control of advance; accuracy of thermal feed is combined with the advantages of a precision mechanical feed. Cutting speed, return speed, and thermal advance are variable independently regulated, and indicate by dial. All controls may be press for routine serial sectioning. Illumination, thermal feed, and motor are push button operated. Cutting speed is infinitely variable between 0.5 and 5 mm sec; cutting rate variable from 4 to 12 sections per minute. The mechanical feed of the knife-support permits coarse and fine adjustment ranging up to 2 mm in increments of 0.5 μ. Ball-bearing mounted manual drive can operate simultaneously with and independent of motor drive. Adjustable knife holder accommodates glass or standard diamond knives; for trimming, the knife holder is interchangeable with a trimming block. The height of the cutting zone is electrically adjustable over range of 10 mm. Specimens of up to 3 mm² can be sectioned. Specimen carrier is pivoted to move in any direction. The beam supporting the specimen moves on steel balls; it is guided along a straight rail through the cutting zone and returns in a circular arc. A stereoscopic microscope provides observation of operation at magnifications from 12: to 80× and gives convenient aligner of knife with specimen—D.J.P. (William J. Hacker & Co., Inc., Dept. S43: P.O. Box 646, West Caldwell, N.J. 07007)
AGING . . .
Some Social and Biological Aspects
A symposium presented at the AAAS
Chicago Meeting
Nathan V. Shock, Editor
6 x 9, 436 pp., 65 illus., cloth
$8.50 AAAS members' cash orders $7.50

CONTENTS
Implications for society: J. W. McConnell, J. T. Freeman, R. J. Havighurst, C. D. Leake, S. Spector
Aging in tissues and cells: B. Glass, J. D. Ebert, G. H. Bourne, A. White
Aging in the total organism: M. Landowne, G. Pincus, P. Handler, E. W. Busse
Theories of aging: N. W. Shock, H. Selvy, P. Prioreschi, B. L. Strehler, J. E. Birren, S. E. Stumpf
Financing medical costs after age 65: J. T. Freeman

Discussions. Index
British agents: Bailey Bros. & Swinfen, Ltd.
Warner House, 48 Upper Thames Street
London E.C.4

American Association for the Advancement of Science
1515 Massachusetts Ave., NW
Washington, D.C. 20005

---

PERSONNEL PLACEMENT

CLASSIFIED: Positions Wanted. 25c per word, minimum charge 54. Use of Box Number counts as 10 additional words. Payment in advance is required.

American Association for the Advancement of Science:
1515 Massachusetts Ave., NW
Washington, D.C. 20005

---

POSITIONS WANTED

Biologist-Parasitologist, Ph.D., postdoctoral fellowship. Teaching/research position desired. Box 177, SCIENCE.

Geneticist, Ph.D. Finishing period of full-time research. Desires academic position with graduate program or good undergraduates, access to computer. Available possibly September, prefer January, Box 174, SCIENCE. 6/11, 25, 7/9

---

POSITIONS OPEN

BIONICS
Positions available in interdisciplinary research effort to use knowledge of nature's processes for solution of engineering problems. Need one Ph.D. biologist (engineering oriented), and one Ph.D. electrical engineer of physicist. For further information, contact Personnel Office, Southern Research Institute, Birmingham, Alabama 35205.

ELECTRONICS ENGINEER
Product development and engineering for small firm engaged in the manufacture of physiology, research and teaching instruments; waterworks laboratory equipment and other scientific specialty apparatus. Reply to Box 180, SCIENCE.

DALHOUSIE UNIVERSITY
HALIFAX, NOVA SCOTIA, CANADA
Department of Biology
Applications are invited for a position in the department to be assumed not later than 1 September. The appointment will be made at the Assistant or Associate Professorship level, rank and salary depending on qualifications and experience. Minimum salary is $7000 for an Assistant Professor and $9000 for an Associate Professor. Preference will be given to applicants with specialization in experimental vertebrate biology including development or vertebrate ecology. Applications with curriculum vitae, list of publications, and letters of recommendation should be submitted to Head, Department of Biology, Dalhousie University, Halifax, Nova Scotia, Canada.
Chair of Biochemistry, Monash, University Melbourne, Australia

Applications are invited from suitably qualified persons for appointment to a full professorship in Biochemistry. The present Chairman of the Department of Biochemistry is Professor J. Bornstein, D.Sc., M.D., to whom academic inquiries should be addressed. Salary: £A5200 p.a. Superannuation on F.S.S.U. pattern. Application information available from the Registrar, Monash University, Clayton, Victoria, Australia. Closing date: 30th June 1965.

Positions Open

BIOSTATISTICIAN

Challenging opportunity in R & D Division for biostatistician with several years relevant experience. Prefer candidate with M.S. or equivalent in statistics or mathematics plus familiarity with biological and/or clinical research methodology.

In confidence please send complete resume & salary requirements to Professional Placement Manager.

Schering Corp.
Mfrs of Fine Pharmaceuticals
Bloomfield, N.J. 07003
An Equal Opportunity Employer

Predoctoral Assistantships and Traineeships in Physiology

Excellent opportunities for graduate students leading to the Ph.D. Ample stipends and free tuition. Training and research in endocrinology, muscle, water and electrolyte metabolism, cardiovascular, gastrointestinal, sensory physiology and biophysics. Write for details to: Head, Department of Physiology University of Illinois at the Medical Center P. O. Box 6998 Chicago, Illinois 60680

UNIVERSITY OF OTTAWA
CANADA
CHAIR OF PHARMACOLOGY

Applications are invited for the Chair of Pharmacology, Faculty of Medicine. Candidates should hold an M.D. or a Ph.D. degree. The department is responsible for undergraduate course in pharmacology for medical students. Facilities are available for accepting graduate students for M.Sc. and Ph.D. degrees. Inquiries together with a curriculum vitae should be addressed to J. J. Lusker, M.D., Ph.D., Dean, Faculty of Medicine, University of Ottawa, Ottawa, Ontario.

GRASSLANDS

Editor: Howard B. Sprague 1959

6" x 9", 424 pp., 37 illus., index, cloth. Price $8.00. AAAS members' cash orders $7.00. AAAS Symposium Volume No. 53.

This volume is intended as a review of knowledge on many aspects of grassland resources. The 44 authors were selected by their own professional colleagues as being particularly competent to present the respective subjects. Thirty-seven papers are arranged under these chapter headings:

1. Sciences in Support of Grassland Research
2. Forage Production in Temperate Humid Regions
3. Engineering Aspects of Grassland Agriculture
4. Forage Utilization and Related Animal Nutrition Problems
5. Evaluation of the Nutritive Significance of Forages
6. Grassland Climatology
7. Ecology of Grasslands
8. Range Management

British Agents:
Bailey Bros. & Swinfen, Ltd.,
Warner House,
48 Upper Thames Street,
London, E.C.4

AAAS, 1515 Mass. Ave., NW,
Washington, D.C. 20005

KJELDAHLS

can be run faster, more conveniently, more accurately with HENGAR Kjeldahl apparatus by TROEMNER:

- All-new micro digestion unit with six electric heaters (0 to 450°C);
- Selenized boiling granules to prevent "bumping" and speed digestion;
- Weighing cups—micro—for sample and reagents;
- Hengar Tubes to prevent escape of SO₂ fumes.


The Market Place

BOOKS • SERVICES • SUPPLIES • EQUIPMENT

SHATTERPROOF
LINE-O-VISION
CAGE SIGNS

for all animal cages


HOLLISTER 825 N. Orleans, Chicago, Ill. 60610

SPRAGUE-DANIEL, INC.
Pioneers in the development of the STANDARD LABORATORY RAT.

P.O. Box 4220
Madison, Wisconsin
CE 3-5318
Castle OrthoVac LS is the newest development in high vacuum sterilization... simpler, more reliable, and far more efficient than any previous technique.

New Dual Phase Evacuation accomplishes far greater air removal than any other system. Result: OrthoVac LS sterilizes the most difficult packages, large or small, up to four times faster than conventional methods.

The exclusive Castle Load Sensor monitors load air concentration—permits completion of sterilization cycle only in the absence of entrapped air.

OrthoVac LS has been engineered to produce maximum performance and reliability from a simple, non-critical system. Why not write us for full details. Wilmot Castle Company, 1705 E. Henrietta Road, Rochester, New York 14602.
**Thomas AUTOMATIC DILUTOR**

... for simplified serial sampling by the Seligson* technique

- Measures, dispenses and dilutes sample to selected ratio
- Precalibrated pipet of definite volume ensures reproducibility
- With built-in vacuum and pressure system and automatic diluent refill
- No metal parts in contact with sample or diluent; no sample-diluent interface

For reproducible sampling and dilution of serial specimens. Developed for routine clinical chemistry procedures but applicable to any type analysis in which a standard volume is diluted or reacted directly with a measured volume of a second liquid.

Diluent volume is adjustable to provide up to 1:300 dilution ratio. Employs a precalibrated pipet of definite volume to ensure that sample after sample is identical; sample volume is not subject to errors of pump pulsing or backlash. No sample-diluent interface is established until dilution phase of operating cycle; localized interaction effects and contamination of specimen remaining in sample tube are prevented. No metal connectors or valves are used in liquid lines; sample and diluent come in contact with only glass, rubber or inert plastics. Pipet is self-rinsing in the process of filling and delivery.

Consisting essentially of a 0.1 ml Seligson automatic pipet (other sizes available) in combination with a spring-loaded 30 ml syringe and a suction-pressure air pump, all mounted integrally in a lightweight but sturdy benchtop unit. Enameled sheet metal housing, 16 inches high x 10 inches wide x 9 inches deep, is easily cleaned.

Operation of the Seligson pipet stopcock is facilitated by a long, knob-tipped handle. One-hand operation of this handle through 180° (a) refills the diluent dispensing syringe from a reservoir bottle, (b) connects pipet tip to gentle suction for drawing sample, and (c) delivers sample and diluent simultaneously into cuvette or test tube. Operator's free hand brings sample to pipet tip and manipulates receiving vessels and racks.

A handwheel adjusts diluent volume. A knurled thumbscrew projects from the dilutor apron for varying sample aspiration rate.

Diluent reservoir is a 32-oz. screw-cap bottle. A 16-oz. bottle serves as waste trap.

8208-B10. Automatic Dilutor, Thomas, as described. With 3-wire cord, 3-prong plug, and adapter for 115 volts, 60 cycles, n.e. 360.00


More detailed information sent upon request

**ARThur H. Thomas Company**

Scientific Apparatus and Reagents

VINE STREET AT 3RD • P.O. BOX 779 • PHILADELPHIA 5, PA., U.S.A.