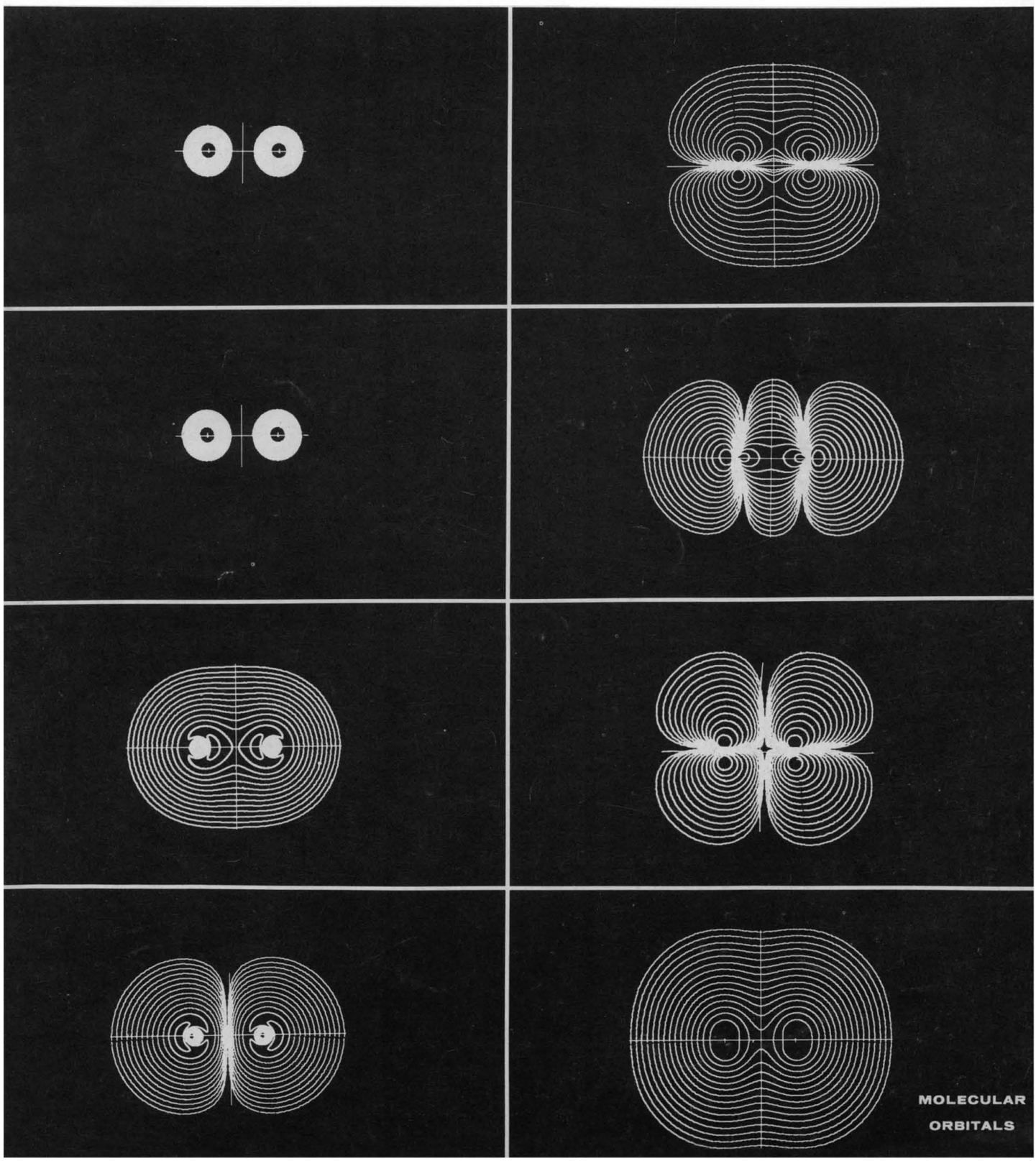
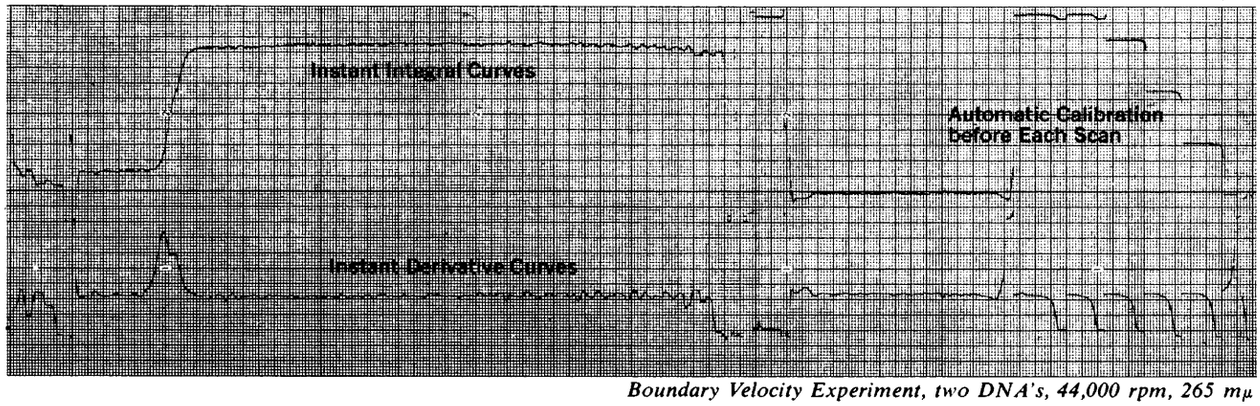
SCIENCE

25 February 1966

Vol. 151, No. 3713

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

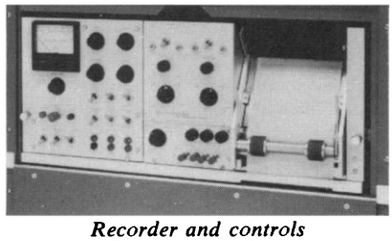




Boundary Velocity Experiment, two DNA's, 44,000 rpm, 265 mμ

Direct Scanning...the new era in analytical ultracentrifugation

The Photoelectric Scanner permits investigators, for the first time, to take full advantage of the highly discriminating absorption optical system of the Model E. It provides split-beam photometry—during centrifugation, at wavelengths selectable at will from 440 mμ down to 236 mμ. You can see what is happening in the cell as it happens because you get an immediate written record, and both integral and derivative curves are recorded simultaneously.



Recorder and controls for Photoelectric Scanner

Thus direct scanning frees you from the tedious procedures associated with the camera; provides "direct viewing" of sedimentation processes, electronic precision and discrimination in scanning the cell, and a variety of wavelengths at which to work. The precision and versatility that this new tool brings to biochemical research will inevitably open new areas of study. Already two investigators working with a scanner have been able to distinguish the catalytic and regulatory protein subunits of an enzyme in an association-dissociation study that augurs well for exciting work ahead.

What that work will be, what more will be accomplished in the era of direct scanning, only time and the ingenuity of investigators will tell.

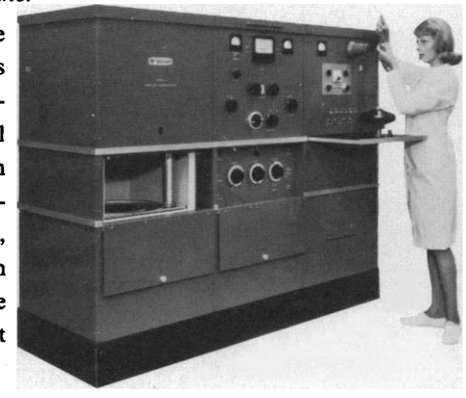
Inherent advantages of the Scanner

• Because the Scanner utilizes the split-beam principle, two samples in a double sector cell can be subjected to identical experimental conditions—an important factor in studying extremely small differences in sedimentation coefficients, for example. Or sample solution and solvent can be used in the double sector cell, with solvent reading automatically subtracted from the sample solution.

• With the Scanner classical sedimentation equilibrium measurements at extremely low concentrations in the UV are significantly easier to make. And they are more accurate because calibration steps are recorded before each scan.

• Having both curves simultaneously is a real advantage. For example: the derivative curve can show the presence of secondary components not readily recognizable from the integral curve; the integral curve can show heterogeneous material not revealed by the derivative curve.

For more information about the Photoelectric Scanner, write to Spinco Division at the address below.



Beckman INSTRUMENTS, INC.
SPINCO DIVISION
PALO ALTO, CALIFORNIA • 94304

INTERNATIONAL SUBSIDIARIES: Geneva; Munich; Glenrothes, Scotland; Tokyo; Paris; Capetown; London.

AT IBM'S SYSTEMS MANUFACTURING DIVISION, EAST FISHKILL, NEW YORK...

Mettler balance solves 60-millionths-of-an-inch measurement problem

Putting an ultra-thin layer of glass on transistors the size of a grain of salt – this was a crucial problem facing the IBM Systems Manufacturing Division. It was solved by depositing a layer of glass on more than a thousand transistors at a time, ganged together on a wafer the size of a half-dollar.

A Mettler B-6 semi-micro balance is used to measure this glass coating, 60-millionths-of-an-inch thin. The coating protects the entire wafer, replacing the protective metal can covering ordinary transistors. The glass-enclosed chips do not need the covers, lead wires and whiskers of conventional transistors. Fewer parts mean higher reliability, the ultimate goal of the Systems Manufacturing Division, where components such as these are made for the new IBM System/360. The balance can determine the thickness of metal deposited within 18 Angstroms.

In addition to the critical glassing step, Mettler balances are used in several other key operations of the manufacturing process – weighing out charges for gas diffusion, measuring thickness of metallurgical elements, and preparing chemicals for an etching process.

All are examples of how the modern high-precision balance, usually reserved for delicate analytical measurements, becomes a true production tool in the hand of innovators.

Find out how Mettler balances can contribute to your production as well as your analytical work. Request a demonstration or write for literature describing Mettler's complete range of precision weighing instruments. Mettler Instrument Corporation, 20 Nassau Street, Princeton, New Jersey 08540.

Mettler®

25 February 1966
Vol. 151, No. 3713

SCIENCE

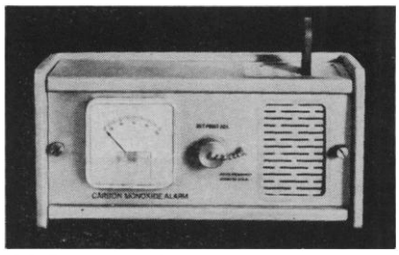
SCIENCE is published weekly on Friday and on the fourth Tuesday in November by the American Association for the Advancement of Science, 1515 Massachusetts Ave., N Washington, D.C. 20005. Now combined with **The Scientific Monthly®**. Second-class postage paid at Washington, D.C. Copyright © 1966 by the American Association for Advancement of Science. Annual subscriptions $8.50; foreign postage, $1.50; Canadian postage, 75¢; single copies, 35¢, except **Guide to Scientific Instruments**, which is 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 numbers. Send a recer address label. SCIENCE is indexed in the **Reader's Guide to Periodical Literature.**

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

COVER

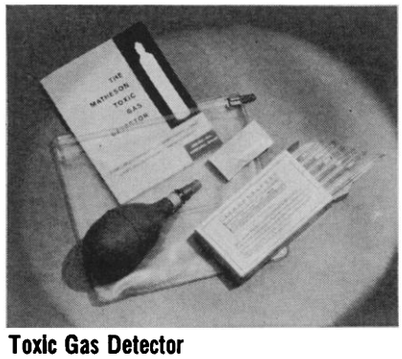
Electron density contour diagrams displaying the molecular orbital model of the fluorine molecule. The total electron density is illustrated in the bottom, right-hand drawing; other diagrams are of the seven different molecular orbitals making up the molecule. These diagrams were calculated and drawn by electronic computers. See page 961. [Argonne National Laboratory, Argonne, Illinois]

New-Gas Detectors from Matheson



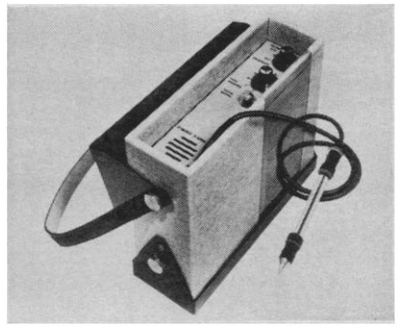
CO Detector and Alarm

FOR USE IN A WIDE RANGE OF INDUSTRIAL SITUATIONS/For the first time, here is an efficient, maintenance-free Carbon Monoxide detector-alarm that costs under $125 . . . weighs only 3 pounds. Reliable solid state components. Detecting sensor responds to CO by changing color; this change is detected by photoelectric system; when CO reaches a toxic level, relay is tripped and alarm is sounded. Also has visual meter. Responds to concentrations as low as 50 p.p.m. **Model 8010:** For 115V. A.C., **$124.50 . . . Model 8011:** Portable battery model or line operated with automatic battery operation on line failure . . . **$190.00.** Send coupon for more data.



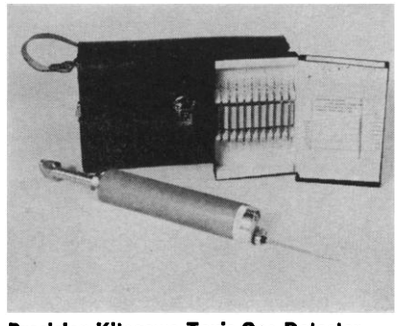
Toxic Gas Detector

QUICK MEASUREMENT OF TOXIC GASES/Provides quick, semi-quantitative measurement of many toxic gases and vapors. Easily used. Concentration of gas or vapor to be detected is determined by stain length on sample tube which is compared with charted values (can indicate MAC, ½ MAC or twice the MAC). With 12 detector tubes and instructions. Specify any one of the following gases when ordering: Butadiene, Carbon Dioxide, Carbon Monoxide, Chlorine, Hydrogen Sulfide, Methyl Acetylene, Nitric Oxide, Nitrogen Dioxide, Phosgene or Sulfur Dioxide. **Model 8015 . . . $11.50.** ($14.25 for Carbon Monoxide or Methyl Acetylene). Send coupon for more data.



Gas Leak Detector 8013

LOCATES LEAKS OF MOST GASES AND VAPORS/Supplied by Matheson, this is the only leak detector with all these features: (1) finds small as well as large leaks; (2) powered by flashlight batteries; (3) sensitive to as little as ½ oz. Freon-12 per year; (4) establishes approximate size and location of leak; (5) simultaneous audible and visual signals; (6) transistorized, dependable. Overall size: 9¾" x 3⅛" x 7¾" high. One type of signal signifies small leak; another, medium; still another, large. **Model 8013 . . . $195.00.** Send coupon for more data.

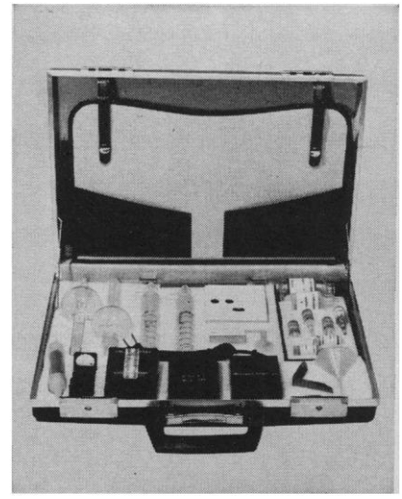


Precision Kitagawa Toxic Gas Detector

Detects These Toxic Gases or Vapors: C_2H_2, NH_3, AsH_3, CO_2, CO, Cl_2, ClO_2, $(CH_3)_2O$, C_2H_4, C_2H_4O, C_6H_{14}, HCN, H_2S, CH_2Br, $Ni(CO)_4$, NO_2, $COCl_2$, PH_3, SO_2, CH_2:CHCl/A highly accurate, dependable toxic gas and vapor detector. Quick reproductible results. Permits drawing accurate and reproducible sample from atmosphere. Detector tube reagents react with gas to be detected yielding distinct color stains of a length depending on concentration, measured by calibration chart. Reagent content corrected for variations in tube diameters. Finest reagent inert support material for uniform flow and distribution. Maintenance-free brass pump has corrosion-proof piston. Single stainless steel micro-orifice for all tubes to permit constant sampling rate. Model 8014 with carrying case, spare parts, and micro-photo of orifice, without tubes . . . $80.00. Mail coupon for data on Detector and list of tubes, measurable concentrations and prices.

Nickel Carbonyl Test Kit

DETECTS DEADLY VAPORS PRESENT IN REFINERY OPERATIONS/Nickel Carbonyl used in vapor deposition or formed in refinery hydrogenations and other processes make it imperative that this hazardous material be accurately and easily detected.



Testing for Nickel Carbonyl vapors with the Matheson Nickel Carbonyl Test Kit permits accurate determination of Nickel Carbonyl concentrations. Field and in-plant tests may be made with a sensitivity of 0.001 ppm. Exact measurements assured by stringent quality control of reagents in kit. This is important since many reagents have traces of nickel which will yield false values in determinations. Ppm nickel concentration is determined by colorimetric comparison. Model 8012, Complete With Suction Source, Rotometer, Bubbler, Filter Paper, Reagents, Neutralizer, Extractor, Comparator Flask, Color Standards and Comparator . . . $235.00. Also available from Matheson: Set of replacement solutions at $20.00 a set, allowing 3 tests to be made; set of color standards, $35.00. Send coupon for data on Test Kit and accessories.

The Matheson Co., Inc., Post Office Box 85, East Rutherford, N.J. 07073

Send me the following literature:

- ☐ Toxic Gas Detector Model 8015
- ☐ CO Detector and Alarm Models 8010-8011
- ☐ Gas Leak Detector 8013
- ☐ Precision Toxic Gas Detector Model 8014
- ☐ Nickel Carbonyl Kit Model 8012
- ☐ Send Free Gas Catalog

Name_____

Title_____

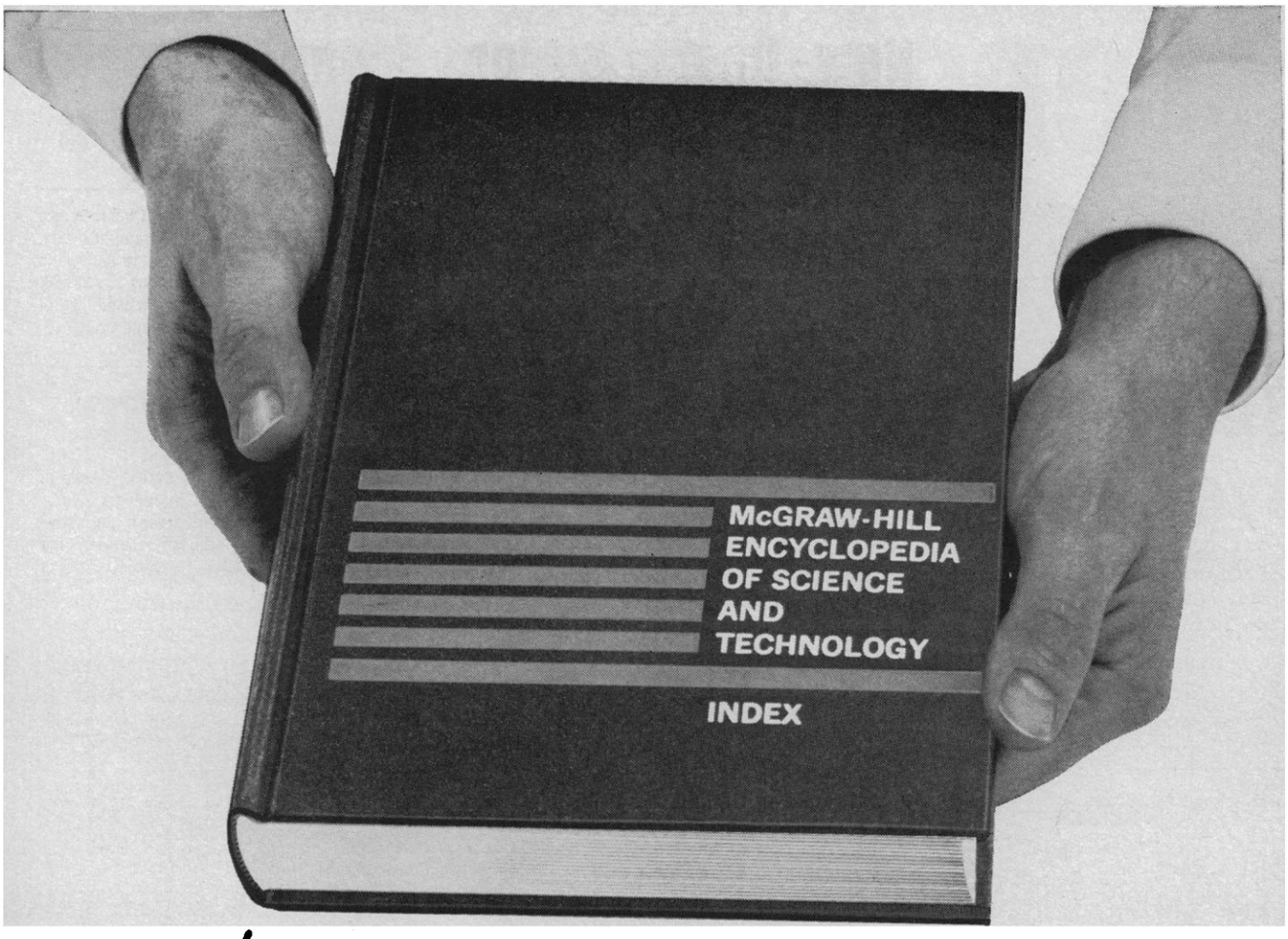
Company_____

Address_____

City_____ State_____ Zip_____

MATHESON

P.O. Box 85, East Rutherford, New Jersey
Plants in East Rutherford, N.J.; Joliet, Ill.; La Porte, Texas; Morrow, Ga.; Newark, Calif.
Matheson of Canada, Whitby, Ont.



New! Your key to every scientific and engineering problem

Announcing the new, revised edition of the reference work which *Scientific American* called, "A first-class tool without substitute." The extraordinary volume you see here puts at your fingertips the latest information on over 100,000 subjects in every engineering and scientific field. It is the heart of a unique *Information Center* in encyclopedia form developed by McGraw-Hill. For concise, authoritative answers to specific questions that come up on the job... for consultation when your work leads you into areas outside your specialty... for keeping abreast of new developments over the whole spectrum of today's exploding technology... there has never been anything like this ready-reference tool.

More than 2,000 respected leaders of science and industry have pooled their knowledge and experience to create this *Information Center*. Here you will find every theory, concept, term... every significant new discovery and application... every major problem currently under study... precisely classified and described in 15 volumes of amazing usefulness. For a free illustrated Prospectus with complete details, simply mail the coupon. There is no obligation, of course. McGraw-Hill Encyclopedia of Science and Technology, 331 West 41st Street, New York, N.Y. 10036.

McGraw-Hill
Encyclopedia of
science and technology
331 West 41 Street, New York, N.Y. 10036

Please send your free illustrated Prospectus with full details of this new *Information Center* for engineers and scientists. I understand there is no obligation.

Name_____

Address_____

City_____

State_____ Zone or Zip No._____

Profession_____

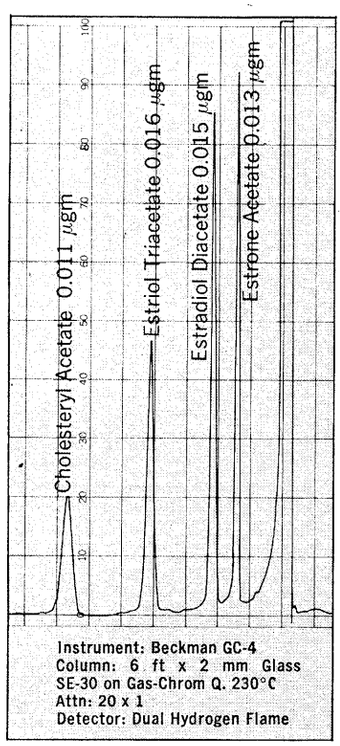
BT-101

Steroid analysis?

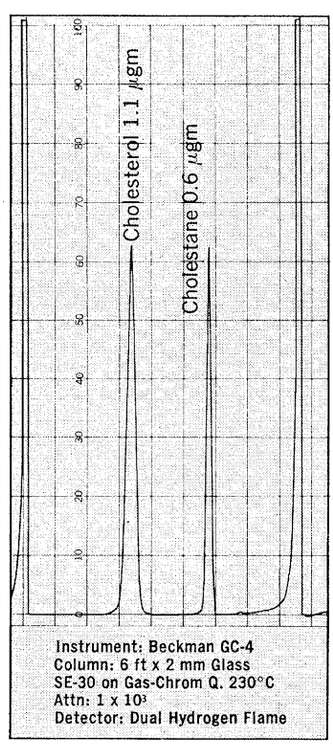
Beckman chromatographs perform – even on submicrogram samples

These chromatograms illustrate the exceptional performance of Beckman Chromatographs, even with unusually small samples. This performance is achieved through such features as: *injection on the head of the column for minimum sample decomposition* • *highly efficient columns* • *exceptional detector sensitivity and stability*. Instruments and modular components are available to specifically match analysis requirements for steroids, pesticides, hydrocarbons, and many others.

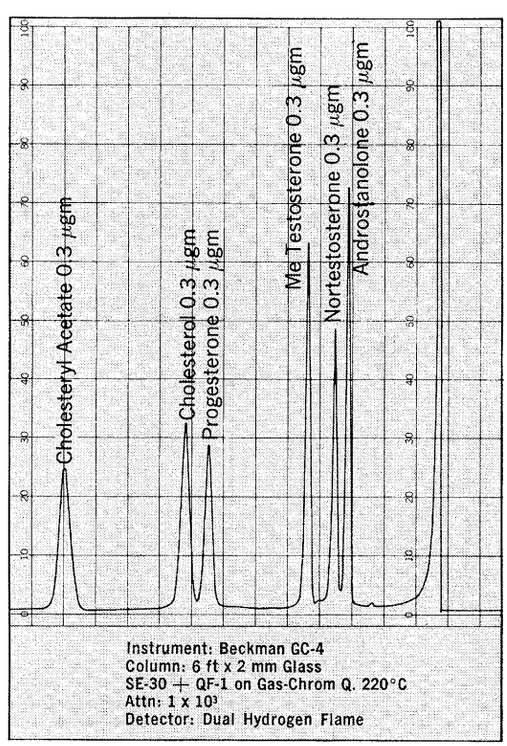
To find out more about Beckman Chromatographs, see your local Beckman Sales Engineer. Or write for Data File LGC-166.



Submicrogram sensitivity. The peak heights for 0.015 microgram of estradiol diacetate and 0.013 microgram of estrone acetate are at an attenuation of 20 x 1, while the noise level at the base line is extremely low. Operation at two to four times greater sensitivity would still maintain an adequately low noise level for good results.



Minimum tailing. Note the peak symmetry and lack of tailing on a 1.1 microgram sample of cholesterol. The base line between cholesterol and cholestane peaks indicates no decomposition of cholesterol to cholestadiene.



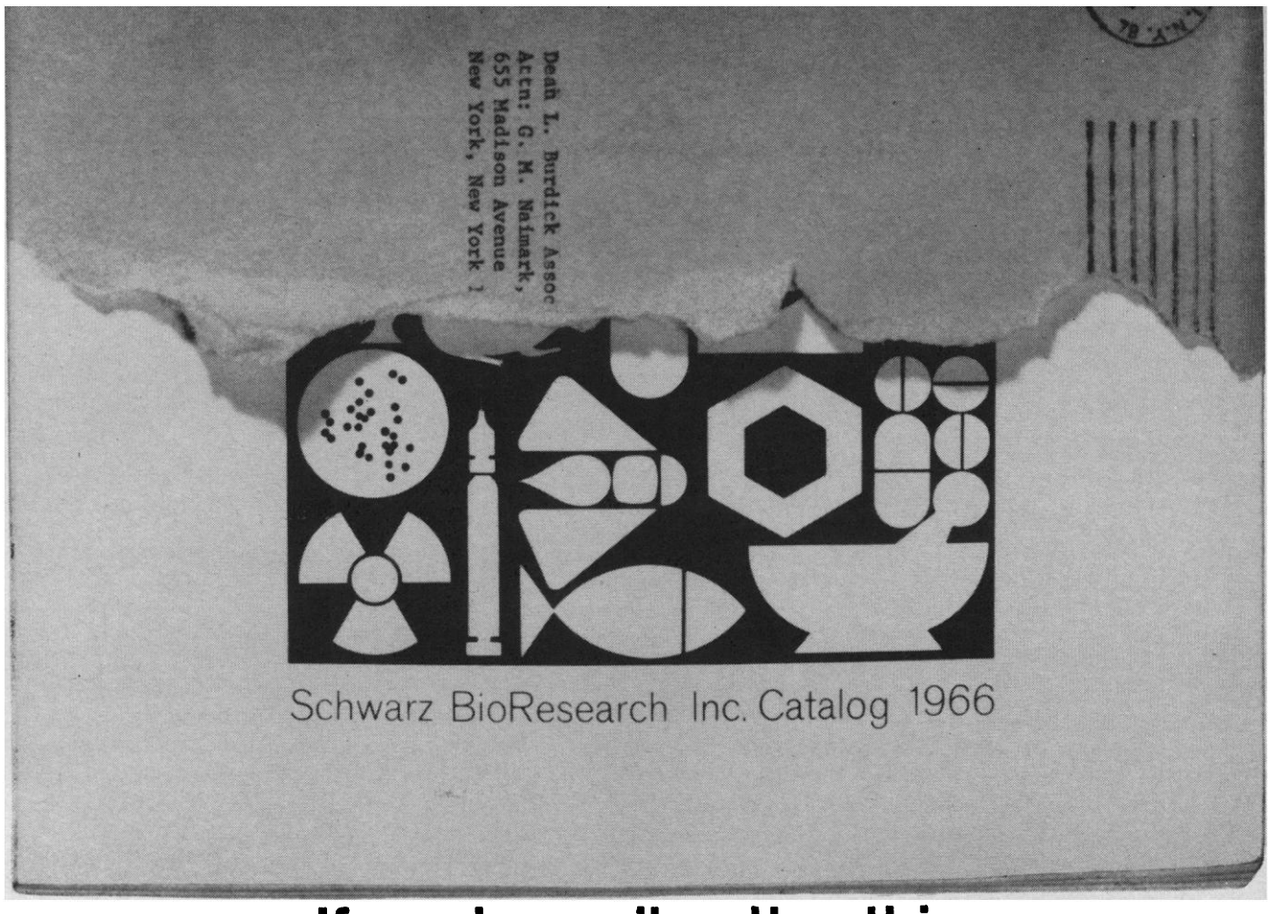
Excellent capability for general steroid analysis. Note the narrow, sharp peaks and high resolution of this six-component mixture . . . indicating the instrument's ability to make maximum use of the high column efficiency.

Beckman® INSTRUMENTS, INC.

SCIENTIFIC AND PROCESS INSTRUMENTS DIVISION

FULLERTON, CALIFORNIA • 92634

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



If you haven't gotten this,

clip this.

Schwarz BioResearch, Inc.
Orangeburg, New York 10962

Dear Sirs:

For some inexplicable reason I do not yet have a copy of your brand-new 1966 catalog whose picture abuts this coupon. I hear it includes a most comprehensive listing of hot and cold biochemicals. (Is it really true that it also features quite a few interesting new products?)

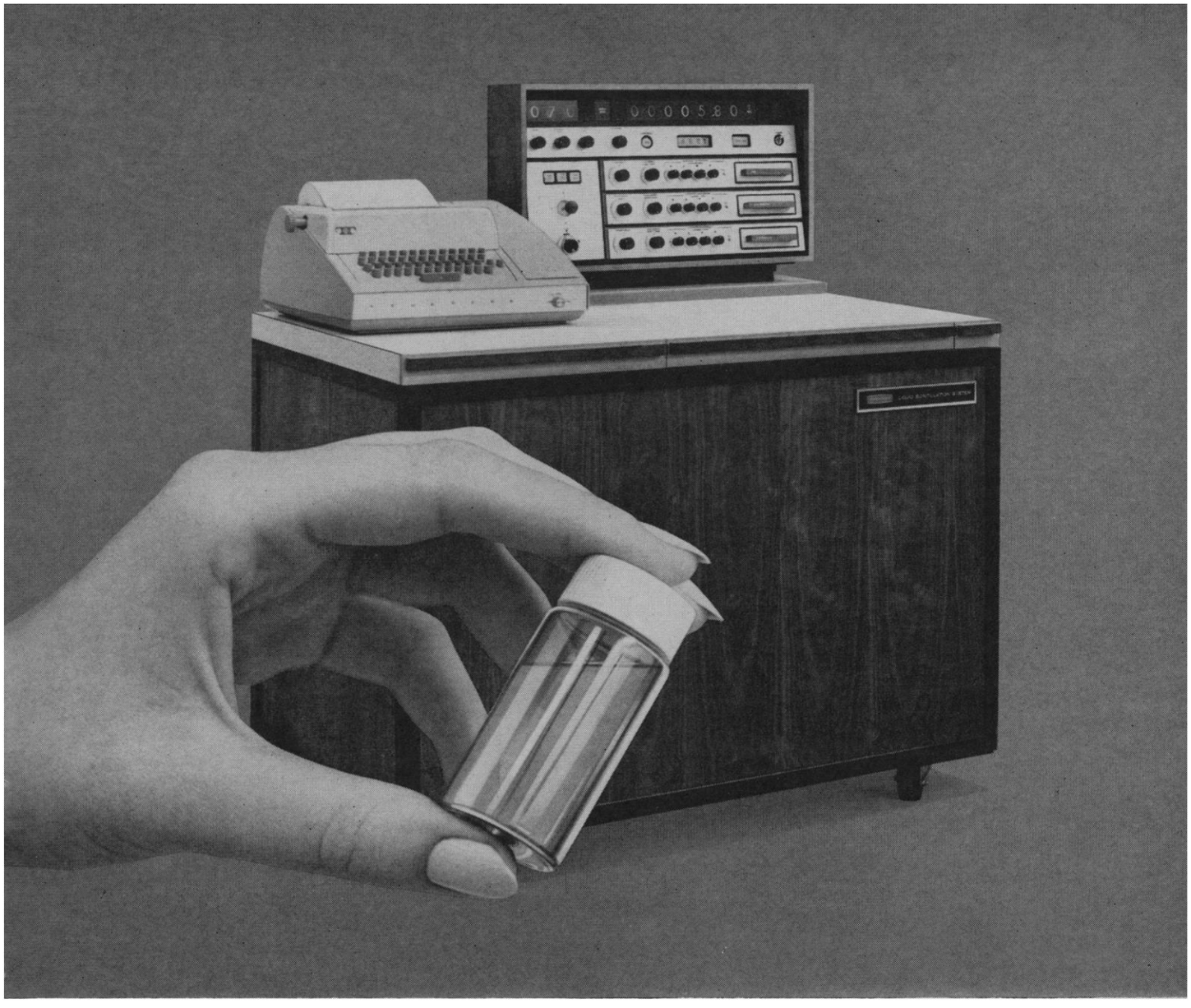
Please send me a copy with all due haste.

Name_____

Address_____

_____

(A happy alternative to clipping this journal: send us a postcard addressed to Dept. C.)



Where it really counts...
Beckman Liquid Scintillation Spectrometers

With a Beckman Liquid Scintillation Spectrometer you get accurate results even from quenched samples typically encountered in many biomedical and biochemical applications.

Judge the performance for yourself. Just send for a free Test Sample. Slightly color-quenched and chemically-quenched, it is typical of most samples encountered in day-to-day applications. We will also send you a background reference sample with no activity that is of the same composition. With the typical sample, the Beckman system demonstrates a high H^3 counting efficiency and a low background count — even at room temperature. By using a Test Sample, accurate performance comparisons can be made on any liquid scintillation system.

Beckman Liquid Scintillation Spectrometers feature an exclusive external-ratio standardization technique that gives accurate determination of the degree of quenching. The solid-state circuitry, excellent optics, and advanced photomultiplier tube design provide unsurpassed sensitivity.

In addition, the Beckman Spectrometer gives you simplified set-up, one-step (one-knob) calibration, and bi-directional control of the sample changer. Its on-line computer gives you a continuous display of count rate. Data readout is in convenient typewriter format.

To get your free Test Sample and additional information, fill out the coupon below. This offer expires April 1, 1966, so write today. Compare the high performance of a Beckman Spectrometer. Where it really counts, you'll want a Beckman.

☐ Please send me Data File LLS-166 with free Test Sample.
☐ Please send me Data File LLS-166 only.
☐ Have a Sales Engineer call.

Name_____

Title_____

Organization_____

Address_____

City_____ State_____ Zip_____

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

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

ica wildlands are less used, less cared for, and less able to contribute to the practical and spiritual needs of people than they were a generation ago—this despite the enormous publicity that is being given to the outdoor recreation "industry" and the statistics of "visitor trips."

To sum up, I suggest that the formal "conservation movement" must give way to a far broader approach to the reestablishment of functioning, ecologically balanced human communities within the landscape.

PETER VAN DRESSER
634 Garcia Street,
Santa Fe, New Mexico

. . . I should like to call attention to a unique approach to conservation problems which originated in Massachusetts. In 1957 the Commonwealth authorized the establishment of municipal conservation commissions. The members of the commissions, appointed by selectmen or mayors, are concerned citizens who serve without pay to protect and develop the natural resources of their own communities. Conservation commissions have proved to be one of the most effective ways to combat conservation problems at the local level. Since its beginning in Massachusetts, the conservation-commission movement has spread into Connecticut, New Hampshire, and Rhode Island.

RICHARD E. LAFOND
5 Pleasant Street,
Monson, Massachusetts

Abelson suggests that we "give over much of the areas of our parks to wilderness, letting nature take its course, while observing closely what is happening [and] and at the same time . . . devote limited areas to controlled experimentation." Such projects might readily fire the imagination of many scientists. A joint field team in the earth and biological sciences might possibly be given a grant for an area 10 miles on a side. The chosen site might then be evacuated, if necessary, and isolated (much like the "reserves" in Huxley's *Brave New World*). If a restricted part, let us say a tenth, of this area were available for experimentation and the remainder were not entered but observed by long-range techniques, a tremendous study potential would be created.

Such a project would be a long-term proposition requiring the time of many scientists and with cumulative expenses possibly comparable to those of the 200-Gev machine for high-energy physics. The problems of site selection and assignment of research facilities might also be as complex as those that have arisen with that machine (see News and Comment, 17 Dec., p. 1566). Unfortunately, the idea does not have a major government agency like the AEC behind it. Thus we may have to depend on the proliferation of inadequate projects to meet the need, unless on some common meeting ground—perhaps the AAAS—the applicable sciences can draw up a bolder scheme to make such a study on earth as feasible and productive as our efforts to strike out into the heavens.

ARTHUR R. LEPLEY
1572 Upland Road,
Huntington, West Virginia

Prohyphen

If Morris Leider ("Antiunion," 10 Dec., p. 1408) wants to found a Society for the Preservation of the Hyphen, I will promise to become a charter member. . . . If to accomplish clarity in scientific writing we must flout convention, I say flout it! What is to happen to "un-ionized" without its protective hyphen? I have nothing against an unhyphenated "subconscious," but when it comes to "sübunit," *my* subconscious refuses to disassociate the word from buns. . . .

May I also put in a good word for the diaeresis? If our microbial friends are not to be allowed to be micro-organisms, may they not at least be microörganisms, to spare them from becoming mic·roor′ganisms? Unlike the hyphen, this at least requires no extra space.

STEWART A. BROWN
Trent University,
Peterborough, Ontario, Canada

New Russian Journal in Genetics

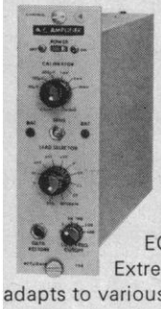
The first issue, dated July 1965, of a new journal called *Genetika* (not to be confused with the Dutch journal of the same name) recently reached me from the U.S.S.R., having been sent me by one of the two assistant editors who is well known to me both personally

Now—complete flexibility in measuring ECG, EEG, EMG, PCG, Respiration, Blood Flow & Pressure with compatible solid-state medical amplifiers from Honeywell

For new ease in conditioning signals while making physiological measurements, Honeywell introduces four fully compatible solid-state amplifiers. Designed to be used singly or in combination, these modular size units (2" x 7" x 12") will add a great measure of flexibility to your electronic monitoring/measuring system.

ACCUDATA 108 AC AMPLIFIER

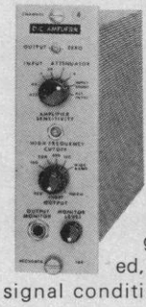
Providing amplification of low-level signals such as ECG, EEG, EMG, and PCG, this battery-powered, wideband



differential unit offers high input impedance and low noise level. It features 6 low frequency cutoff filters, square wave calibrator at six voltages, and an ECG lead selector switch. Extremely versatile, the 108 adapts to various measurements simply by changing the sensor, and when used with the companion Accudata 109, serves as a preamplifier for parameters requiring high-frequency recording.

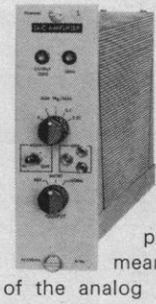
ACCUDATA 109 DC AMPLIFIER

A direct coupled, wideband, medium-gain differential amplifier featuring 4 high-frequency cutoff filters. The 109 will drive fluid-damped galvanometers and other floating or grounded recording or display devices. Its power source can be used as a supply for a single strain gage such as the Statham P23Db pressure transducer, and when a gage control unit is added, the result is complete signal conditioning for an amplified blood pressure channel.



ACCUDATA M104 DC AMPLIFIER

The M104 is a direct coupled, medium-gain amplifier with step gain control providing recorder sensitivities of 400, 200, 100, 50, and 25mm Hg full scale for blood pressure measurement. The amplifier provides the functions of meaning and differentiation of the analog blood pressure signal. The pulsatile/mean and differentiated outputs may be used simultaneously.



IMPEDANCE PLETHYSMOGRAPH

This compact 3½" x 19" unit is designed to measure the basal impedance of biological segments as well as the pulsatile changes in impedance which accompany cardiac and breathing cycles. The Electrical Impedance Plethysmograph employs a selectivity-tuned 50 Kc oscillator, buffer amplifier, and a four-electrode, modified Kelvin double bridge. In use, electrodes are connected to the examined segment, the bridge is manually adjusted, and the bridge balance is read on a front panel mounted null meter. The amplifier's output is adaptable to a wide range of recording devices, and integral calibration capability for both shunt and substitution techniques is provided.

Honeywell . . . for one-source responsibility in medical electronics. For complete specifications and information on Honeywell data acquisition capabilities in the field of medicine, including literature on Honeywell's comprehensive line of medical sensors and transducers for Honeywell medical amplifiers, please mail the coupon below.

See Honeywell Electronic Medical Systems at FASEB, Booth 20, 21, 22 and 23.

Honeywell also manufactures a complete line of industrial and laboratory measurement and control instrumentation, control computers, and valves. For information write Honeywell, Philadelphia Div., Fort Washington, Pa.

Dr. D. C. Sutfin
Mail Station 407
Honeywell-Denver
Denver, Colo. 80217

Please send information on Honeywell Medical Amplifiers and other data acquisition instrumentation to:

NAME_____

ADDRESS_____

CITY_____ STATE_____ ZIP_____

ELECTRONIC MEDICAL SYSTEMS

Honeywell

HONEYWELL IS WORLDWIDE • Sales and service offices in all principal cities of the world. Manufacturing in Brazil, Canada, France, Germany, Japan, Mexico, Netherlands, United Kingdom, United States.

and professionally, S. I. Alikhanian. Since it is clear from the contents that genuine scientists in the U.S.S.R. have officially reentered the field of genetics, the new *Genetika* will be welcomed by biologists and scientists in general in other countries and more especially in our own. The content of the articles ranges from fields of genetics that have long been worked to studies on a molecular scale, and from basic problems to useful applications. Included also are review and historical articles, an article paying tribute to Chetverikov, one of the early pioneers in population-mutation studies, and even two articles by Vavilov written in the late '30's. No attempt has been made to compromise with or condone the doctrines that were so devastatingly espoused by Lysenko and his group. Moreover, both the research contributions and the more general or historical ones appear to me to be of high caliber. Most of the articles have English summaries, and English titles are given for all in a table of contents.

The frequency of publication is given as 12 times a year, the annual subscription price as 18 rubles. The address is Journal "Genetika," Room 35, Osipenko Street 52, Moscow, Zh-127, U.S.S.R.

I have also received, after a year's delay caused by forwarding difficulties, the second issue, dated 6 May 1964, of *Researches in Genetics*, the first issue having appeared in 1962. It is not clear whether it will be continued, or whether it has been superseded by *Genetika*. (Its editor, M. E. Lobashev, is also on the editorial board of *Genetika*.) It too deals with actual genetics and contains English summaries.

H. J. MULLER
Department of Zoology,
University of Wisconsin, Madison

Academic Administrators: New Breed

Wolfle's editorial "Future administrators" (10 Dec., p. 1411) reveals a rather cautious attitude toward internships for young professors who openly "defy the academic mores by frankly aspiring to administrative careers."

However, consider the alternatives: the traditional trial-and-error learning of ex-professors who have just spent 20 years believing that "administrator" is a dirty word; or, graduate programs that openly defy even stronger academic mores by "frankly aspiring" to train *professional* administrators.

The prototype of the internship program Wolfle cites—conducted by the American Council of Education under a Ford Foundation grant—is a 4-year effort by the Ellis L. Phillips Foundation of New York. As one of the 12 Phillips Interns currently assigned, allow me to vouch for the value of this experience. Not only do we observe and assist administrators in action, but we have the opportunity to think about, read about, and talk about administrative problems in a realistic and meaningful context.

It is to be hoped that this "new breed" of administrators will help meet the growing need for administrative talent in our colleges and universities.

ROBERT F. CARBONE
Office of the Vice President,
University of Wisconsin, Madison

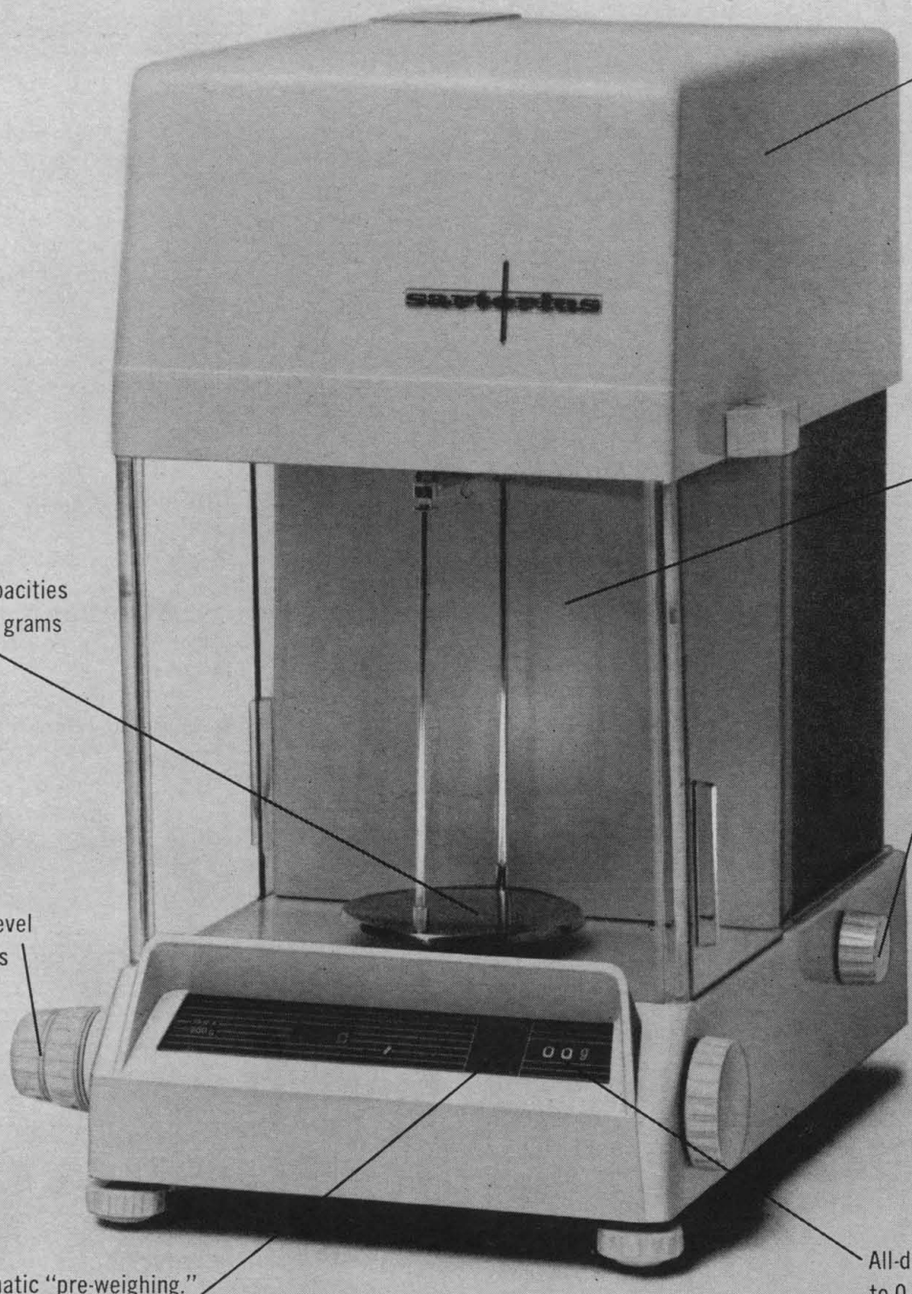
. . . Also worthy of note are the departments or centers of higher education which have been performing similar functions for some years. Examples in the Midwest are at Minnesota, Southern Illinois, Indiana, Ohio State, Michigan State, and (perhaps the best known of all) the Center for the Study of Higher Education at the University of Michigan. At such places there can be added to the administrative-internship experiences the presence of organized studies in higher education.

ARTHUR J. DIBDEN
Department of Higher Education,
Southern Illinois University,
Carbondale 62903

Erratum: Training Stipends for Foreign Biologists

As a result of a copy editor's change in the letter by Seymour S. Cohen in the issue of 17 December ("Biology worldwide," p. 1533), a sentence there includes the erroneous statement that a regulation of the National Institutes of Health "prevents the assignment of training grants to foreign applicants." The author's own sentence read: ". . . the regulation of the National Institutes of Health relating to training grants which prevents the assignment of scholarships to foreign applicants is a shortsighted policy." His protest is directed against the restrictions imposed in the past few years on stipend support for foreign nationals who wish to study in the United States for advanced degrees without being admitted for permanent residence.

Macro analytical weighings that once took 2 to 3 minutes on a conventional single pan balance...now take only 15 seconds with automatic pre-weighing



Model 2463
(100 g capacity)—only $770.
Model 2462
(200 g capacity)—only $890.

Unobstructed weighing chamber

Maximum capacities of 100 or 200 grams

Taramatic®—the unique mechanical taring system
—cancels fractional container weight
—eliminates arithmetic computations

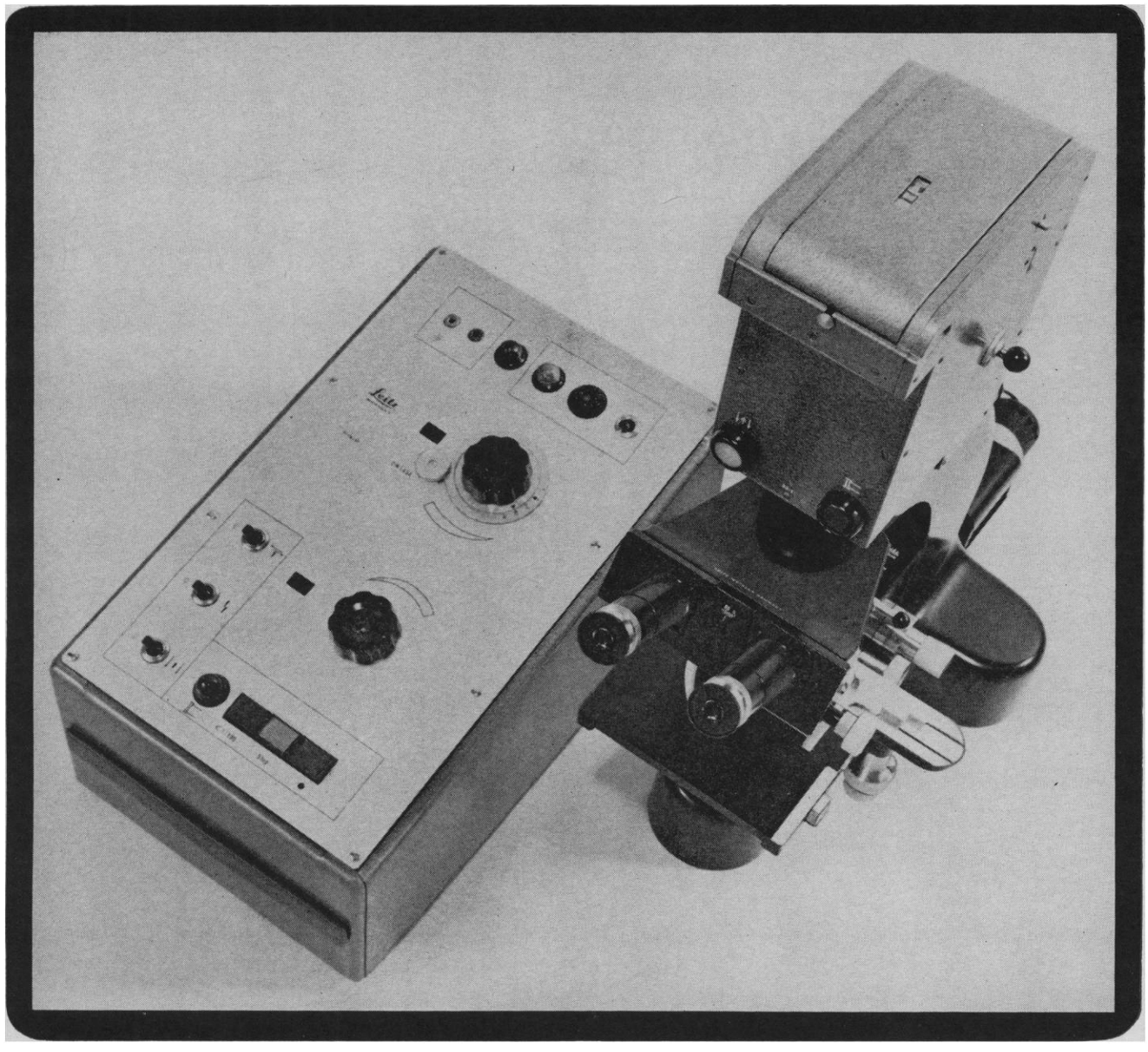
Table-level controls

Automatic "pre-weighing." (0-100 g)—and fine weighing (0-1000 mg)—on the dual-range optical scale eliminates trial-and-error weight dialing

All-digital readout to 0.1 mg

sartorius

Division of Brinkmann Instruments, Inc., Cantiague Road, Westbury, L. I., N. Y. 11590



AN AUTOMATIC CAMERA
for any microscope...any photomicrograph
LEITZ ORTHOMAT microscope-camera

Select your "field" and push the button... get a precisely exposed photomicrograph *every* time. No trial exposures, no wasted exposures.

Attachable to any microscope, this unique, fully automatic 35 mm camera measures illumination, calculates exposure, trips the shutter and advances the film. Exposures, from 1/100th second with electronic flash to over ½ hour with fluorescent lighting, can be "previewed," black-and-white or color film selected and interchanged (even in the middle of a roll). Use any system of microscope illumination.

Let the Leitz ORTHOMAT Microscope-Camera automate your clinical and research photomicrography. Write for technical data. 58468

Leitz

E. LEITZ, INC., 468 PARK AVENUE SOUTH, NEW YORK, N.Y. 10016
Distributors of the world-famous products of Ernst Leitz G.m.b.H., Wetzlar, Germany—Ernst Leitz Canada Ltd.
LEICA AND LEICINA CAMERAS · LENSES · PROJECTORS · MICROSCOPES

25 February 1966, Volume 151, Number 3713

SCIENCE

EDITORIAL CORRESPONDENCE: 1515 Massachusetts Ave., NW, Washington, D.C. 20005. Phone: 202-387-7171. Cable: Advancesci. Washington. Copies of "Instructions for Contributors" can be obtained from the editorial office. ADVERTISING CORRESPONDENCE: Rm. 1740, 11 W. 42 St., New York, N.Y. 10036. Phone: 212-PE 6-1858.

Books about Science

Publishers' Weekly brings the information that 20,234 new books were published in the United States in 1965. Of these, 1850 were in the science category, 942 were in technology, 2372 were in sociology and economics, and 582 were in psychology and philosophy.

Chiefly from the science category, but from other groups as well, the AAAS publication *Science Books* is now reviewing and rating about 900 books a year that appear to be of general or library interest. There is a welcome trend in books of this kind: the quality seems to be improving. Fewer appear to have been produced by an author who simply went to the library, borrowed from some older works, and whipped up a new volume in time for the Christmas trade. In recent years the university presses have shown an increasing interest in this area of publication. The sponsors of the improved science courses for high school students have brought out some excellent books for collateral reading or to extend the student's range. Other good series are being produced under other auspices. More science books for general audiences are being written by well-trained science writers and professional scientists, and some of their works are getting wide acclaim. Sidney Chapman received an Edison Foundation Book Award in 1960 for his *IGY: Year of Discovery*. One of four contenders for the 1965 National Book Award in the "science, philosophy, and religion" class is *Science and Ethical Values* by Bentley Glass. Other recent examples are René Dubos' *The Unseen World* and Theodosius Dobzhansky's *Heredity and the Nature of Man*, both originally prepared as AAAS Holiday Science Lectures.

On 25 February the AAAS entered this field of publication with the appearance of Joseph R. Caldwell's *New Roads to Yesterday—Essays in Archaeology*, published by Basic Books. The volume consists of a selection of papers, reviewed and brought up to date, which originally appeared as lead articles in recent volumes of *Science*.

A quarter of a century ago, Doubleday Doran and Company produced an earlier series of volumes selected and prepared by the AAAS. First in the series was H. H. Newman's *Multiple Human Births*. The price of $2.50 now seems unbelievably low, and the old advertisements seem, in 1966, a bit florid: "In his accounts of the first meeting of twenty pairs of identical twins separated from infancy, Dr. Newman often strikes the profoundest chords of human emotion, chords sometimes gloriously joyous and sometimes tragically pathetic," or, "More interesting than fiction . . . Dr. Newman's book is one of almost universal appeal."

Strange Malady—the Story of Allergy and *Alcohol Explored* followed in the series, but they apparently fell short of attaining "almost universal appeal," for Doubleday Doran turned down the fourth and fifth manuscripts. However, Macmillan Company brought out the sixth, Mark Graubard's *Man's Food: Its Rhyme or Reason*, and W. W. Norton published the final one, W. B. Cannon's *The Way of an Investigator*. Paper shortages and the preoccupation of scientists with wartime responsibilities then brought the series to an end.

There is a useful place for such volumes. The serious reader—young student or interested adult—appreciates the opportunity to read a book by an author who knows his field thoroughly. If the author has developed a clear and interesting style, the reader can learn much, and learn it with pleasure. Both readers and fellow scientists are indebted to the authors who write such books.

—DAEL WOLFLE

conf., Illinois Inst. of Technology, Chicago. (E. K. Wolfe, U.S. Army Biological Laboratories, Fort Detrick, Frederick, Md.)

29–31. **Applied Meteorology**, 6th natl. conf., Los Angeles, Calif. (B. N. Charles, Booz-Allen Applied Research, 6151 W. Century Blvd., Los Angeles 90045)

29–31. **Chemical** Soc., anniversary mtgs., Oxford, England. (General Secretary, Burlington House, London W.1)

29–31. **Surface-Active Substances**, intern. conf., Berlin, East Germany. (Inst. für Fettchemie, Deutsche Akademie der Wissenschaften zu Berlin, Rudower Chaussee 5, 1199 Berlin-Adlershof)

29–31. **Symbolic and Algebraic Manipulation**, symp., Assoc. for Computing Machinery, Washington, D.C. (J. E. Sammet, I.B.M. Corp., 545 Technology Sq., Cambridge, Mass. 02139)

29–1. American Assoc. for **Contamination Control**, 5th annual technical mtg., Houston, Tex. (W. T. Maloney, The Association, 6 Beacon St., Boston, Mass.)

29–1. Ultraviolet and X-ray **Spectroscopy of Laboratory and Astrophysical Plasma**, conf., Abingdon, England. (Inst. of Physics and the Physics Soc., 47 Belgrave Sq., London, S.W.1, England)

30. **Oral Cancer**, 4th symp., St. Francis Hospital, Poughkeepsie, N.Y. (M. A. Engelman, 1 E. Academy St., Wappingers Falls, N.Y.)

30–1. **Magnetohydrodynamics**, 7th symp., Princeton, N.J. (R. G. Jahn, Guggenheim Laboratories, Forrestal Research Center, Princeton, N.J. 08540)

31–2. Michigan **Acad. of Science, Arts, and Letters**, Wayne State Univ., Detroit. (E. A. Wunsch, Dept. of English, Univ. of Michigan, Ann Arbor)

April

1–2. Alabama **Acad. of Science**, Birmingham-Southern College, Birmingham. (W. B. DeVall, Dept. of Forestry, Auburn Univ., Auburn, Ala.)

1–2. Arkansas **Acad. of Science**, Little Rock. (G. E. Templeton, Univ. of Arkansas, Fayetteville)

1–5. National **Science Teachers** Assoc., New York, N.Y. (R. H. Carleton, 1201 16th St., NW, Washington, D.C. 20036)

1–7. American Acad. of **General Practice**, Boston, Mass. (M. F. Cahal, Volker Blvd. at Brookside, Kansas City 12, Mo.)

4–6. **Atomic Energy** Soc. of Japan, annual mtg., Tokyo. (M. Masamoto, Japan Atomic Energy Research Inst., 1-1, Shibatamura-cho, Minato-ku, Tokyo)

4–6. **Exobiology**, conf., Ames Research Center, Moffett Field, Calif. (Letters and Science Extension, Univ. of California, Berkeley 94720)

4–6. American Assoc. of **Physical Anthropologists**, Berkeley, Calif. (F. E. Johnston, Dept. of Anthropology, Univ. of Pennsylvania, Philadelphia 19104)

4–7. Federation of European **Biochemical** Soc., 3rd mtg., Warsaw, Poland. (T. Klopotowski, Polish Biochemical Soc., Freta 16, Warsaw)

4–7. Advances in **Water Quality Improvement**, conf., Univ. of Texas, Austin. (Special Lecture Series, Engineering Laboratories Bldg. 305, Univ. of Texas, Austin 78712)