
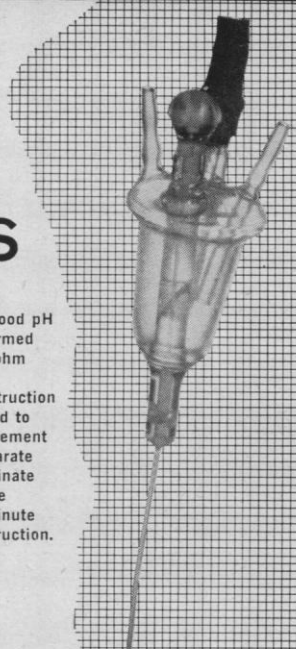


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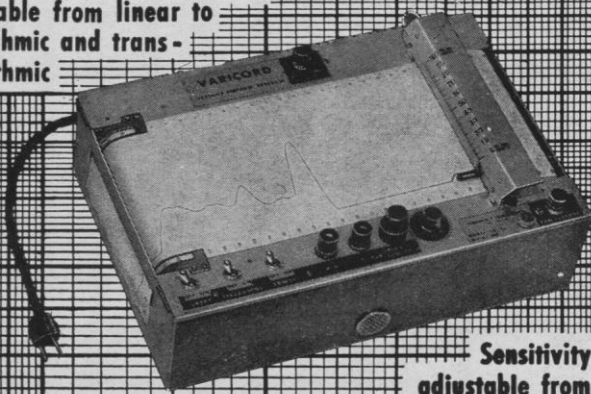
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Age..... ☐ Single ☐ Married ☐ Male ☐ Female

Occupation.....

Location of Car (if different from residence address).....


Is car principally kept and used on a farm or ranch?.....

Yr.	Make	Model (Dlx., etc.)	Cyl.	Body Style	Purchase Date	<input type="checkbox"/> New
					Mo. Yr.	<input type="checkbox"/> Used

1. (a) Days per week car driven to work?..... One way distance is.....miles.
(b) Is car used in any occupation or business? (Excluding to and from work)
☐ Yes ☐ No

2. Additional male drivers under age 25 in household at present time:

Age	Relation	Married or Single	% of Use



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New Products

The information reported here is obtained from manufacturers and from other sources considered to be reliable. Neither Science nor the writer assumes responsibility for the accuracy of the information. All inquiries concerning items listed should be addressed to the manufacturer. Include the department number in your inquiry.

■ **VACUUM SYSTEM** is a mobile unit that will produce vacuum in the range 250 to 0.5 mm-Hg and hold within ± 0.2 mm-Hg in an airtight system. The system uses a mechanical pump with free-air capacity of 58 lit./min. The pump runs continuously, evacuating a ballast tank connected to the rest of the system through a solenoid valve. The latter is controlled by a mercury regulator working through a relay. (Fisher Scientific Co., Dept. Sci292, 717 Forbes St., Pittsburgh 19, Pa.)

■ **LIGHT SOURCE** for high-speed photography is a spark-type point source. The source may be triggered with a 500-volt pulse of 2 μ sec duration. Four models are available with energies at 20 kv of 2 to 20 joules and spark duration from 0.3 to 1 μ sec. Source size ranges from 0.015 to 0.060 in. in diameter. The outer cylindrical case serves as a shield for radio frequencies. (Avco Corp., Dept. Sci334, 201 Lowell St., Wilmington, Mass.)

■ **CATHODE-RAY-TUBE TRANSFER LENS** provides a full-size image at object-to-image distance of 17.6 in. A $4\frac{1}{2}$ -in. diagonal format can be covered. Relative aperture ranges from $f/2$ to $f/22$. The lens is color-corrected over the range 4200 to 5200 Å. A reflecting unit and a motorized adjustment of the lens iris are optional auxiliaries. Full-range operation of the iris by the latter requires less than 10 sec. (Perkin-Elmer Corp., Dept. Sci295, Norwalk, Conn.)

■ **CHROMATOGRAM SCANNER** for tritium, carbon-14, and sulfur-35 counts simultaneously both sides of one or more continuous strips up to 50 ft long. The entire strip is enclosed within the gas-filled scanner housing. Two facing gas-flow detectors accept collimated radiation from both sides of the strip and transmit total activity to a recorder. Ten scanning speeds are selectable. (Atomic Accessories Inc., Dept. Sci341, 244-02 Jamaica Ave., Bellerose 26, N.Y.)

■ **GAUSSMETER** is a direct-reading instrument for measurement of direction and magnitude of magnetic flux. Operation depends on the Hall effect: a thin wafer of high-purity indium arsenide with a temperature coefficient of 0.1 percent is used. The wafer element is

0.019 in. thick and 0.125 in. wide. The active area is a circle 0.0625 in. in diameter. Three ranges cover 0 to 300, 0 to 3000, and 0 to 30,000 gauss. The instrument will read d-c flux in the presence of a strong a-c field. Power supply is a built-in 4.5-volt battery. (F. W. Bell, Inc., Dept. Sci342, 1356 Norton Ave., Columbus 6, Ohio)

■ **MONOCHROMATOR** uses a 15,000-lines-in-plane grating as the dispersing element. Reciprocal dispersion is 70 Å/mm. Slit widths are variable from 0 to 1 mm. Wavelength range is 200 to 1000 $m\mu$. The instrument is reversible and can be mounted with slits vertical or horizontal. (Hilger and Watts, Dept. Sci323, 98 St. Pancras Way, Camden Rd., London N.W. 1, England)

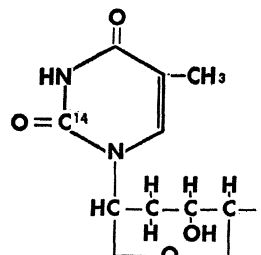
■ **METALLOGRAPH** for microscopic study and photography of radioactive materials is remotely controlled. The instrument is built around the manufacturer's research metallograph and includes a control panel built into a shielding shell and mounting base that accepts whatever shielding material is desired. (Bausch and Lomb Optical Co., Dept. Sci336, Rochester 2, N.Y.)

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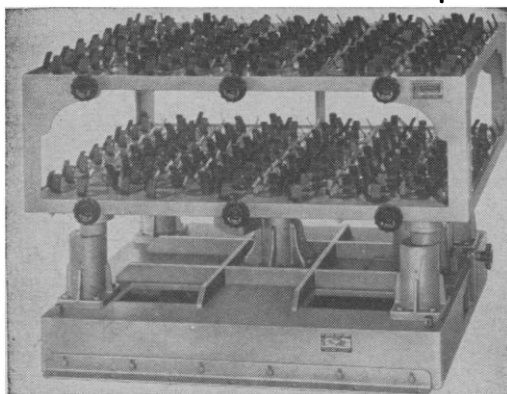
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Electron Microscopist, cytologist Ph.D. Desires staff teaching and research position university medical, zoology, or biology department. Grant support. Publications. Box 18, SCIENCE. 1/29

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Teacher, Ph.D. (biochemistry), 44, male. Nine years of teaching undergraduate and graduate; 8 years of pharmaceutical research. Desires position in college emphasizing quality teaching. AAAS, ACS, Sigma Xi, publications. Available June 1960. Box 21, SCIENCE. X

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Inorganic or Physical Chemist, Ph.D., 0-5 years' experience for exploratory research in fertilizer technology.

Send résumé to Dr. David M. Clark, W. R. Grace & Co., Washington Research Center, Clarksville, Maryland. X

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POSITIONS OPEN

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Box 23, SCIENCE

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Position in Mathematics-Physics for second semester 1 February-30 June 1960. Salary \$4000. Opportunity for retired professor or recent Ph.D. candidate. Complete credentials and personal history must be sent to Chairman, Department of Science and Mathematics, State University College of Education, Plattsburgh, N.Y. 1/29

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Box 24, SCIENCE

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University of Bristol. Applications are invited from qualified candidates of any nationality for **I.C.I. Research Fellowships** in chemistry, biological chemistry, engineering, pharmacology, physics, or related subjects, to which some appointments may be made to date from 1 October 1960, for a period of up to 3 years. The salary will be within the range £700-£1000 per annum. Applications (3 copies) stating age, qualifications and experience, publications, research work in progress, and an outline of the proposed field of research, with the names of two referees, should be received before 1 March 1960, by the Registrar. (Candidates overseas may send one copy only by airmail.) X

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McMaster University, Graduate Scholarships in Biology. Applications are invited for graduate research scholarships from qualified students wishing to work toward the M.Sc. and Ph.D. degrees. The stipend for a 12-month period is from \$1900 to \$2800, including laboratory assistantship. Research in progress: Systematics, ecology, and nutritional physiology of aquatic and bloodsucking Diptera, emphasizing Simuliids; population dynamics of grasshoppers (D. M. Davies). Sensory physiology and behavior in fish; limnological significance and trace elements in lake bottom sediments (H. Kleerekoper). Viruses and virus vectors emphasizing wild plant and crop plant problems; cytology of healthy and diseased tissues employing viruses and radioactive tracers (W. D. MacClement). Comparative physiology of sporulation and growth in Ascomycetes; effect of radiation on cell division in yeast (J. J. Miller). Autoradiography; activation autoradiography; histochemistry and blood chemistry in experimental diabetes; comparative endocrinology and tissue repair (P. F. Nace). Experimental embryology and developmental morphology emphasizing fructifications: palaeobotany-organic terrain (aerial and ground interpretation of muskeg); macro- and microfossil analysis for all horizons, including palaeoecological and palynological approaches (N. W. Radforth).

Prospective applicants should write for further information to Prof. H. Kleerekoper, Chairman, Department of Biology, Hamilton College, McMaster University, Hamilton, Ontario, Canada. Application forms both for scholarships and graduate study are obtainable from the Dean of Graduate Studies and must be returned to him normally by 1 March 1960, accompanied by university transcript and letters of recommendation from two professors. 2/5, 12

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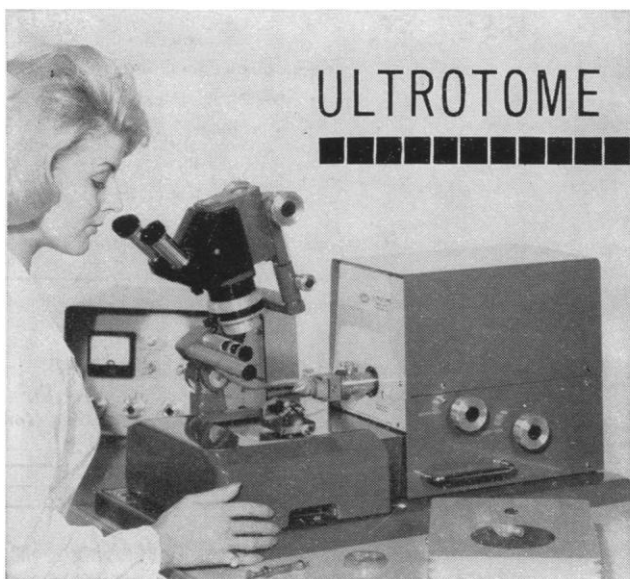
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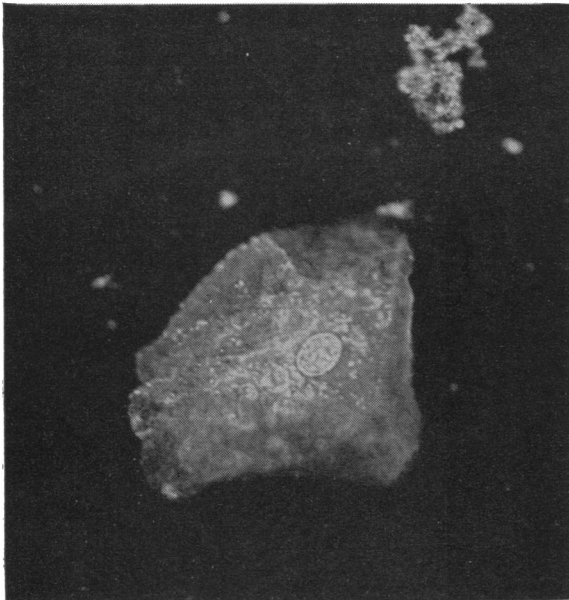
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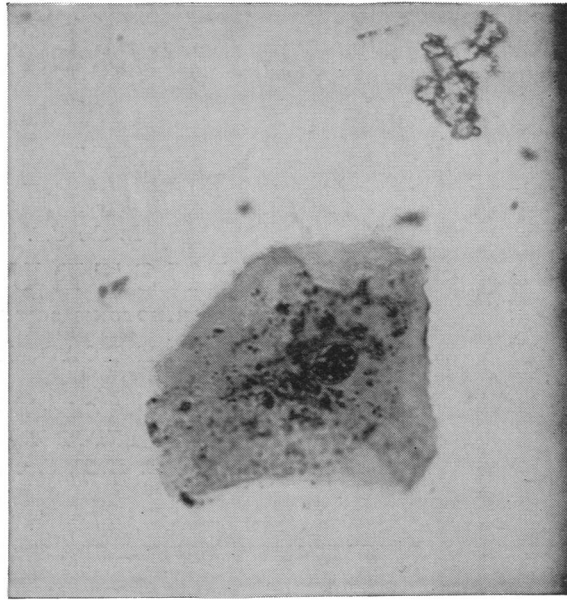
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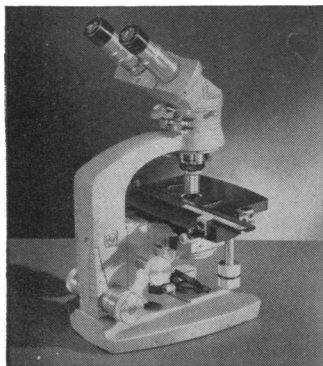
1. First, as shown in the photomicrograph* above, the microscope analyzer was rotated until the background was brought to extinction. Readings were taken directly from the analyzer scale. Averaged settings resulted in reading of 70.4°.



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

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$$OPD = 2 (138.2^\circ - 70.4^\circ) = 135.6^\circ, \text{ or } OPD = \left(\frac{135.6^\circ}{360^\circ} \right) .546 = .206 \text{ Microns.}$$



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.

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