

# Equipment

The information reported here is obtained from manufacturers and from other sources considered to be reliable. Science does not assume responsibility for the accuracy of the information. A coupon for use in making inquiries concerning the items listed appears on page 1518.

■ **DIGITAL VOLT-OHM METER** gives direct numerical indication of a-c and d-c voltage and resistance. Voltage measurements are accurate to  $\pm 0.5$  percent; resistance measurements to  $\pm 1$  percent. Ranges are selectable in decades from 0 to 1000 v and from 0 to 10 megohm. Sampling rates may be set at 1 to 10 per second or may be arranged for external triggering. Measurement is accomplished in the instrument by comparing the input voltage to a reference linear sweep voltage that is generated internally. Start and stop pulses thus obtained are used to control a gated oscillator. Frequency range is 50 cy to 50 kcy/sec. Polarity and decimal-point location are indicated. Binary-coded output is available for operating a digital recorder. (Beckman Instruments Inc., Dept. 118)

■ **STEREOSCOPIC MICROSCOPE** for dual use permits both the instructor and the student to view the same field simultaneously. Thus the instructor may demonstrate and manipulate objects under stereoscopic observation without ambiguity. (Kenneth A. Dawson Co., Dept. 110)

■ **OSCILLATOR** covers frequencies from 180 to 600 Mcy/sec in a single range. A 4-in. dial is direct reading in terms of frequency with accuracy of  $\pm 1$  percent. At least 300 mw of output power is available into 50 ohm at all frequencies. (General Radio Co., Dept. 114)

■ **PARTICLE ACCELERATOR** of Van de Graaf type is designed for pulsed neutron output. The instrument delivers  $2.5 \times 10^9$  neutron/sec during a 100- $\mu$ sec pulse. Energy rating is 0.25 Mev, nominal, with ion current of 50  $\mu$ a during pulse. Pulse length is adjustable in the range 25 to 250  $\mu$ sec. Pulse rise and decay times are less than 5  $\mu$ sec. Repetition rate is 400 pulse/sec, synchronous with ion-source power supply. (High Voltage Engineering Corporation, Dept. 117)

■ **ANGULAR-POSITION TRANSDUCER** combines a rotary variable transformer and a transistorized demodulator. When the unit is excited from a suitable a-c source, the d-c output is linear with respect to rotation and polarized with respect to direction of rotation. A typical instrument range is 45-0-45 deg rotation. Units are available for excitation frequencies from 400 to 1000 cy/sec and with outputs up to  $\pm 30$  v d-c. (Bourns Laboratories, Dept. 124)

■ **HANDWRITING TRANSMITTER** permits transmission over telephone wires of normal fast hand-writing with precision of 1/32 in. To transmit, the message is written with a ball point pen on continuously fed paper. A slave pen duplicates the message at the remote station. Carbon copies may be produced at both ends. (Autron Engineering Inc., Dept. 120)

■ **OXIDASE DISCS** are a stable form of dimethyl-*p*-phenylenediamine, for identification of the genus *Neisseria*. In use, the discs are moistened and placed on the

culture. After 30 to 45 min, oxidase-positive colonies will turn pink to red to black. Discs maintain stability indefinitely at room or refrigerator temperatures. (Scientific Products, Dept. 116)

■ **ANAEROBIC INCUBATORS** permit accurate control of gas composition and pressure for growing anaerobic cultures. Carbon dioxide content is established by evacuating to correct pressure and filling to atmospheric pressure from a CO<sub>2</sub> bottle. For tissue cultures requiring continuous flow of gas through the chamber, two gas valves are provided. Temperature is ad-

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justable from room temperature to 65°C. An accessory cooling coil is available for operation below room temperature. A vacuum of 10 $\mu$ -Hg may be maintained in the chamber. A transparent window permits photosynthetic organisms to be grown with a controlled light source. (National Appliance Co., Dept. 132)

■ **PANORAMIC ANALYZER** measures radio-frequency signals up to 1000 Mcy/sec. Resolution varies from 3 kcy/sec at a rapid scan rate down to less than 10 cy/sec. Scan rate is variable from 0.1 to 30 cy/sec. Direct sensitivity is 20  $\mu$ v full-scale, and conversion sensitivity is 2 mv. Preset narrow-band scans of 150, 500, 2000, and 10,000 cy/sec are provided. Display is on a 5-in., high-persistence cathode-ray tube. Logarithmic, linear, and square-law scales are provided. (Panoramic Radio Products, Inc., Dept. 131)

■ **FOUR-CHANNEL OSCILLOSCOPE** uses a square-face, four-gun, cathode-ray tube. Frequency range is from d-c to 5 Mcy/sec. Five preamplifiers form an integral part of the instrument and may be used in any combination on each of the four channels. Plug-in sweep generators permit viewing of all four channels on common or separate time bases. A calibrator-marker combines a square-wave voltage calibrator and a crystal-controlled 1-kcy/sec time-mark generator. (Electronic Tube Corporation, Dept. 119)

■ **RATE METER** combines linear and logarithmic display. The instrument will also drive standard potentiometer- or galvanometer-type recorders. The linear scale has ten ranges, from 0 to 30 to 0 to 10<sup>6</sup> count/min. The logarithmic scale covers 5 cycles in a single range from 10 to 10<sup>6</sup> count/min. (Baird-Atomic Inc., Dept. 130)

■ **TIMER** monitors development time for Polaroid-type oscilloscope record camera. Settings can be adjusted from 30 to 120 sec. The timer, which attaches to the camera, rings an alarm to alert the operator at the correct time for removal of the film from the camera. (Allen B. DuMont Laboratories, Inc., Dept. 127)

■ **VACUUM GAGE** is useful in the pressure range 10<sup>-8</sup> to 10<sup>-11</sup> mm-Hg. Ion current is 100 times that of the Bayard-Alpert ionization gage at the same pressure with filament emission 1 millionth as large. Electron trajectories of 10<sup>8</sup> cm are obtained. Positive ions produced by collisions with gas molecules are attracted to the negative end plates constituting the ion current. Pumping speed of the gage for helium is up to 0.1 lit./sec. (General Electric Co., Dept. 138)

JOSHUA STERN  
National Bureau of Standards

## PERSONNEL PLACEMENT

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(a) Scientist of Research-Director Caliber trained in fermentation—pharmaceutical industry; large industrial company; West. (b) Chemist qualified in microbiology to direct research laboratory, major industrial company; university city, East; \$10,000–\$12,000. (c) Chemist to direct department, new 225-bed hospital; \$6000 plus commission; Georgia. (d) Clinical Psychologists; newly created positions; outside United States; \$580–\$770. (e) Scientist qualified biochemistry or allied science, who is effective writer; firm handling nuclear instruments; up to \$10,000; Midwest. S6-4 Medical Bureau, Burnice Larson, Director, 900 North Michigan Avenue, Chicago. X

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**Physician-Virologist; Senior Virologist** (master's); **Virologist** (B.S.). Must have experience in virology and microbiology. Good salaries and other benefits. Write Director of Laboratories, N.J. State Department of Health, State House, Trenton, New Jersey. 7/4, 11

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### 3. PSYCHOPHARMACOLOGIST

B.S. or M.S. level (biology or physiological psychology) with mechanical aptitude and basic knowledge of electrical and electronic principles.

### 4. MICROBIOLOGIST

- (1) B.S. or M.S. level with training in pure culture techniques, bacteriology and mycology. Some background or interest in genetics desirable.
- (2) B.S. or M.S. level with chemistry minor plus several years experience in microbiological assay procedure and chemotherapeutic testing. Knowledge of antibiotics screening, fermentation and chromatography desirable.



## ***Metabolism of the Nervous System***

Edited by DR. DEREK RICHTER,  
Neuropsychiatric Research Centre, Cardiff

This volume contains the papers presented at the Second International Symposium on Neurochemistry, held at Aarhus. Many aspects of neurochemistry have been covered by the contributors, whose papers review the advances made and discuss research problems. The volume is well illustrated, and includes many plates.

Price \$16.00



## ***5-Hydroxytryptamine***

Edited by G. P. LEWIS, Ph.D.  
National Institute for Medical Research,  
Mill Hill, London

This volume contains the proceedings of a symposium organized by the Co-ordinating Committee for Symposium on Drug Action. During the last few years the discovery of new facts about 5-hydroxytryptamine has proceeded with astonishing speed. This work has revealed that 5-hydroxytryptamine has an unsuspectedly wide distribution in the body and can produce an almost bewildering array of pharmacological effects. These papers give an up-to-date account of the advances that have been made and the present state of knowledge of this drug.

Price \$9.50

## ***Social Problem of Mental Deficiency***

By N. O'CONNOR and J. TIZARD,  
Institute of Psychiatry, Maudsley Hospital

The social problem of mental deficiency deals with the important question of the care and treatment of the mentally handicapped. A brief history of the principles of methods of treatment in the past is followed by a report on the authors' research. This report deals with problems arising from the attempt to rehabilitate mentally retarded patients. The type of work in which they can be trained, the degree of complexity both experimentally and practically. Reports of the success of patients when given the appropriate employment are encouraging. The treatment and training scheme developed as a result of laboratory and workshop investigation are supplemented by suggestions concerning new provisions both legal and administrative for the care of the backward.

Price \$5.00



## ***Hypotensive Drugs***

Edited by M. HARINGTON, M.B., M.R.C.P.

Proceedings of a symposium of hypotensive drugs and the control of vascular tone in hypertension, held in London on April 5th and 6th, at the Wellcome Foundation.

"... In the present volume the urgency of the problem and the sense of rapid development of this field of pharmacology and therapeutics are so well conveyed by the authors, all actively engaged in the establishment and development of these advances, that it is no exaggeration to say that there is many a thrill to be found in their contributions... Dr. Harington is to be congratulated on his editorship... this is not a book to scan and forget—it is worthy of sustained and repeated study..."

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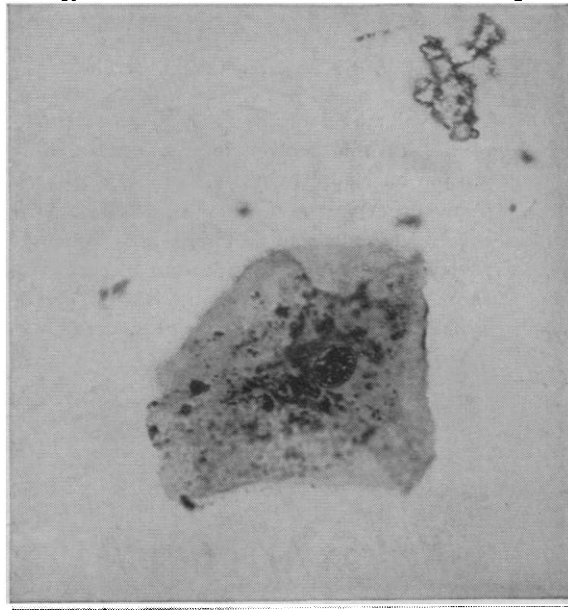
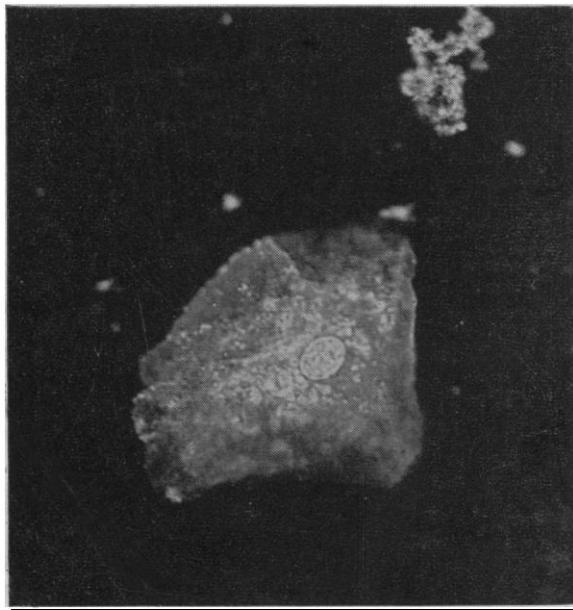
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# *Here's how you can* **MEASURE OPTICAL PATH DIFFERENCE** *with the AO-Baker Interference Microscope*

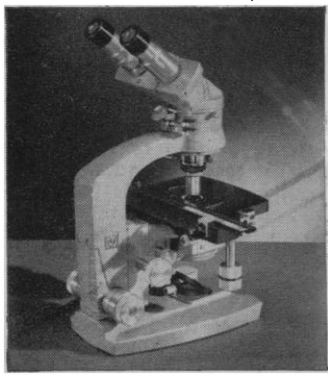


1. First, as shown in the photomicrograph\* above, the microscope analyzer was rotated until the background was brought to extinction. Readings were taken directly from the analyzer scale. Averaged settings resulted in reading of 70.4°.

2. Next, the analyzer was rotated until the nucleus of the cell was brought to extinction. Averaged settings resulted in reading of 138.2°.

3. The Optical Path Difference, in degrees, is *twice* the difference between the two readings:

$$\text{OPD} = 2 (138.2^\circ - 70.4^\circ) = 135.6^\circ, \text{ or } \text{OPD} = \left( \frac{135.6^\circ}{360^\circ} \right) .546 = .2057 \text{ Microns.}$$



Optical path difference measurements can be made to an optimum accuracy of 1/300 wavelength. This unique ability to measure optical path thicknesses is in itself of great importance. But even more important, these measurements can be converted into a variety of quantitative information of great potential value. Water and protein content of a cell, for example, may be measured. Materials such as glass, plastics, emulsions, textiles can be examined.

While the AO-Baker Interference Microscope is primarily a quantitative instrument, it also offers unique advantages for qualitative observations through variable intensity contrast and dramatically effective variable color contrast.

\*Photomicrographs taken by Mr. Lynn C. Wall, Medical Division, Eastman Kodak Co. Data: Epithelial Cell. AO-Baker Interference Microscope, 40X Shearing objective, 10X eyepieces. Corning filter CS4-120 with AO Model 630 Pulsarc Illuminator to transmit monochromatic light at .546 microns.

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Dept. F-4

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