

2-5. American Inst. of Mining, Metallurgical and Petroleum Engineers, fall, Denver, Colo. (E. O. Kirkendall, AIME, 29 W. 39 St., New York 18)

2-6. Water Pollution Control Federation, 33rd annual, Philadelphia, Pa. (WPCF, 4435 Wisconsin Ave., Washington 16)

2-7. American Soc. of Plastic and Reconstructive Surgery, Los Angeles, Calif. (T. R. Broadbent, 508 E. S. Temple, Salt Lake City, Utah)

3-5. Applied Spectroscopy, 7th symp., Ottawa, Canada. (C. R. Langdon, Aluminium Co. of Canada, Ltd., Arvida, Quebec, Canada)

3-5. Communications, 6th natl. symp.,

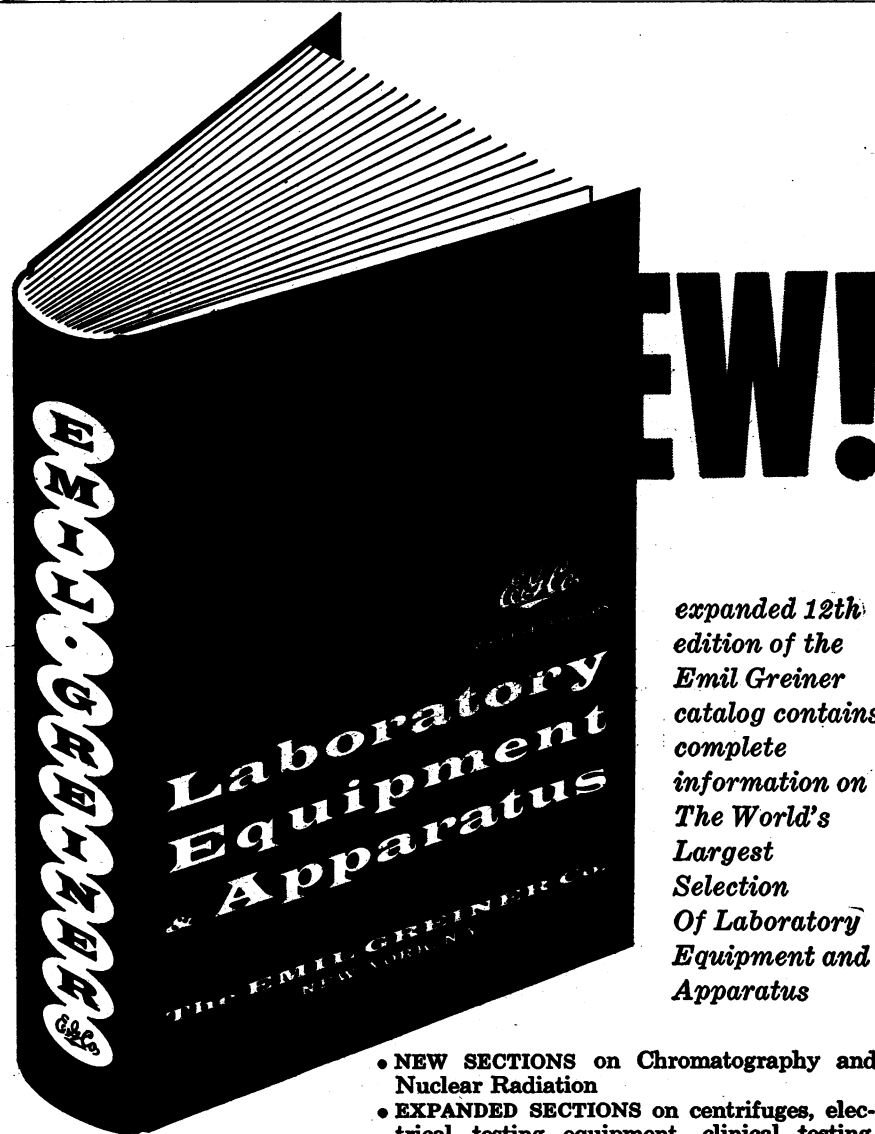
Utica, N.Y. (B. H. Baldrige, Communications Symp., Light Military Electronics Dept., General Electric Co., Utica)

3-5. Nuclear Science, 7th annual, Gatlinburg, Tenn. (H. E. Banta, Oak Ridge National Lab., P.O. Box X, Oak Ridge, Tenn.)

3-7. Atomic Energy, 5th intern. seminar, Wiesbaden, Germany. (Mr. Trebst, Diplom-Volkswirt, Generalsekretär, Internationale Studiengesellschaft e.V., Theodorenstr. 6-8, Wiesbaden)

4-6. Radio Interference Reduction, 6th conf., Chicago, Ill. (S. I. Cohn, Armour Research Foundation, 10 W. 35 St., Chicago)

(See issue of 19 August for comprehensive list.)



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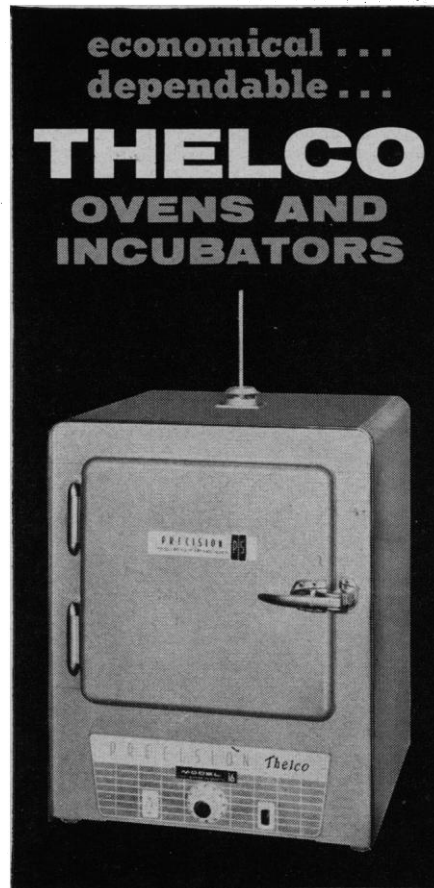
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■ **INTEGRATING AMPLIFIER** for use with chromatographs accepts the output of the chromatograph amplifier and produces an output to the recorder that is displayed as deflection from a base line. When the component has been completely eluted, the recorder trace again runs parallel to the base line. Height of the step measures area under the conventional chromatogram peak. Alternative output systems such as indicating meters or digitizers can also be used. (Jarrell-Ash Co., Dept. Sci711, 26 Farwell Street, Newtonville 60, Mass.)

■ **256 CHANNEL ANALYZER** features pre-selected automatic programing; magnetic tape auxiliary memory; 600 to 2500 volts high-voltage power supply; single-push-button manual operation; and six modes of readout. Desired analyzer cycle of 12 operations, including accumulate, display, complement, print, and selective storage, can be pre-programmed by patchboard. The analyzer automatically performs the specified operations at the touch of a single button. (Radiation Counter Laboratories, Dept. Sci713, 5121 W. Grove, Skokie, Ill.)

■ **POTENTIOMETRIC RECORDER** has been redesigned to increase flexibility and convenience. Among the changes are a constant voltage reference using a Zener diode and eliminating batteries, standard cell and standardizing mechanism; compartmented measuring circuit that interchanges as a unit for range changing; plug-in unit for multipoint recorders that interchanges to change number of points recorded from 2 to 24 points; plug-in amplifier unit. (Minneapolis-Honeywell, Dept. Sci714, Wayne and Windrim Aves., Philadelphia 44, Pa.)

■ **SYNCHRONOUS MOTOR** for slow speeds comprises two identical counter-rotating motors in a housing. One motor is connected to the 60 cy/sec line; the other, to a variable-frequency power supply. If the variable frequency is 60 cy/sec, the output shaft is stationary and opposes rotation with full motor torque. An increase or decrease of the variable frequency causes rotation forward or reverse. Motors can be supplied from 1/50 to 1 hp. (Genisco Inc., Dept. Sci725, 2233 Federal Ave., Los Angeles 64, Calif.)

■ **MAGNETIC TAPE PLOTTING SYSTEM** permits plotting of digital computer results in continuous curve form on an X-Y recorder. The system includes a tape transport, a digital magnetic tape translator, a tape-control unit, amplifiers, and an X-Y recorder. The translator permits continuous plotting up to 4 in./sec of curve generated by a computer interpolating routine at information change rate of 100/sec. Point plotting at 100 points/min speed at 1/2-in. spacing is also provided. Accuracy is said to be better than ± 0.1 percent of full scale. (F. L. Moseley Co., Dept. Sci715, 409 N. Fair Oaks Ave., Pasadena, Calif.)

■ **FREEZE-DRYING SYSTEM** features condensing coils built into the vacuum drying chamber. Samples are frozen and dried in the same vacuum chamber. Forty pounds of product load or up to 1300 10-ml vials can be processed simultaneously. Cabinet is on casters for easy moving. (RePP Industries, Inc., Dept. Sci716, Gardiner, N.Y.)

■ **INTERCHANGEABLE OPTICAL SYSTEM** for the manufacturer's 1R-7 prism-grating infrared spectrophotometer extends the range of the instrument to the 200 to 700 wavemembers region. This extension of range is accomplished by equipping the interchange with a cesium-iodide prism and a 30- μ blaze, 30-line/mm, long-wavelength grating. The prism, grating, associated drive mechanisms, slit-program potentiometer, and frequency readout are mounted together on a casting that duplicates mechanically the original equipment. Replacement requires 2 or 3 minutes. (Beckman Instruments, Inc., Dept. Sci717, 2500 Fullerton Rd., Fullerton, Calif.)

■ **SIGNAL GENERATOR** generates wave shapes necessary for frequency and transient response tests of servo components and systems. These include forcing voltages for the servo and accessory wave shapes for cathode-ray oscilloscope display. Data frequency is covered in the ranges 0.01 to 1 and 0.5 to 30 cy/sec. Carrier frequencies from 60 to 2500 cy/sec are accommodated. (Industrial Control Co., Dept. Sci718, Central Ave. at Pinelawn, Farmingdale, N.Y.)

■ **MONOCHROMATOR** of large aperture, manufactured by Hilger & Watts, Inc., has available a range of interchangeable prism systems that cover the ultraviolet, visible, and infrared regions of the spectrum. The base is designed for use as a table model or for fitting to an accessory bar. Two instruments can be mounted together to function as a double monochromator. (Engis Equip-



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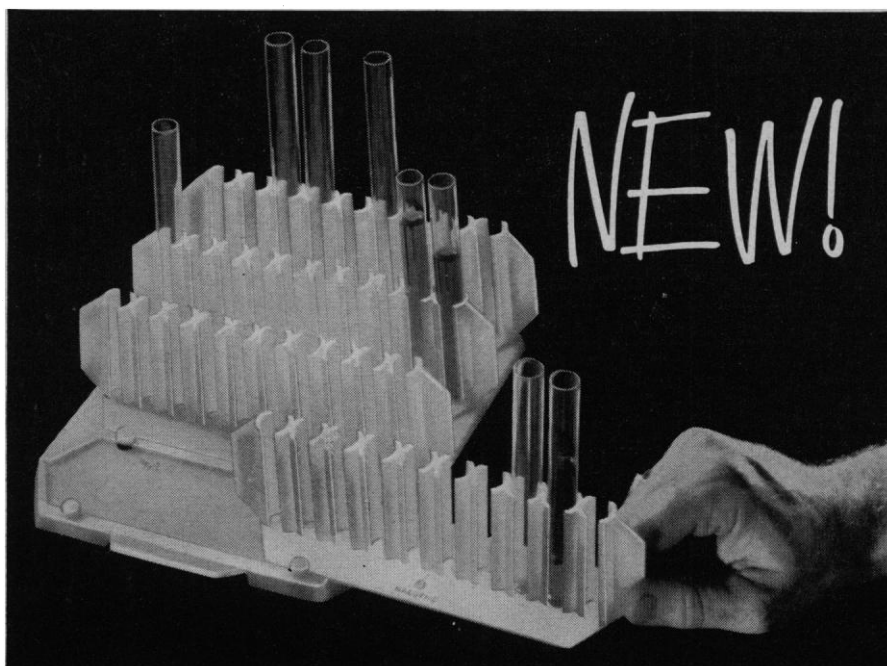
638 West 17th St., Costa Mesa, Calif.

ment Co., Dept. Sci724, 431 S. Dearborn St., Chicago 5, Ill.)

■ **DIGITAL VOLTMETER** converts an unknown input voltage into decimal number indication with accuracy said to be ± 0.5 percent of full scale and full-scale response time 1/24 second. Both digital and quasi-digital indications are obtainable; in the latter the numbers move by the indicator window without framing. Input impedance is one megohm on all of three available ranges: 0 to 2.5, 0 to 25, and 0 to 250 volts. Ranges of 0 to 0.25 and 0 to 2500 volts are also available. Size is 6¾ by 4¾ by 9 in. (Electro-Logic Corp., Dept. Sci726, 515 Boccaccio Ave., Venice, Calif.)

■ **PHOTOGRAPHIC RECORDER** uses 16-mm film to record up to 16 channels of information. From 4 to 32 hours of data can be recorded on 200-ft reels at speeds of 3 to 20 cm/min. The film is automatically developed within the recorder and can be viewed magnified ten times on the instrument's screen within 10 minutes. Date, time, and film number are printed on the film during recording. Trace width is 0.05 mm. With galvanometers, frequency response is d-c to 20 cy/sec or up to 150 cy/sec on special order. With a cathode-ray tube, d-c to 15 kcy/sec can be recorded. (The Geotechnical Corporation, Dept. Sci728, 3401 Shiloh Rd., Garland, Tex.)

■ **SURGICAL SCINTILLATION DETECTOR** consists of a basic detector, a selection of probes with crystals, and a tungsten-alloy collimator shield. The detector housing is 1 in. in diameter by 9¼ in. long. It contains a multiplier phototube and a transistorized preamplifier. Three beta-gamma sensitive needle probes and a manual scanning probe are furnished. The needle probes are: 2 mm in diameter by 10 cm long, 3 mm by 10 cm, and 6 mm by 15 cm. Each consists of a thallium activated cesium iodide crystal and a light pipe. The probes are sensitive only at the ends. An aural ratemeter indicating by change of pitch is available for use with the detector. (Nuclear Chicago Corp., Dept. Sci730, 333 East Howard Ave., Des Plaines, Ill.)



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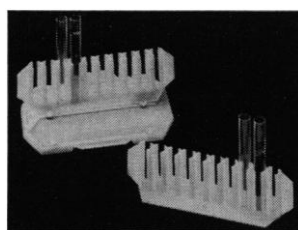
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■ **ARC-RESISTANCE TESTER** provides 15 kv at 60 ma a-c for testing the ability of solid insulating materials to resist the action of an arc according to ASTM specification D-495. Voltage is continuously variable from zero. An electrode assembly, specimen holder, and a jig for sharpening electrodes are included. An interval timer with manual reset measures arc application time to the nearest 0.1 second. (Associated Research Inc., Dept. Sci733, 3727 W. Belmont Ave., Chicago 18, Ill.)

■ **MAGNETIC-TAPE RECORDING SYSTEM** is capable of recording two channels of wide-band information over the frequency spectrum from 10 cy to 4 Mcy/sec with amplitude response flat to ± 3 db, and two auxiliary channels with frequency response 200 cy to 15 kcy/sec. Tape used is 2-in. wide, 1.0 mil, Mylar. A rotating magnetic head that records in a transverse fashion provides a head-to-tape speed of 1,300 in./sec with tape speed of 12.5 to 25 in./sec. Tracks are 0.010 in. wide and 0.015 in. on centers. The recording assembly is maintained at an operating temperature of 60°C to ensure stability of tape dimensions. (Ampex Data Products Co., Dept. Sci736, Box 5000, Redwood City, Calif.)

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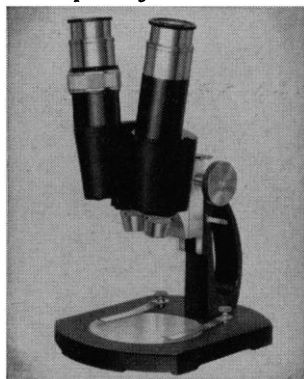
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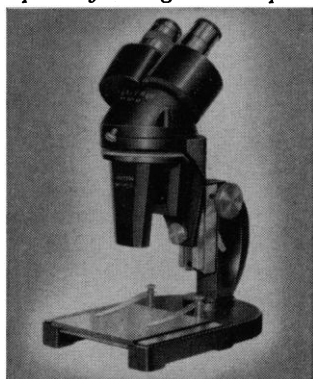
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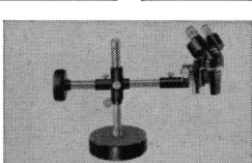
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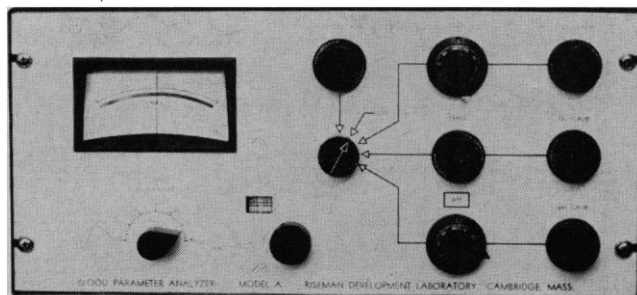
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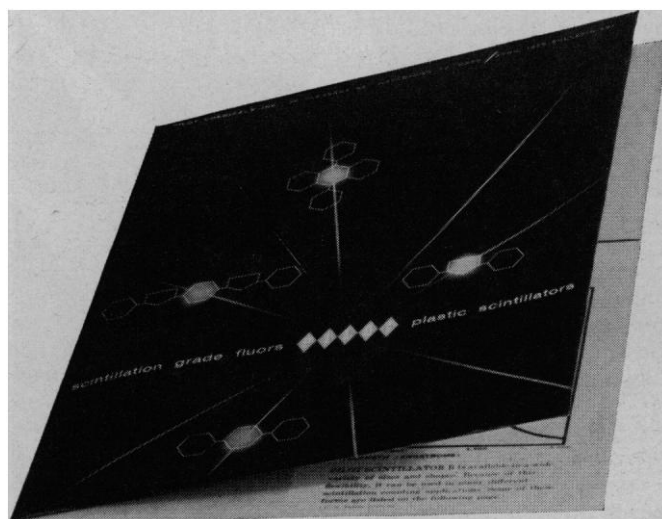
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■ **SYNCHRO TEST FIXTURES** accommodate size-5 to size-19 synchros for testing transformation ratio, phase shift, impedance, input current, and input power. Included are holding clamps, mounting hardware, and clamp wrench. (Angler Industries, Dept. Sci719, 3 Lexington Drive, Metuchen, N.J.)

■ **EXPANDABLE WORK BASE** for tensile-testing machine increases by a factor of approximately three the work area available for setting up tests that require bulky gripping devices and instrument accessories. The work base is portable and is said to be easy to install. (W. C. Dillon & Co., Dept. Sci721, 14620 Keswick St., Van Nuys, Calif.)

■ **PLATINUM RESISTANCE THERMOMETER** is designed for measurements at liquid-hydrogen temperature. Operating range is -435° to -400°F . Accuracy is said to be $\pm 0.1^{\circ}\text{F}$. Resistance at -435°F is 19.8 ohms; resistance change over the operating range is 27.6 ohms. Thermal time constant for measurements of liquid hydrogen is said to be less than 200 μsec . (Transonics, Inc., Dept. Sci723, Burlington, Mass.)

■ **DECIMAL-BINARY SWITCHES** that convert decimal constants to a positional number code are available keyed to various binary code combinations, for example, straight binary, excess 3, 2-4-21, or gray. Selectors are available with eight or ten detented positions. Mounting area is 1.3 in.² Rating is 0.5 amp inclusive, 1 amp resistive at 30 volts d-c. (Minneapolis-Honeywell Regulator Co., Dept. Sci727, Freeport, Ill.)

■ **MICROTOME KNIFE SHARPENER** will accommodate any microtome knife up to and including 185 mm. The sharpening process is automatic, the operator being required to insert the knife into a holder and to apply honing compound to a vibrating glass hone plate. An electric timer is set to stop the operation. Subsequent hand stropping is said to be unnecessary. (American Optical Co., Dept. Sci729, Buffalo 15, N.Y.)

■ **MINIATURE PRINTER** operates at speeds of more than 30 characters per second. The device is 9 $\frac{1}{4}$ in. long and fits into a standard 3-in. instrument case with self-contained paper supply. Output is a 5/16-in. tape. (Potter Instrument Co., Dept. Sci732, Sunnyside Blvd., Plainview, N.Y.)

■ **TEFLON BOTTLES** available in 1-, 2-, and 6-liter sizes are of one-piece, molded construction. Stoppers and pouring spouts are also of Teflon and are fastened by a stainless-steel screw-lock arrangement. (Chemplast Inc., Dept. Sci742, 3 Central Ave., East Newark, N.J.)

■ **HANDLING DEVICE** for very small objects operates on compressed gas at pressures of 1 to 2 lb/in.² Flow of the gas in the pencil-shaped device produces a reduced pressure at the unsharpened end of a standard hypodermic needle of diameter appropriate to the size of particle to be held. To release the held particle, the operator stops an orifice with his finger, thereby creating a higher pressure that repels the particle. (Penfield Manufacturing Co., Dept. Sci734, 19 High School Ave., Meriden, Conn.)

■ **LABORATORY HOMOGENIZER** is said to be capable of processing samples as small as 1 oz with results equal to the quality obtainable with production homogenizers. Up to 8 gal/hr may be processed. All contact parts are 18-8 stainless steel. Thermostatically controlled heater is an optional accessory. (C. W. Logeman Co., Dept. Sci740, 633 Bergen St., Brooklyn, N.Y.)

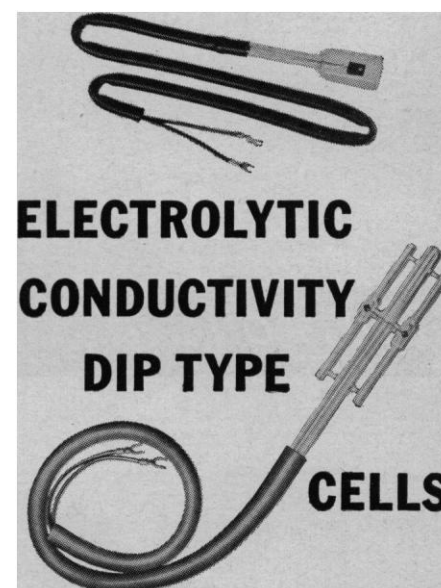
■ **EVAPORATOR UNIT** for concentration of radioactive samples is said to incorporate a technique that inhibits deposition of material on any but the collector surface. Liquid capacity is 1000 ml. Two to three hours are required to concentrate 90 percent of all radioactive materials on a 2-in. planchet, with area of deposition variable between $\frac{1}{2}$ and 2 in. Heating unit is self-contained. (Nuclear Corporation of America, Dept. Sci743, Denville, N.J.)

■ **HIGH-VACUUM STOPCOCK** with Teflon plug uses O-rings to provide vacuum seals. The seals are designed to prevent leaks from one side arm to the other as well as at each end of the borosilicate glass barrel. Single or double oblique bores are available. (Scientific Glass Apparatus Co., Dept. Sci744, Bloomfield, N.J.)

■ **BALANCE** available in capacities of 1000, 2000, and 4000 gm, is said to indicate correctly in spite of off-level conditions. No addition of weights is required within the range of indication. Removal of a substitution weight extends the range. The balance is magnetically damped. (August Sauter of New York, Inc., Dept. Sci746, 866 Willis Ave., Albertson, N.Y.)

■ **DEAD-WEIGHT GAGE** is operated with water. Weights are supported on a tube, the upper end of which is supported by a platform operated by the piston. A mechanical stop prevents disengagement. Accuracy of $\pm 1/20$ percent is said to be standard and $\pm 1/30$ to be obtainable by selection. Construction material is 416 stainless steel. (Mansfield and Green, Inc., Dept. Sci763, 1051 Power Avenue, Cleveland 14, Ohio)

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■ **VAPOR DETECTOR** for acetone, alcohol, and hydrocarbons is said to detect concentrations in the parts-per-billion range. The detector utilizes the flame ionization principle, measuring electron concentrations resulting from the introduction of the vapor into a pure hydrogen flame. Response is said to be linear up to concentrations of 2 percent. The instrument is portable, operating from self-contained batteries. (Carad Corp., Dept. Sci735, Redwood City, Calif.)

■ **PNEUMATIC SIGNAL CONVERTER** receives any standard square-root or other pneumatic signal in the range 3 to 15 lb/in.² gage, and uses this signal to position a cam. A pneumatic tracing

device senses the profile of the cam and, through a relay, transmits a converted pneumatic signal corresponding to the cam. Sensitivity is said to be better than 0.2 percent, accuracy ± 1 percent of full scale or better, and speed of response less than 0.5 second for full scale. (Brooks Rotameter Co., Dept. Sci739, P.O. Box 432, Lansdale, Pa.)

■ **LOADING REACTOR** is designed to provide a convenient inductive load that can be made adjustable by using it with a gapped, strip-wound, toroid-core wire wound and embedded in epoxy compound. Ratings are: 120 volts, 60 cy/sec, 2 amp continuous, 3 amp intermittent, inductive reactance 60 ohms,

resistance 4 ohms, inductance, 0.16 hy. (Superior Electric Co., Dept. Sci737, 83 Laurel St., Bristol, Conn.)

■ **TEMPERATURE CONTROLLER** uses a servo null-balance system to indicate controlled temperature on a 10-in. scale. Time-proportioning or on-off control, with or without anticipation, is available. Control stability of the proportioning model with anticipation is said to be $\pm 0.1^\circ\text{F}$ and indication accuracy ± 0.5 percent of full scale. Alarm contacts can be included. (Electronic Processes Corp. of California, Dept. Sci748, 436 Bryant St., San Francisco, Calif.)

■ **SWITCH CIRCUIT ASSEMBLY** for application to digital systems produces a single square-wave output pulse, synchronized with an external clock pulse, in response to each operation of the push button. Clock pulse frequency can be 4 to 500 kcy/sec. The transistor electronic circuit used is an integral part of the switch with all components sealed in a resilient potting material. (Minneapolis-Honeywell Regulator Co., Dept. Sci749, Freeport, Ill.)

■ **TELEMETRY DISCRIMINATOR** uses the phase-lock technique to obtain good selectivity on each of 23 standard telemetry channels. Sensitivity is 10 mv r.m.s. to 14.5 Kcy/sec and 70 mv r.m.s. at 70 Kcy/sec. Stability is said to be ± 0.5 percent of bandwidth and linearity 0.1 percent. Output is ± 90 volts at ± 25 ma. Trimming potentiometers on the front panel are used to adjust frequency range of each channel. Controls include output gain, output zero, and bandwidth. (Hallamore Electronics Co., Dept. Sci758, 714 N. Brookhurst St., Anaheim, Calif.)

■ **DIFFERENTIAL AMPLIFIER** features input resistance greater than 500 megohms, voltage gain from 2 to 50, and linearity ± 0.05 percent. A mechanical chopper and silicon-transistor carrier amplifier are used. Output voltage range is ± 5 volts. Power consumption is 140 ma at 28 volts unregulated. (Dynamics Instrumentation Co., Dept. Sci759, 583 Monterey Pass Rd., Monterey, Calif.)

■ **PHOTOCONDUCTIVE CELLS** have power rating of 0.5 watt when used with heat sink and 0.25 watt without heat sink. The type 504 is a cadmium selenide cell with relatively high speed of response; the type 505 is a cadmium sulfide cell. Nominal resistances at a color temperature of 2870 and 2 ft-ca are 1500 and 5000 ohms, respectively. Peak spectral responses are 5500 and 6900 respectively. Dimensions are $\frac{1}{2}$ in. in diameter by $\frac{1}{2}$ in. long. (Clairex Corp., Dept. Sci761, 19 W. 26 St., New York, N.Y.)



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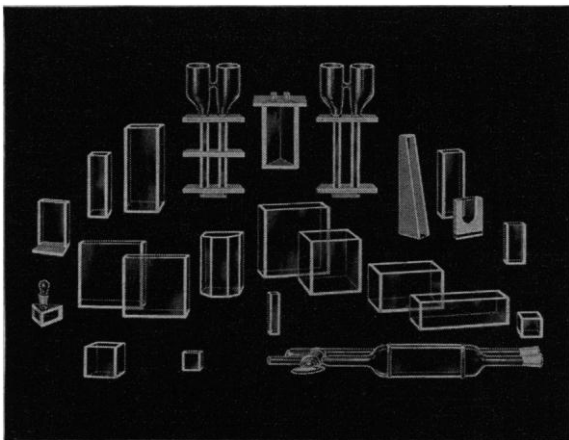


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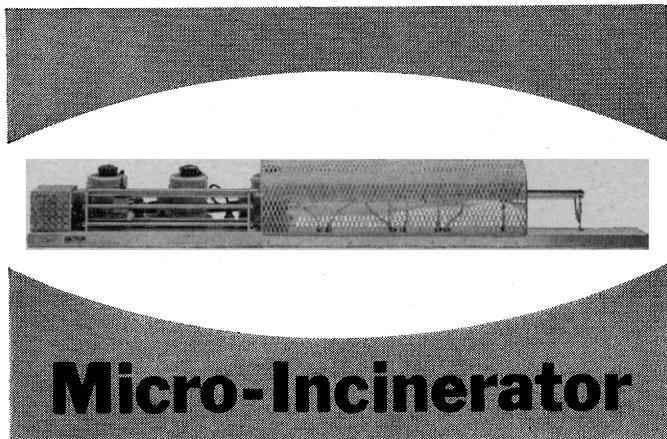


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This apparatus is used to reduce tissue sections to ash without disturbing the exact topographical arrangement of the residue. Micro-Incineration gives information as to the location and amount of the total minerals in cells and tissues which has been lacking in other histochemical procedures. Reference—American Journal of Anatomy, Vol. 53, 1933, page 243.

CAT. No. 9-96

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IDENTIFICATION of CHROMATOGRAMS
As we are planning an extensive line
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The following aerosols are already available to
help you identify spots on your paper chromatograms:

Stock No.	Type Pkg.	Name	Application
NIN-3	8 oz. can	NINHYDRIN	α-amino acids & amines
ISA-2	8 oz. can	ISATIN	Proline, Phenylalanine derivatives, & Sulfur-amino acids
BCG-04	8 oz. can	BROM CRESOL GREEN	Acidic & Alkaline compounds
TTZ-1	6 oz. bot.	TRIPHENYL TETRAZOLIUM	Steroids containing reducing groups
ADA-2	6 oz. bot.	ANILINE DEPHENYLAMINE	Carbohydrates
PRO	8 oz. can	PROTECTIVE LACQUER	Chromatogram paper & misc. labels

To preserve chromatograms sprayed with NINHYDRIN, Zweig recommends treatment with the following (ref. Zweig, G., Anal. Chem. 28, 428, 1956):

NFX	6 oz. bot.	NINHYDRIN FIXER	For Ninhydrin
NTL	6 oz. bot.	NINHYDRIN NEUTRALIZER	Chromatogram
PRO	8 oz. can	PROTECTIVE LACQUER	Preservation

Prices:

Carton of 3 aerosols of 1 item	\$ 7.50 P.P. prepaid
Carton of 6 aerosols of 1 item	\$14.50 P.P. prepaid
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Carton of 3 aerosols, one each NFX, NTL and PRO	\$ 7.50 P.P. prepaid

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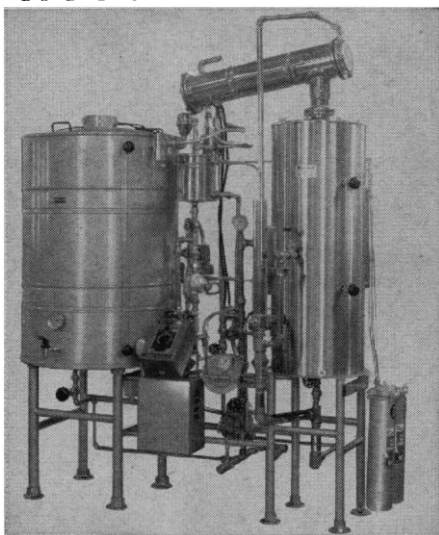


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■ SCHERING BRIDGE manufactured by Hartmann and Braun in Germany measures dielectric loss factor and capacitance of grounded or ungrounded test objects at high and low voltage and dielectric constant of solid and liquid insulating materials. The test object is compared with a loss-free standard capacitor by means of an a-c bridge. Measuring range for capacitance is 3 pf to 10 μ f and for loss factor 2×10^{-5} to 1.111. Loss-free compressed-gas reference capacitors are supplied. (Epic Inc., Dept. Sci738, 150 Nassau St., New York 35, N.Y.)

■ AUTOMATIC SAMPLE CHANGER is designed to handle up to 200 samples for radioactivity measurements. Models are available for gas-flow or scintillation counting or for both. A feature of the instrument in an automatic reverting circuit that avoids excessive time for counting low activities. Samples of normal activity are timed for full preset count; low-count samples are timed for a small fraction of the preset count and this reversion is recorded and identified on the output tape. (Technical Associates, Dept. Sci741, 140 W. Providencia Ave., Burbank, Calif.)

■ REFERENCE RADIOGRAPHS for inspection of aluminum and magnesium castings include 13 covering discontinuities in aluminum alloy castings and 12 for magnesium alloy castings. Each radiograph illustrates eight grades of severity for a particular discontinuity. Illustrated are gas holes, segregation, microshrinkage (both sponge and feather), and foreign matter. Each standard is held in an 8½ by 11 in. cardboard frame. (American Society for Testing Materials, Dept. Sci747, 1916 Race St., Philadelphia 3, Pa.)

■ TEMPERATURE INDICATING LABELS provide a change from pastel to black to give an irreversible record of exposure to heat. The labels are available in 50°F steps. From 100° to 500°F they are offered in plastic casing and from 500° to 1100°F on stainless-steel foil. Both types are self-adhesive and are said to adhere until intentionally removed. (Pyrodyne, Inc., Dept. Sci751, c/o William Wahl Corp., 11973 San Vincente Blvd., Los Angeles 49, Calif.)

■ RELAY TESTER measures pull-in and drop-out voltage and current simultaneously. Coil voltage is continuously variable. Automatic driving circuitry provides three repetition rates. Contact resistance and coil resistance are measured by a built-in ohmmeter. Connections are provided for oscilloscope display. (Anaheim Electronics Division of Electronic Engineering Co., Dept. Sci755, 1601 Chestnut Ave., Santa Ana, Calif.)

■ INFRARED SPECTROPHOTOMETER uses a prism-grating monochromator and a ratio recording system in a two-frequency, dual-beam system with beam chopping ahead of the sample. Cell space is over 10 in. long. Manufacturer's specifications include the following: wave-member accuracy $\pm 0.5 \text{ cm}^{-1}$; wave-member reproducibility $\pm 0.1 \text{ cm}^{-1}$; photometric accuracy ± 0.1 percent; resolution 0.3 cm^{-1} or better. Range is 4000 to 450 cm^{-1} by use of KBr prism and windows. Photometric scales of 0 to 1, 0.5 to 1.5 absorbance, and 0 to 100 percent transmittance are provided, as well as a compound scale and expanded scales. Spectra from 18 in. to 150 ft in full-span length are recorded without gaps at order-change points. (Applied Physics Corp., Dept. Sci765, 2724 S. Pack Rd., Monrovia, Calif.)

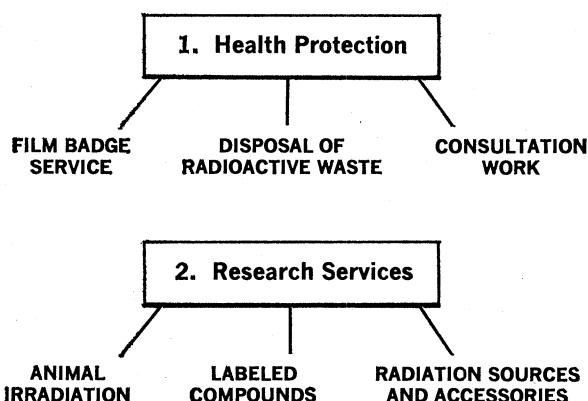
■ CAPACITANCE INDICATOR uses a crystal-controlled oscillator to furnish 1.6 Mcy/sec excitation to two matched, tuned circuits. One, the measuring circuit, contains the capacitance being measured; the other is a reference circuit. Ranges are 0 to 200 pf on narrow-span setting and 0 to 2800 pf on wide span. Corresponding sensitivities are 0.01 and 0.19 pf, respectively. Calibrated accuracy is said to be ± 2.0 percent. A ± 10 -volt variation of input voltage produces a $\pm 50^\circ\text{F} \pm 10$ percent zero shift. The instrument is portable, measuring 11 by 12 by 6 in. and weighing 19 lb. (Foxboro Co., Dept. Sci764, Foxboro, Mass.)

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Microbiologist. Ph.D. (in Turkey), 4 years' experience with fermentation microbiology; 2 years' experience with microbiological methods in biochemistry field (postdoctoral fellowship in America); available for research technician anywhere; married, 3 children. Box 171, SCIENCE. X

(a) **Physiology**, recent Ph.D., human anatomy, zoology minors; prefers research in respiratory-metabolic physiology or teaching position. (b) **Entomology** Ph.D., parasitology minor; one year medical student; available for academic or commercial appointment. S8-4 Medical Bureau, Inc., Science Division, Burnside Larson, President, 900 North Michigan Avenue, Chicago.

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B.S. or M.S. Industrial Toxicology Laboratory. Perform and supervise performance of acute and chronic oral toxicity tests and reproduction studies. Previous experience in this area desirable. Experience in general handling and experimental use of small animals necessary. Ability to perform routine statistical analysis of data necessary. Salary commensurate with training and experience. Please address replies to Mr. Charles R. Young,

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B.S. in chemistry or biochemistry. Some experience in Biochemistry, with a knowledge of enzymes and physiology, or M.S. in biochemistry. Send résumé to

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Opportunity available for young physician in physical service department of medical division. Should have ability and interest in medical writing. Clinical or laboratory experience desirable. Please send résumé to **Technical Employment Coordinator, Upjohn Company, Kalamazoo, Michigan**

(a) **Pharmacologist**; young M.D., Ph.D. trained in neurophysiology or neuropharmacology; assistant professorial caliber; must be capable in independent investigation; staff appointment, new university medical school; to \$10,000; South. (b) **Bacteriologist** and (c) **Biochemist**; M.S. or equivalent training; experienced administrative, technical aspects of respective departments to take charge; participate in teaching in approved medical technology school; approved 250-bed general hospital; Chicago suburban location. (d) **Pharmacologist**; Ph.D. for southeastern research laboratories; responsibilities in toxicology, bio-research, pharmaceutical agriculture; to \$9500. (e) **Organic Chemist**; excellent opportunity for young Ph.D. to head newly established branch; develop basic research program in field of poly-amino acids; superb facilities; government laboratory affiliated prominent university in Mid-South; teaching appointment if desired; substantial salary. Science Division, Woodward Medical Bureau, Ann Woodward, Director, 185 North Wabash, Chicago. X

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► MICROBIOLOGIST

Ph.D. in Microbiology; experience in screening of compounds with antibacterial, anti-fungal, and anti-protozoal activity including "in-vivo" techniques.

► DAIRY TECHNOLOGIST

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TISSUE CULTURE—Desire Ph.D. with five to ten years experience, preferably at supervisory level in field of cell metabolism. (Location—Phila., Pa.)

RESEARCH MICROBIOLOGIST OR BIOCHEMIST, Ph.D.—Will work on all aspects of vaccine investigation. Should have some experience with various vaccines. (Location—Swiftwater, Pa.)

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No cash discount

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Frequency rate will apply only to repeat of same ad. No copy changes.

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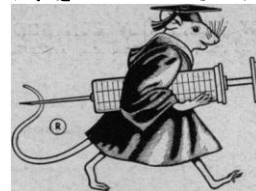
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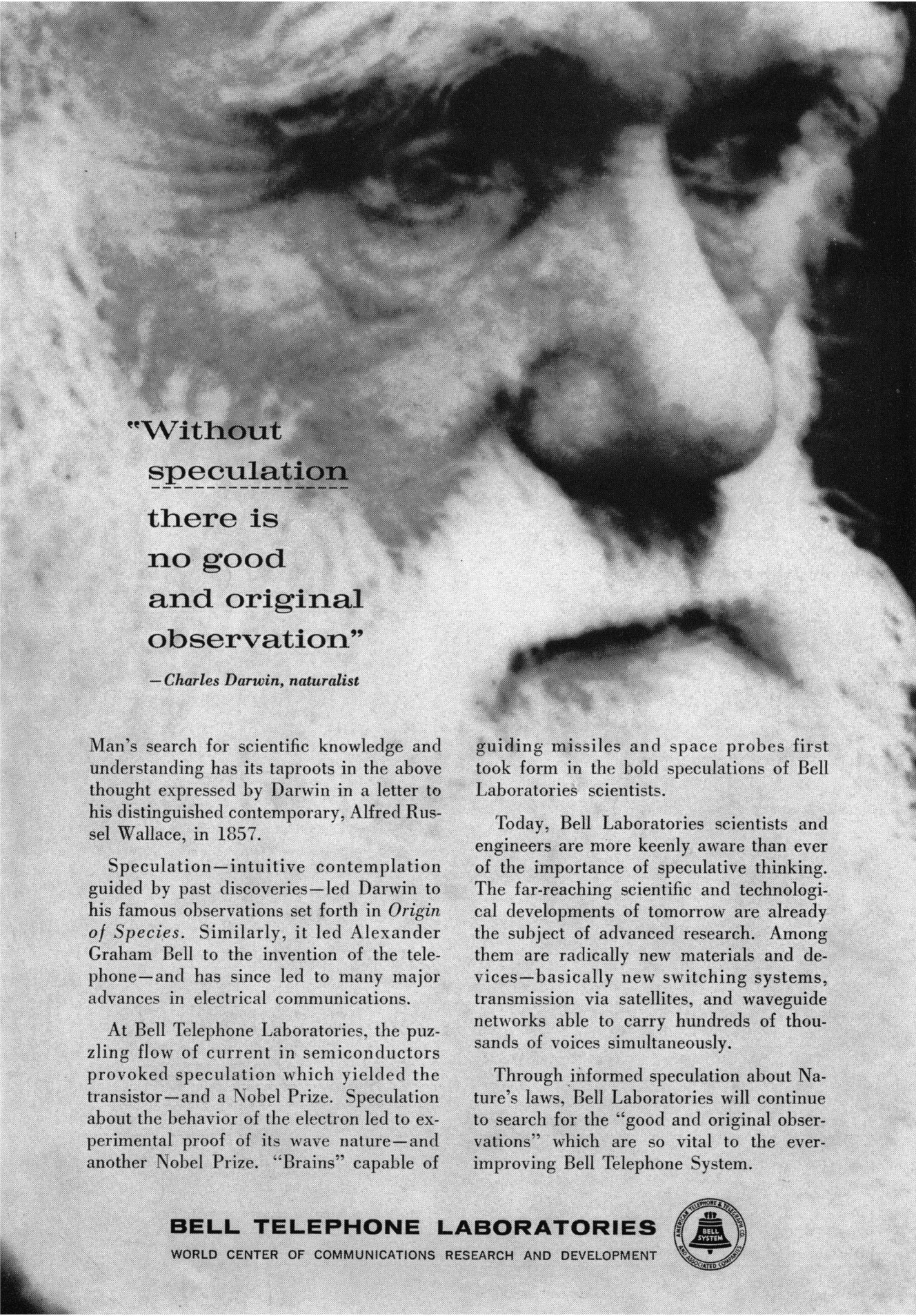


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**"Without
speculation
there is
no good
and original
observation"**

—Charles Darwin, naturalist

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Speculation—intuitive contemplation guided by past discoveries—led Darwin to his famous observations set forth in *Origin of Species*. Similarly, it led Alexander Graham Bell to the invention of the telephone—and has since led to many major advances in electrical communications.

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Today, Bell Laboratories scientists and engineers are more keenly aware than ever of the importance of speculative thinking. The far-reaching scientific and technological developments of tomorrow are already the subject of advanced research. Among them are radically new materials and devices—basically new switching systems, transmission via satellites, and waveguide networks able to carry hundreds of thousands of voices simultaneously.

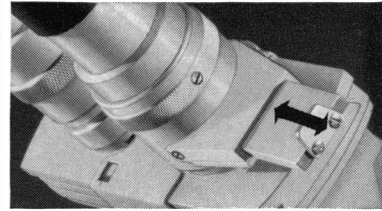
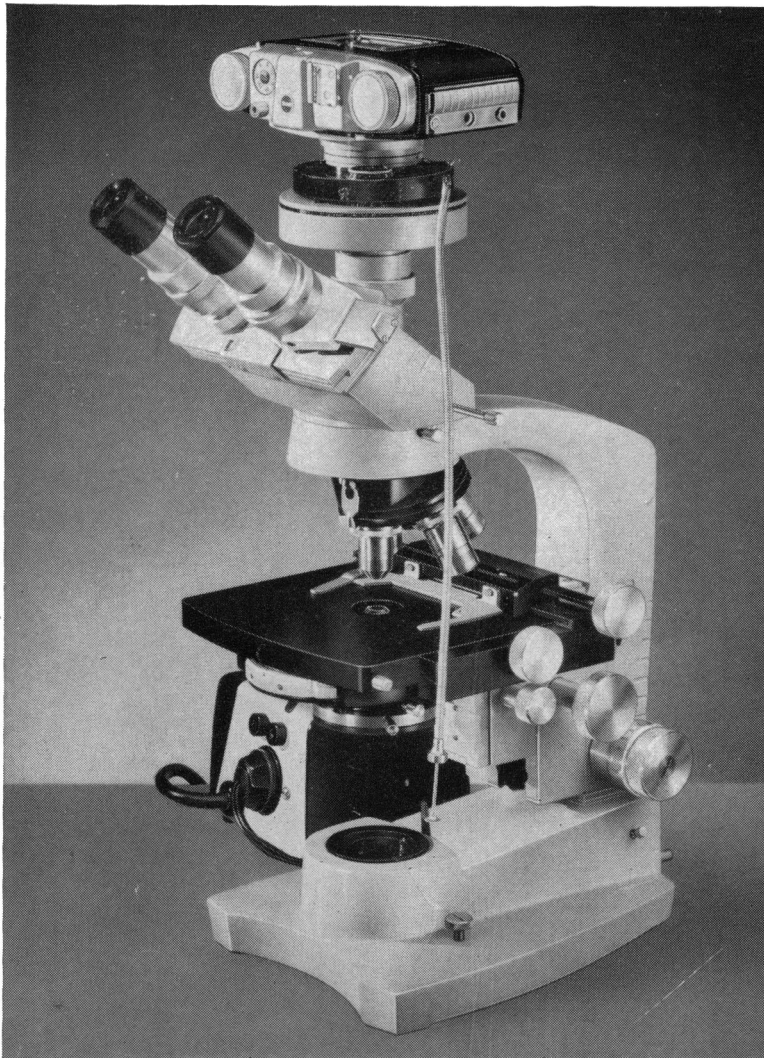
Through informed speculation about Nature's laws, Bell Laboratories will continue to search for the "good and original observations" which are so vital to the ever-improving Bell Telephone System.

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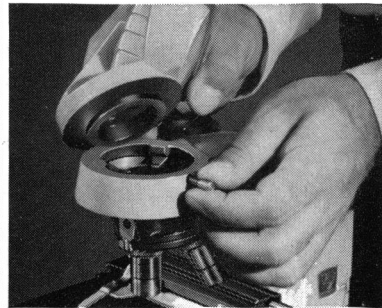
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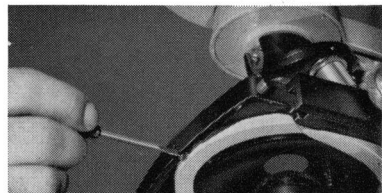
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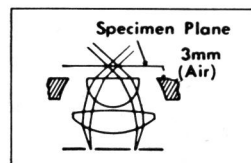
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