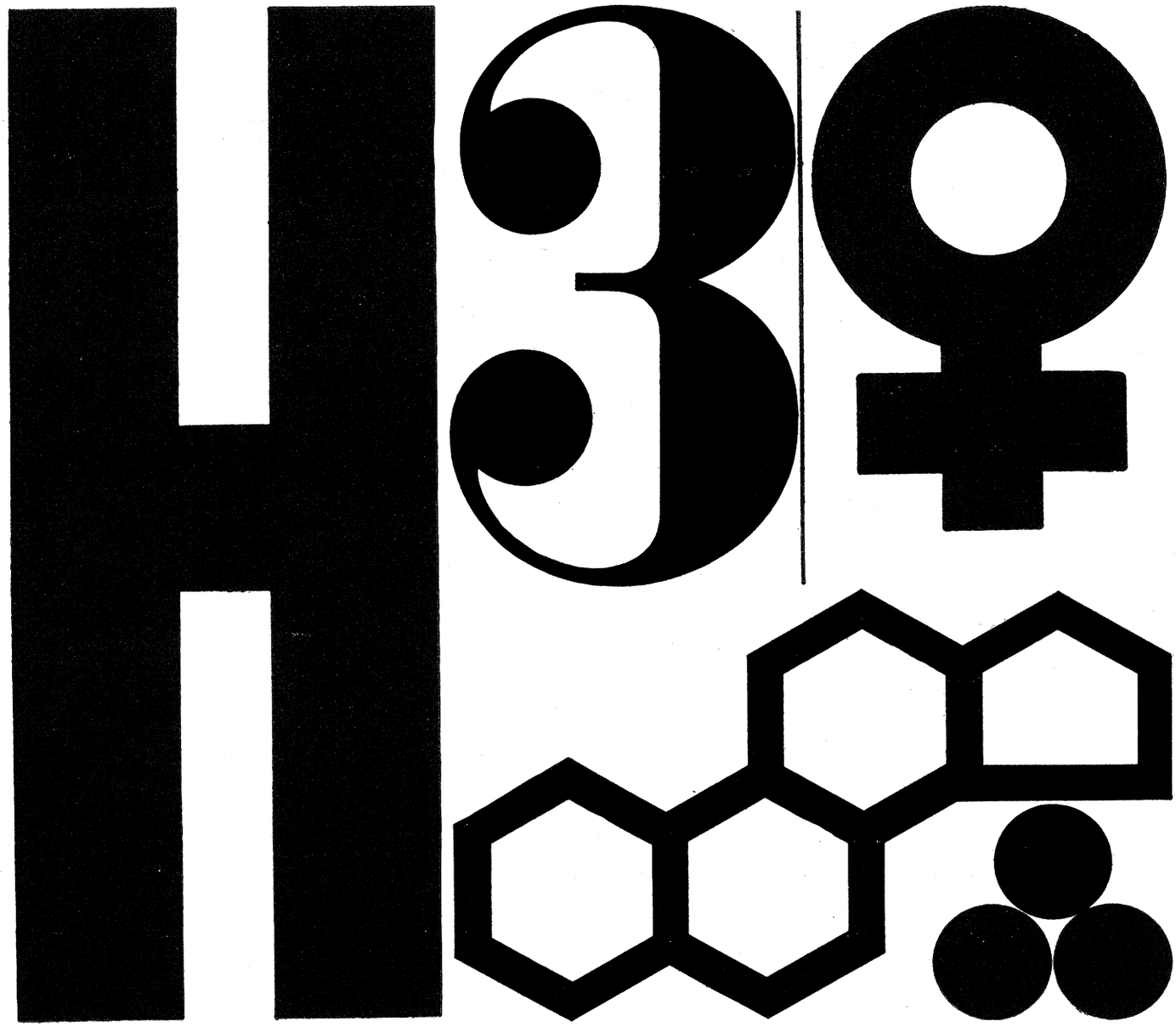
specifically labeled steroids of high specific activity



tritiated estrogens

17-β-Estradiol-6,7-H^3 (180 mc/mg)
Estrone-6,7-H^3 (110 mc/mg)
Hexestrol-2,3,4,5,7-H^3 (420 mc/mg)

The first three of a series of specifically labeled tritiated steroids and related compounds, prepared and standardized in our own laboratories. Radiochemical purity 98%. Specific activity levels higher than any previously available. Hexestrol, as one of the newest estrogens, may be of special value in exploratory studies in tissue tenderizing and animal feeds—and its unique high specific activity should be of interest to those doing basic metabolic research. Packaged in vials of 250 μc, 500 μc, 1 mc and 5 mc in benzene solution, sealed under nitrogen. Write for complete information on these and other labeled steroids in which you may be interested.

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BIOCHEMICALS • RADIOCHEMICALS • PHARMACEUTICALS for research, for medicine, for industry

200

New Products

Interchangeable tissue grinder is said to be a precision instrument designed for macerating tissue. Rod and barrel are interchangeable. The rod is ground in its entire length, and it can be reversed for double life. Rod fits a standard Ace Flex Grip Chuck, forming a flexible coupling to the motor drive when mechanical operation of the tissue grinder is desired. Barrel clearance of 0.005 to 0.008 inch meets G.S.A. specifications.—R.L.B. (Ace Glass Inc., Vineland, N.J.)

(Circle 1 on Readers' Service card)

Colorimeters featuring electronic regulation or battery operation have been added to the Spectronic 20 line, and improvements have been made in the standard instrument. The electronic regulation provides gas-tube voltage regulation for the electronics and the measuring phototube. A second phototube monitors the light output of the source and regulates it through a feedback amplifier system that uses the regulator tube voltage as a reference. Variations in light intensity are amplified and fed back through power transistors to vary the loading of a control winding on the lamp transformer. A series resistor in the primary makes the primary voltage responsive to the control loading, but acts independent of line frequency so that the system is not sensitive to line frequency or its variations. The heaters for the measuring amplifier are also controlled by the same system to further improve stability. As no regulation is necessary in the battery-operated model, it is available at a lower price. Minor improvements in the standard model are provided to improve performance and convenience of operation.—R.L.B. (Bausch and Lomb, Inc., Rochester 2, N.Y.)

(Circle 2 on Readers' Service card)

Magnetoresistance voltage regulator is designed specifically as a supply source for a tunnel diode. Output voltage is kept constant by an indium antimonide semiconductor whose resistance varies in proportion to the strength of an applied magnetic field. An increase in input produces a stronger field in an electromagnet thereby increasing the resistance of the semiconductor. The regulator is said to maintain a 0.15-volt output within ± 5 percent at 0.1 amp even when load resistance changes 50 percent and input voltage simultaneously changes 10 percent. Input voltage is normally 1.5 v. More precise regulation is said to be achieved at higher output voltage.—J.S. (Battelle Memorial Institute, Columbus 1, Ohio)

(Circle 3 on Readers' Service card)

Biological freezer (model BF-3) provides precise control of the rate at which a biological specimen is cooled—in the range of 0.5° to 19.0°C per minute. With liquid nitrogen as the refrigerant, the freezer features a temperature sensing system which regulates the cooling rate of the biological specimen rather than the temperature of the circulating medium. A simple plug-in connection to a temperature recorder assures constant monitoring of the cooling rate. This freezer consists of two separate components—a temperature control unit which houses all the external circuitry and a freezing chamber in which cold nitrogen vapor circulates (see Fig. 1). The freezing chamber has a 110-in.^{3} volume capacity and holds up to 40, 1.2-ml glass ampules. Specimen containers are not limited to ampules since the unit has been designed to permit easy replacement of the sample rack. In operation, the liquid nitrogen refrigerant is injected into the freezing chamber through a solenoid valve where it vaporizes. The nitrogen vapor is continuously circulated in the freezing chamber by a blower and is ultimately vented to the surrounding atmosphere. Control of the cooling rate is accomplished by maintenance of a constant temperature differential between the sample and the circulating nitrogen vapor. Changes which occur in the thermal characteristics of a sample during the freezing cycle are compensated for by adjusting the controller. In this way, a uniform cooling rate can be consistently obtained.—R.L.B. (Linde Co., 270 Park Ave., New York 17)

(Circle 4 on Readers' Service card)

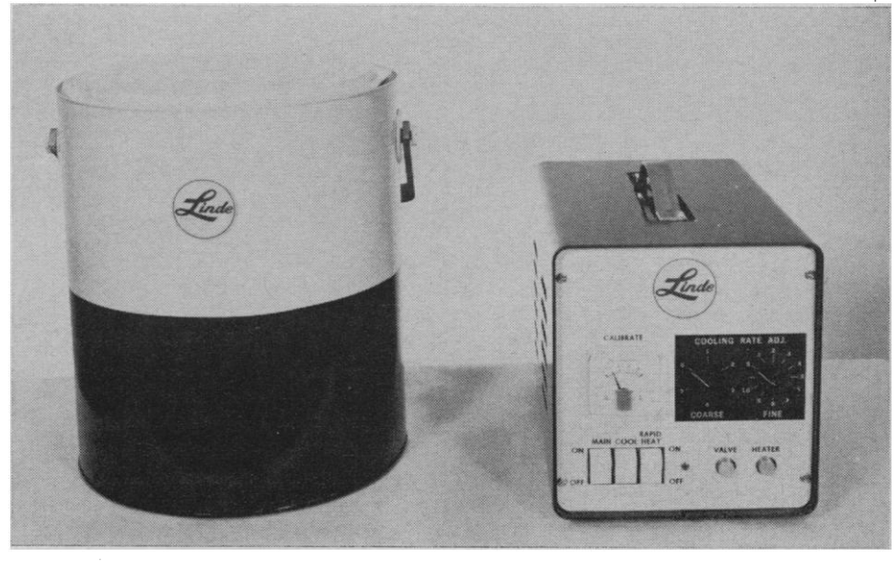


Fig. 1. Biological freezer consisting of a freezing chamber (left) and a temperature control unit (right).

The material in this section is prepared by the following contributing writers:

Robert L. Bowman (R.L.B.), Laboratory of Technical Development, National Heart Institute, Bethesda 14, Md. (medical electronics and biomedical laboratory equipment).

Joshua Stern (J.S.), Basic Instrumentation Section, National Bureau of Standards, Washington 25, D.C. (physics, computing, electronics, and nuclear equipment).

The information reported here is obtained from manufacturers and from other sources considered to be reliable. Neither *Science* nor the writers assume responsibility for the accuracy of the information. A Readers' Service card for use in mailing inquiries concerning the items listed is included on page 95. Circle the department number of the items in which you are interested on this card.

Quartz prism monochromator features a compact design that allows the instrument to be inserted into an optical system as conveniently as one would insert a filter. The entrance and exit windows are opposite one another on a projection of the housing so that only about 1½ inches of optical path is required. Slit illumination and collimation of exit light is provided by means of quartz lenses that can be furnished in focusing or fixed mounts. The optical system consists of a modified Littrow mounting of a high ultraviolet-transmission fused silica prism and Pyrex mirrors coated with a high ultraviolet-reflecting coating; entrance and exit slits are operated in unison. The effective aperture is $f/7.6$; wavelength range is 220 to 700 mμ; wavelength scale is linear divided into 10-mμ divisions that can be easily estimated to 1 mμ; slit adjustment is 0 to 2 mm calibrated to 0.1 mm. Bandwidth for any slit setting increases toward the red as is usual in prism instruments, but there are no overlapping orders to be eliminated as in grating instruments. The instrument housing is 7½ inches long, 1½ inches thick, and 2¼ inches wide exclusive of projecting wavelength and slit knobs.—R.L.B. (Schoeffel Instrument Co., 355 Hillsdale Ave., Hillsdale, N.J.)

(Circle 5 on Readers' Service card)

Electric-arc button furnace is powered by a d-c electric welder. With a 300- to 400-amp welder, it is said to melt alloys up to approximately 3500°F. Melting time for most high-temperature alloys is said to be on the order of 50 to 60 seconds. The melt is made in a water-cooled copper crucible that may be tilted to drop out the sample after it has cooled. Anodes of carbon or tungsten are provided, and an inert atmosphere or vacuum may be used.—J.S. (Pitchford Scientific Instruments Corp., 501 Castle Channon Blvd., Pittsburgh 34, Pa.)

(Circle 6 on Readers' Service card)

The model HR-97 **x-y plotter** (11 by 17 inches) is an accurate, reliable, and inexpensive recorder. Housed in a bench case, it offers vacuum paper hold-down, Zener references, 15-in./sec pen speed for both axes, and over 600-in./sec^2 acceleration. Each axis is independent of the other with amplifiers that are interchangeable and contain independent power supplies. Maximum sensitivity of 1 mv/in. can be readjusted with a continuously variable attenuator for exact and known full-scale calibration.

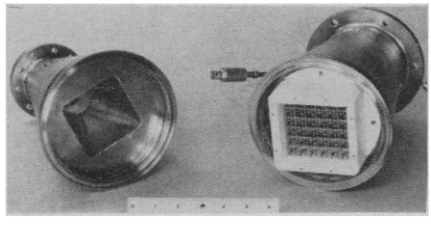
Combination of a new snap-in pen that uses replaceable ink cartridges and a high-speed electric pen lifter allows point plotting up to 20 points per second. A built-in time base is an optional feature. Sweep rates of 1.5 seconds to 15 minutes full scale can be directly set with a continuously variable control. —R.L.B. (Houston Instrument Corp., P.O. Box 22234, Houston 27, Tex.)

(Circle 7 on Readers' Service card)

Diagnostic reagents catalog for 1962 lists a wide variety of products for microbiological laboratories. Whole blood, sera, washed cells, extracts, nutrient media, tissue cultures, and immunologic reagents from a wide variety of animals are available from highly controlled stocks.—R.L.B. (Colorado Serum Co., 4950 York St., Denver 16, Colo.)

(Circle 8 on Readers' Service card)

Cryogenic-fluid quality meter provides a continuous indication of percent vapor in a two-phase cryogenic flow system. Its operation is based upon the determination of dielectric constants of the liquid and the vapor in such fluids as liquid hydrogen, liquid oxygen, and liquid nitrogen. Measurement is accomplished over the range 0 to 100 percent vapor with accuracy said to be ±1 percent of full scale and ±1 db to 400 cy/sec. Readout appears on a control-panel meter with provisions incorporated for driving a strip-chart recorder, high-speed recording oscillograph, or an oscilloscope. The instrument can be adapted to indicate liquid density, vapor density, mass-flow rate, and total mass flow.—J.S (Allied Research Associates Inc., 43 Leon St., Boston 15, Mass.)



(Circle 9 on Readers' Service card)

Two-axis autocollimator (model D-656) requires no adjusting or converting from azimuth to elevation sensitivity and vice versa. The reticle consists of an illuminated bullseye return image set against a dark field and a black crossed-hairline filar. The vertical line of the cross represents the azimuth indicator and the horizontal line repre-

sents the elevation indicator. Both lines are marked. Turning the micrometer drum causes the filar to move diagonally in the field until the appropriate line intersects the center of the bullseye. Alignment is then achieved in that plane, and the reading is obtained from the scale adjacent to the micrometer drum. The scale can be read directly to ½ second of arc with repeatability said to be better than ¼ second of arc. The full range of ± 10 minutes of arc can be utilized up to a distance of approximately 35 feet after which it decreases until it becomes ± 1 minute at 135 feet.—J.S. (Davidson Optronics, Inc., 2223 Ramona Blvd., West Covina, Calif.)

(Circle 10 on Readers' Service card)

Interferometer flats for gas-phase masers are available tested to surface figures of 1/200 wave of visible light or better, including dielectric coating. The flats, fabricated of optical-quality quartz, may also be used in etalon and other types of interferometers. Sizes from ½ to 2 inches in diameter are available for immediate delivery.—J.S. (Perkin-Elmer Corp., Norwalk, Conn.)

(Circle 11 on Readers' Service card)

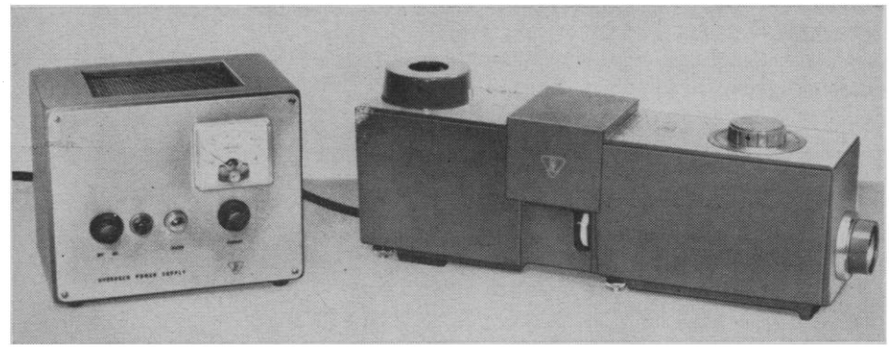


Fig. 2. High-intensity monochromator with hydrogen power supply.

High-intensity monochromator (Fig. 2) offers an integrated optical design with a choice of four light sources and five wavelength ranges for use from 180 mμ to 3.2 μ. The compact portable assembly is designed for research applications wherever a high intensity source of monochromatic light is required—such as monochromatic ultraviolet or visible photomicrography, fluorescence studies, or studies of the effects of light on plants and animals. The optical system consists of a source and condenser unit that illuminates the entrance slit through a collector lens that optimizes the illumination of a high-efficiency blazed grating. The dispersed light falls on a concave mirror which focuses an image of the entrance slit on the exit slit through a corrector lens. Aluminized reflecting surfaces, which under the best of conditions deteriorate with time, are thus reduced to two. The light source units—deuterium, high-pressure mercury, super-pressure mercury, and tungsten—are each fitted with optics that match the source to the monochromator and are easily interchanged by means of thumb screws and locating pins. The wavelength ranges are covered by exchange of the cover of the monochromator which carries the grating and calibrated wavelength drive assembly. Three sets of fixed slits on a pair of variable slits are available. Dispersion of the ultraviolet unit is 3.2 mμ/mm, and efficiency figures of 20 to 57 percent are claimed. An achromatic quartz fluorite exit condenser is also available. The optical unit occupies 6 by 20 or 6 by 29 inches of bench area and weighs 13 to 29 pounds depending on the source unit selected.—R.L.B. (Bausch and Lomb Inc., Rochester 2, N.Y.)

(Circle 12 on Readers' Service card)

High-vacuum pumping system (model 1377A) combines a two-stage mechanical pump with a molecular pump. Ultimate vacuum achieved with the system is said to be 10^{-9} mm-Hg, and pumping speed a constant 14 lit./sec over the range 10^{-2} to 10^{-8} mm-Hg. The high-vacuum side of the molecular pump is said to be completely vapor free, eliminating contamination of the vacuum system and the need for traps.—J.S. Welch Scientific Co., 1515 Sedgwick St., Chicago 10, Ill.)

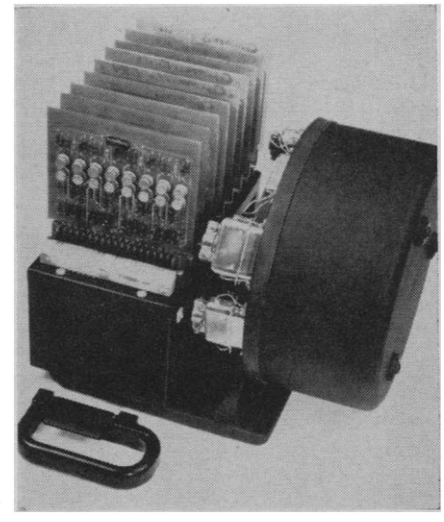
(Circle 13 on Readers' Service card)

Resistivity probe is a four-point device designed to measure the bulk resistivity and diffused and epitaxial layer sheet resistance. The detachable head

containing the probe is mounted on a two-directional micromanipulator for ease in positioning the probes on the wafer to be measured. The four probes are made of tempered spring steel with ground points set at 0.03 inch on centers. Each probe is accompanied by a correction-factor curve for measurement of thin slices.—J.S. (Micro State Electronics Corp., 152 Floral Ave., Murray Hill, N.J.)

(Circle 14 on Readers' Service card)

Magnetic storage drum is equipped with a pulley and belt drive providing selected drum speeds to 25,000 rev/min. The drum has a capacity of up to 50 tracks with individually adjustable heads employing a record current of



approximately 100 ma. Head inductance per coil is 65 mhy. Normal playback signal of 40 mv is obtained at 2400 in./sec. Bit density is up to 300 pulses per inch with nonreturn-to-zero recording, and capacity is 150,000 bits. When recording serially, a current switching matrix permits recording and reading of any eight tracks with a single read-write board. Digital circuitry is designed to operate with an input and output level of 0 volts for a "one" and −6 volts for a "zero," at frequencies up to 500 kcy/sec.—J.S. (Gognitronics Co., Briarcliff Manor, N.Y.)

(Circle 15 on Readers' Service card)

Beryllium single crystals are being produced by floating zone-melting technique in sizes up to 1¼ inches in diameter and 4 inches long. Unseeded crystals, made with a minimum of three molten-zone passes, yield material with a basal plane orientation of 10 to 20 deg from the rod axis. Seeded crystals, made with a minimum of one pass, al-

low control of the basal plane orientation. High-purity crystals are made from distilled beryllium.—J.S. (Nuclear Metals, Inc., Concord Mass.)

(Circle 16 on Readers' Service card)

Portable laser unit produces short pulses of coherent optical energy from a ruby laser crystal in pulses from 0 to over 500 μsec in duration at energy levels greater than 0.1 joule at pulse repetition rates of about four per minute. Maximum energy storage capacity of the system is 400 joules. Output wavelength is 6943 A, and minimum beam width 20 seconds of arc. One switch charges and fires the unit. The main beam emerges horizontally from the rear and an auxiliary beam from the front. A plug-in module provides a choice of three crystals and two xenon flash lamps. Pulse duration and shape can be varied by the addition of modular energy-storage and pulse-shaping units.—J.S. (Maser Optics Inc., Trident Division, 89 Brighton Ave., Boston, Mass.)

(Circle 17 on Readers' Service card)

Water-cooled accelerometer (model WC-800) is designed to operate at temperatures as high as 2000°F at its base. The device is contained in a ⅞-inch hexagonal stainless-steel case that measures 1-inch high. The water connections are stainless-steel tubing. Cooling flow is 250 ml/min at 1200°F to 400 ml/min at 2000°F. Maximum sensitivity is 20 mv/grav. Frequency range is 1 cy to 4 kcy/sec with natural frequency 32 kcy/sec. Maximum acceleration is 1000 grav. Cross-axis sensitivity is 5 percent maximum and amplitude linearity is ± 1 percent.—J.S. (Columbia Research Laboratories, MacDade Blvd. and Bullens Lane, Woodlyn, Pa.)

(Circle 18 on Readers' Service card)

Neutron detectors developed by Texas Nuclear Corp. use helium-3 gas. They provide high sensitivity because they can be filled to high filling pressures (up to 10 atm) and operated at relatively low voltages. At 10-atm filling pressure, the operating voltage required for a helium-3 detector is 1500 volts. Sensitivity bears a near-linear relationship with filling pressure. The energy resolution of the detectors permits their use as neutron spectrometers in the range of 100 kev to 2 Mev. They have a shorter resolving time than other neutron tubes. A boiling point of 4°K makes them suitable for low-temperature experiments. The use of helium-3

detectors is indicated where very high sensitivity is required and limited space is available. Typical applications include use in moisture measurements, oil well logging, space research, sensitive survey meters, and biological and clinical research.—R.L.B. (Nuclear-Chicago Corp., 359 E. Howard Ave. at Nuclear Drive, Des Plaines, Ill.)

(Circle 19 on Readers' Service card)

Data system called DEXTIR links a computer directly to any number of remote test laboratories or process stations. The system is based on a network of portable input modules that accept both analog and digital information and can be placed wherever desired. These modules are connected to a single low-cost cable that terminates in the digital recorder. Processed data are presented on paper tape, magnetic tape, punched card, typewritten log, or to the computer directly. The system will sample from 25 to 2500 low-level analog channels at a rate of up to five channels per second. An equal number of digital channels can be accommodated within the same time.—J.S. (Beckman Instruments, Inc., 2400 Harbor Blvd., Fullerton, Calif.)

(Circle 20 on Readers' Service card)

Temperature-velocity meter reads directly air velocity and air surface temperature. Temperature measurement range is 20° to 220°F, and air-velocity ranges are 0 to 1000 ft/min and 2000 to 4000 ft/min. The temperature scale is linear over the entire range while the velocity scale is linear at high velocities. An electrical output, d-c to 1000 cy/sec, is also provided for use with a chart recorder.—J.S. (Flow Corp., 11 Carleton St., Cambridge 42, Mass.)

(Circle 21 on Readers' Service card)

Oscilloscope (model 120 B) features a special cathode-ray tube that eliminates reading errors caused by parallax between the signal trace and the graticule screen. In this tube, the graticule is on the inside of the tube in the same plane as the trace. Frequency range of the oscilloscope is d-c to 450 kcy/sec. —J.S. (Hewlett-Packard Co., 1095A Page Mill Rd., Palo Alto, Calif.)

(Circle 22 on Readers' Service card)

Linear x-ray diffractometer (model Y190), manufactured by Hilger and Watts, automatically measures x-ray reflections from single crystals and records them in logical order on reciprocal lattice lines. After recording, one

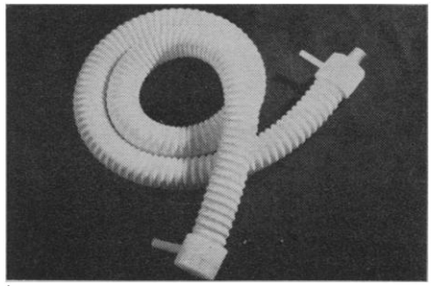
adjustment sets the instrument for the next level. The output of the radiation detector, a proportional or a scintillation counter, may be fed into either a recording ratemeter or a printing scaler. Motors are used to set crystal and counter to each reflection point in turn, the intensity of a Bragg reflection and the neighboring background being measured on the scaler. Speed of operation and accuracy depend on the type of crystal under examination. In most cases it is said to be possible to measure three to four reflections per minute with accuracy of 2 to 3 percent in the point-by-point mode of operation. Continuous scanning allows greater speed with less accuracy.—J.S. (Engis Equipment Co., 431 S. Dearborne St., Chicago 5, Ill.)

(Circle 23 on Readers' Service card)

Pulse generator (model 203) furnishes an output pulse whose rise and fall times can be varied continuously from 20 nanosec to 2 μsec. Pulse repetition rate is 30 cy to 3 Mcy/sec. Triggering can be effected by any input wave form of 6-volt minimum amplitude at frequencies as low as 30 cy/sec. Delay time and pulse width can be varied continuously in four decade ranges from 50 nanosec to 1 msec. Jitter is said to be less than 0.1 percent overall. The output is a positive or negative pulse of 15-volt maximum amplitude into an external load of 50 ohms. Operating temperature range is 0° to 50°C. —J.S. (Rese Engineering Inc., A & Cortland Sts., Philadelphia 20, Pa.)

(Circle 24 on Readers' Service card)

Flexible geiger counters are available in any length up to 50 feet. They can be coiled into spirals, wrapped around pipes, or twisted into irregular shapes.



A counter with an outside diameter of 4 cm can be bent into a coil of 6-cm radius. With flowing Q gas, the plateau slope is less than 2 percent per 100 volts over a range of more than 700 volts.—J.S. (Elytronics, P.O. Box 8567 F.H.S., Durham, N.C.)

(Circle 25 on Readers' Service card)

Underwater scintillation detector is a transistorized, portable, battery-operated instrument that can measure beta and gamma activity at depths as great as 1000 feet. The instrument consists of a submersible detector probe, cable, and readout package. The probe contains a 7-inch diameter plastic scintillation sphere with a nominal 20-mg/cm^2 waterproof coating. The scintillator is mounted on a stainless-steel probe containing a multiplier phototube, preamplifier, and high-voltage supply. The cable is a 1-inch diver's hose with a working strength of over 250 lb. The pulse from the probe is amplified and selected by a pulse-height discriminator. A scaler with 10^7 count capacity and a ratemeter with full-scale deflection of 10^3 to 10^7 count/min are provided. A recorder drive signal provides full-scale current of 1 ma for the same counting-rate ranges. Eight hours of operation is provided before the batteries need to be recharged.—J.S. (Franklin Systems Inc., Post Office Box 3250, West Palm Beach, Fla.)

(Circle 26 on Readers' Service card)

Direct-reading microwave phase meters cover continuously the frequency range from 300 to 12,400 Mcy/sec. The principle of operation is that of square-law detector response in a standing-wave pattern, the standing wave being the resultant of the two signals whose relative phase is being measured. Phase differences of 0.1 deg are said to be resolved by the instrument. Overall accuracy depends on reflection errors in getting the signal to the point of measurement, on input standing-wave ratio to phase detector, and on the error of the indicating-meter. The latter is ± 2 percent of full scale. Input power levels from 1 mw to 10 w are accommodated by varying the detector coupling. Lower levels than 1 mw can be measured with reduced sensitivity. Power levels for the two input arms need not be equal.—J.S. (Willtron Co., 717 Loma Verde Ave., Palo Alto, Calif.)

(Circle 27 on Readers' Service card)

Silicon surface barrier radiation detectors are solid-state devices sensitive to protons, deuterons, tritium, alpha particles, electrons, and fission fragments. They are essentially insensitive to gamma radiation. They are available in 45 models with sensitive areas ranging from 7 mm^2 to 450 mm^2.—J.S. (Ortec, Oak Ridge, Tenn.)

(Circle 28 on Readers' Service card)

Optical-pulse detector (model 361) consists of a photocell and a video feedback amplifier. The type 1P39 photocell is supplied as standard equipment, but others may be supplied on special order. Sensitivity is 1 v/μa of photocell current over the frequency range from d-c to 4 Mcy/sec. The output stage is a cathode follower. The instrument is primarily intended for observing the time-energy distribution of a laser pulse that consists of a series of discrete spikes until the level of stimulation becomes relatively high.—J.S. (Maser Optics, Inc., 89 Brighton Ave., Boston 34, Mass.)

(Circle 29 on Readers' Service card)

Miniature potentiometer drive to activate circuits used in a programmed system incorporates a 17-jewel military-type watch movement, two potentiometers, switches, and an initiator to start the switch's operation. One potentiometer is driven by the minute-hand shaft and can be varied so that its wiper will terminate at any time within 50 minutes. The other is usually set to

complete one cycle in 24 hours and to shut down the device at the end of its revolution. Typically the driving mechanism is started at zero hours, maintains a linear voltage output for 50 minutes, stops the cycle, restarts at 1 hours, and continues this cycling operation for 24 hours. Electrical characteristics can be varied from 50 ohms to 100 kohm. The unit is designed for mounting on printed-circuit boards.—J.S. (Bulova Watch Co., Inc., Bulova Park, Flushing 70, N.Y.)

(Circle 30 on Readers' Service card)

Statistical shock recorder (model SR-4) is a four-channel, unidirectional shock-recording instrument. Each of the four channels can be set anywhere between 1 and 25 grav. Accuracy is said to be ± 5 percent, and frequency response 0 to 40 cy/sec. Indication is provided by a three-digit mechanical register in each channel. No power is required for operation. Electrical output can be provided as an optional feature.—J.S. (Inertial Switch Inc., 311 W. 43 St., New York 36, N.Y.)

(Circle 31 on Readers' Service card)

Oscillator that can be programmed provides remotely or automatically selectable a-c excitation signals covering the range of frequencies from 0.001 cy to 99.99 kcy/sec. Distortion and hum are said to be less than 0.1 percent at any output and frequency calibration to be maintained within ± 1 percent with amplitude variation less than ± 0.25 db. A series of relays allows any frequency to be programmed with minimum frequency increments of 0.001 to 10 cy/sec. The standard 1-2-4-8 digit code is used, with other codes available. —J.S. (Krohn-Hite Corp., 580 Massachusetts Ave., Cambridge 39, Mass.)

(Circle 32 on Readers' Service card)

Single-frame electronic camera (model 2) may be operated with exposure times from 0.01 to 1.0 μsec. The camera uses the manufacturer's IC 1.2 image-converter diode. For focusing and aligning the image, a d-c voltage is applied to the tube and the image is viewed through a conveniently located port. Image size at the film plane is 2.5-inch diameter. Resolution is ten line-pairs per millimeter. The basic camera is equipped with objective lens and Polaroid-type, roll-film recording back.—J.S. (Abtronics; Inc., 64 South P St., Livermore, Calif.)

(Circle 33 on Readers' Service card)

Transistorized oscilloscope draws 25 watts of power and can be adapted for battery operation. It is designed to accept a variety of plug-in preamplifiers. The standard high-grain vertical amplifier covers the frequency range d-c to 5 Mcy/sec with calibrated scales to provide sensitivity up to 10 mv/div and rise time up to 0.07 μsec. The horizontal sweep is calibrated to provide sweeps from 0.1 sec to 0.1 μsec/div. A multiplier permits sweeps as fast as 0.02 μsec/div to be obtained.—J.S. (General Atronics Corp., 1 Bala Ave., Bala Cynwyd, Pa.)

(Circle 34 on Readers' Service card)

Power supply is a solid-state variable d-c supply consisting of ten independent units each variable from 0.5 to 30 volts at 0.5 amp. All units have a common ground, each is fused separately and has its own regulator channel selector. The standard supply has five negative and five positive units; any combination can be supplied. Regulation is 50 mv, and peak-to-peak ripple is 2 mv.—J.S. (Spec-Technology, Inc., 13901 Saticoy St., Van Nuys, Calif.)

(Circle 35 on Readers' Service card)

INDEX TO ADVERTISERS, 13 APRIL 1962

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Applications are invited for the position of joint leader of a Plant Physiology Unit located in the Botany Department of the University of Sydney, Australia. The Unit, maintained jointly by the Australian Commonwealth Scientific and Industrial Research Organization and the University, carries out basic research in the biochemical and biophysical aspects of plant physiology. The appointee, who should have an established reputation in plant physiological or plant biochemical research, will have considerable freedom in selecting his own research program and will be supported by a research staff and graduate students. Further details may be obtained from the Scientific Attaché, **Australian Embassy**, 1907 K Street, NW, Washington 6, D.C. (FE 8–1800). X

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For full details, write: The Surgeon General, Dept. of the Army, Washington 25, D.C.

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Applications are invited for the above post in the Dairy Science Department. The salary range for an Assistant Professor is $6500–$8700 with excellent prospects for advancement.

Candidates should preferably hold the Ph.D. or equivalent degree, experience in research and/or teaching would be advantageous. Duties will include research, teaching, assistance with the direction of graduate students and extension work with the dairy and food industries. Duties to commence 1 September 1962 or as soon thereafter as convenient.

Applications providing personal data, academic qualifications and experience, and a list of published work, together with transcripts, names of four references, and a recent photograph, should be sent to the Head, Department of Dairy Science, **University of Alberta**, Edmonton, Alberta, Canada. Closing Date: *15 May 1962.* X

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Write Chairman, Department of Science, **State University College at Plattsburgh**, Plattsburgh, N.Y. 4/13

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Host-parasite relationships.

Salary: $6,000 to $6,700, depending upon qualifications, plus moving allowance.

Applications, including curriculum vitae and three letters of reference should be directed to:

Dr. E. R. Waygood,
Head, Department of Botany,
University of Manitoba,
Winnipeg, Manitoba, Canada.

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Applications are invited for a position as Assistant Professor of Plant Pathology. Starting salary between $6500.00 and $7500.00. Duties commencing 1 September 1962, include research, teaching and extension. Applicants should send details of qualifications, recent photograph and names of three references to *Head, Department of Plant Science,* **University of Alberta, Edmonton, Canada.** *Closing date: 15 June 1962.*

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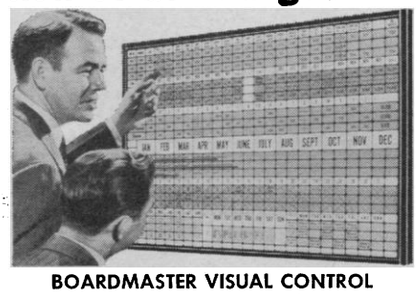

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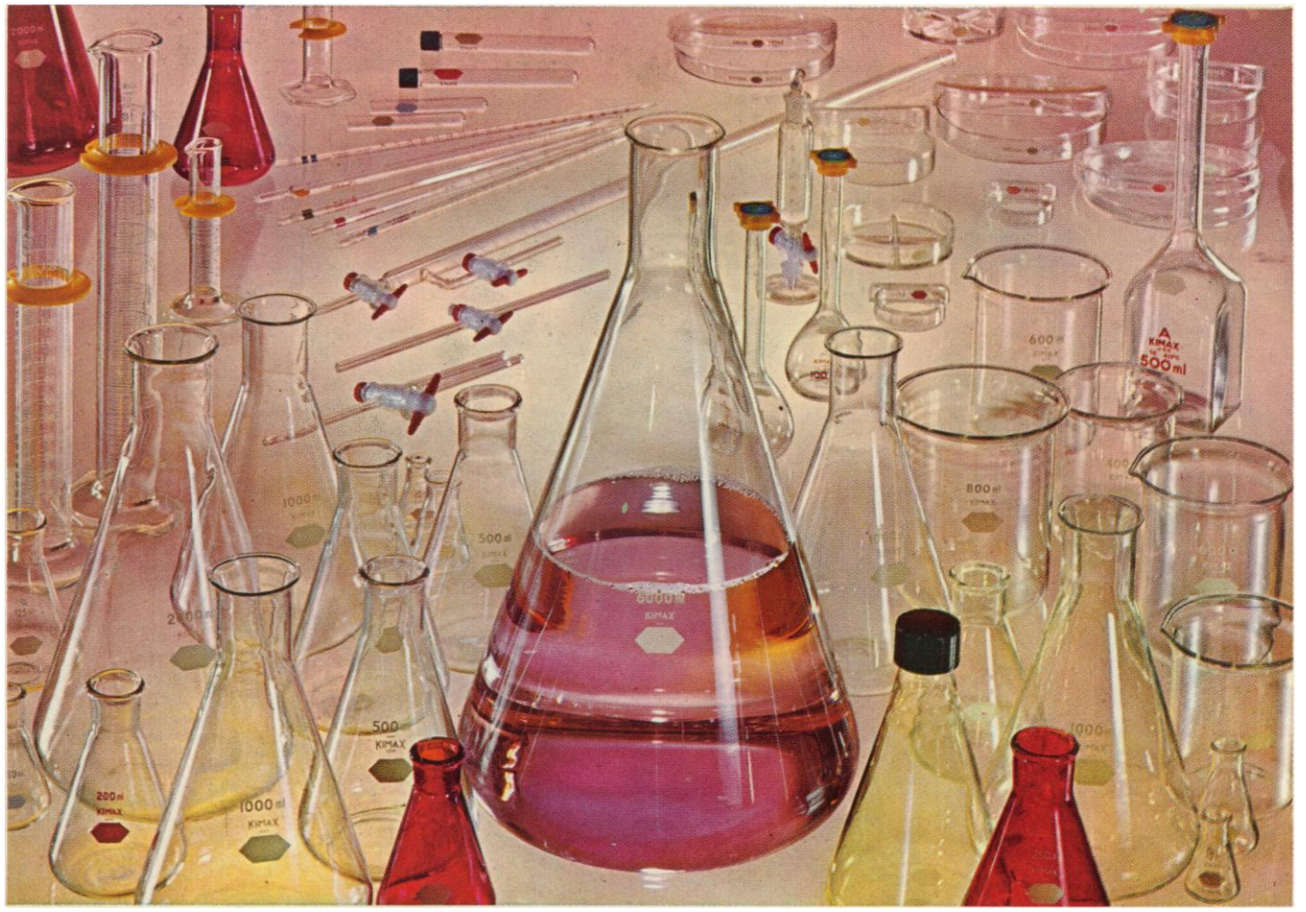

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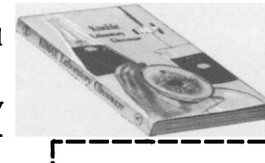

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