5–7. Problems of **Cooley's Anemia**, symp., New York, N.Y. (H. Fink, Coney Island Hospital, Ocean and Shore Pkwys., Brooklyn 25, N.Y.)

6. Reliability in **Space Vehicles**, 4th seminar, Los Angeles, Calif. (W. H. Bleuel, Jr., Endevco Corp., 801 S. Arroyo Pkwy., Pasadena, Calif.)

6–7. **Oklahoma Acad. of Science**, Norman. (C. Williams, Phillips Univ., Enid, Okla.)

6–7. **Signal Statistics**, symp., Seattle, Wash. (J. C. Noyes, P.O. Box 3981, Seattle 24)

6–8. Association for Research in **Nervous and Mental Diseases**, annual, New York, N.Y. (The Association, 700 W. 168 St., New York, N.Y.)

6–8. American **Psychoanalytical** Assoc., fall meeting, New York, N.Y. (A. R. Anderson, APA, 1 E. 57 St., New York, N.Y. 10022)

7–8. American Soc. for **Quality Control**, Chemical Div., 7th technical conf., St. Paul, Minn. (B. A. Drew, Pillsbury Co., 311 Second St. SE, Minneapolis 14, Minn.)

9–15. **Proctology**, 2nd Latin American congr., Punta del Este, Uruguay. (R. V. Tajes, Canelones 2368, Montevideo, Uruguay)

10–12. **Nobel** Festivities, Ceremony, and Lectures, Stockholm, Sweden. (Nobel Foundation, Sturegatan 14, Stockholm 5)

11. **Radioisotopes** in the Life Sciences, Buffalo, N.Y. (R. F. Lumb, Western New York Nuclear Research Center, Inc., Power Dr., Buffalo 14)

11–13. **Heterogeneous Combustion** Conf., Palm Beach, Fla. (American Inst. of Aeronautics and Astronautics, 500 Fifth Ave., New York, N.Y. 10036)

13–14. **Anatomists**, Southern Society, 3rd annual meeting, Birmingham, Ala. (E. G. Hamel, Jr., Dept. of Anatomy, University of Alabama Medical Center, Birmingham 3)

16–17. **Non-Linear Processes** in the Ionosphere, conf., Boulder, Colo. (R. T. Frost, National Bureau of Standards Boulder Laboratories, Boulder)

16–18. **Thin Films**, Electrical and Magnetic Properties in Relation to Their Structures, London, England. (Administration Assistant, Institute of Physics and the Physical Soc., 47 Belgrave Sq., London, S.W.1)

19–20. **Radiation Emergencies** in Medicine, Research and Industry, Chicago, Ill. (R. V. Wheeler, Argonne Natl. Laboratory, 9700 S. Cass Ave., Chicago)

19–21. American **Physical** Soc., Pasadena, Calif. (APS, Columbia Univ., New York 27)

26–28. National Council of **Teachers of Mathematics**, San Angelo, Tex. (H. T. Karnes, Dept. of Mathematics, Louisiana State Univ., Baton Rouge 3)

26–28. American **Geophysical** Union, western natl., Boulder, Colo. (W. W. Kellogg, Rand Corp., 1700 Main St., Santa Monica, Calif.)

26–30. American Assoc. for the **Advancement of Science**, Cleveland, Ohio. (R. L. Taylor, AAAS, 1515 Massachusetts Ave., NW, Washington, D.C. 20005)

27–29. American **Economic** Assoc., Boston, Mass. (H. F. Williamson, American Economic Assoc., 629 Noyes St., Evanston, Ill.)

New Products

Continuous wave gas laser (model 130) uses d-c excitation. Elimination of the rf signal generator reduces size and weight, permitting the complete unit to be contained in ⅛ ft³. Using a hemispherical resonator, the laser generates at each end of 0.1-mw beam of visible coherent light at 6328 Å wavelength. With a confocal resonator, power output is increased to 0.25 mw. Either hemispherical or confocal reflectors are supplied. The output beam measures 2.5 mm at the exit and is plane polarized. Independent adjustments are provided for reflector separation and for rotation of each reflector about two independent axes. Beam power output adjustment is also provided. A power supply is self-contained. —J.S. (Spectra-Physics, Inc., 1255 Terra Bella Ave., Mountain View, Calif.)

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Solid-state radiation detectors are fully depleted solid-state transmission-mounted radiation detectors. They are produced in two sizes, 50 mm² and 20 mm², and are available in three standard, fully depleted depths: 50-μ depth for dE/dX measurements, and 700- and 1000-μ depths for tandem mounting. However, any thickness, from 40 to 1000 μ, is available on special order. Axial mounts and transmission mounts are also available. The axial mounts will accommodate one to three 1000-μ thick detectors to form a thick composite detector, and the transmission mounts can be stacked to combine a dE/dX detector with an E detector, or to form an E detector of double or triple thickness.—D.J.P. (Molechem, Inc., P.O. Box 531, Princeton, N.J.)

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Omegatron mass spectrometer system is designed for measurement of partial pressures of residual gases in high vacuum applications. With the omegatron tube attached to an evacuated system at 10^{-5} to 10^{-10} torr, pressure of individual gas components down to 10^{-11} torr can be measured, according to the manufacturer. The system is capable of adjacent peak separation to mass 50 and higher masses can be observed at reduced resolution. Continuous scanning capability over selected ranges permits the operator to scan back and forth through a selected mass range. The omegatron tube operates as a miniature cyclotron with crossed electric and magnetic fields and an ionizing electron beam. An rf field perpendicular to the magnetic field accelerates ions over a portion of their circular path and retards them over the other portion unless the resonant frequency of the ion matches the rf excitation frequency. An ion collector gathers those ions that are resonant and the d-c current generated is measured by an electrometer. The omegatron tubes may be attached to more than one system and moved between the pole faces of the magnet as required. All analyzer tube voltages and ion currents are monitored at a control console that may include a strip-chart recorder.—J.S. (Vacunetics Div., E. I. Doucette Associates, Inc., 246 Main St., Chatham, N.J.)

Circle 3 on Readers' Service card

Lithium-drift solid-state particle detector consists of a single-crystal silicon wafer into which lithium ions have been drifted by application of an electrical field at controlled temperature. The electric field causes deep penetration of the lithium ions into the crystal, producing a thick sensitive volume enabling the detection and analysis of high-energy penetrating particles. The lithium-drift detector collects in its depletion region all the ion pairs produced by the detected particle. Charge collection is fast and the event is recorded as a pulse proportional to the ionization energy deposited. The detector is sensitive to alpha particles, protons, electrons, and gamma rays. Gamma sensitivity arises from response to secondary electrons produced in the silicon or in surrounding materials. By the use of fission foils or the Li 6 reaction, neutrons can also be detected and analyzed. The detector is mounted internally on the base of a cylindrical aluminum casing with entrance aperture facing outward. The top electrode of the detector diode is gold wire and the base of the detector may be grounded to the casing or electrically insulated from the case. Operating voltage is normally 30 to 300 volts with leakage current less than 2 μa at 150 volts. Resolution is 40 kev for electrons. Rise time is approximately 0.01 μsec on fast pulse.—J.S. (Electro-Nuclear Laboratories, Inc., 2433 Leghorn St., Mountain View, Calif.)

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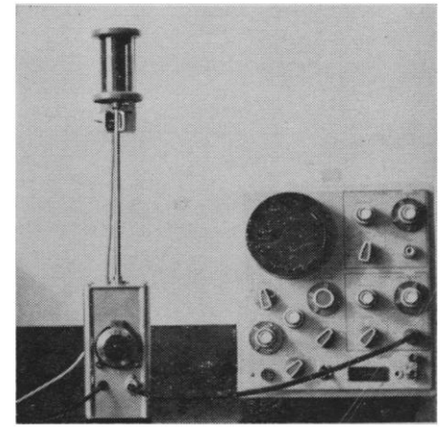
Electron spin resonance kit was developed for demonstrating free radicals in biological systems. A simple two-tube circuit, solenoid magnet, and operation in the very high frequency band make it practical for student construction and operation. An instruction manual describes the measurement of the fundamental constants, the relaxation process, and the detection and measurement of free radicals. A sensitivity of 7.1×10^{17} spins (5.1×10^{-4} g D.P.P.H.) gives a good signal-to-noise ratio with 50-cy/sec sweep. It is claimed that the sensitivity



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

Robert L. Bowman (R.L.B.), with the assistance of Denis J. Prager (D.J.P.), 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 pages 1015 and 1093. Circle the department number of the items in which you are interested on this card.

can be increased to 10^{15} spins by use of slow sweep. Less interaction with water in the very high frequency band allows the use of larger sample volumes so that the overall sensitivity can compare favorably with kilomegacycle spectrometers. The system requires batteries and an oscilloscope for use.—R.L.B. (Scientifica Kits, 148 St. Dunstan's Ave., Acton, London, W.3, England)

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Pulse-height analyzer (model 150) performs multi-channel pulse-height sorting, sequential multichannel scaling, and random access scaling, reading out the resulting data by oscilloscope and typewriter. The instrument is designed especially for use with high-energy pulsed accelerators. Dead time is 1 μsec for each pulse height conversion. Scaling rate is one channel in 20 Mcy/sec and random access time for any channel is said to be less than 1 μsec. The memory of the analyzer consists of word-organized, two-core-per-bit, partially switched ferrite array. It contains 40 words of 20 bit length. Words are read entirely in parallel. Arithmetic is accomplished by an add-subtract scaler. —J.S. (Linear Alpha, Inc., 823 Emerson St., Evanston, Ill.)

Circle 6 on Readers' Service card

The model K-D1 detector is a power-sensitive **photon radiation transducer** for measuring and monitoring laser output and the output of other light sources. Rise time of the device is 0.3 nsec. Absolute power measurements from 1 watt to 10^{10} watts are said to be typical applications. The unit is available with an S-20, S-4, or S-1 photosensitive surface. The three different surfaces together cover the spectral response range from 3000 to 11,500 Å. The detector may be illuminated directly or indirectly by radiation reflected from a diffuse reflector block. The unit is equipped with a bias network and a 2500-volt bias supply to drive the network is optionally available. Output power is sufficient to drive directly ultra-fast oscilloscopes.—J.S. (KORAD Corp., 2520 Colorado Ave., Santa Monica, Calif.)

Circle 7 on Readers' Service card

Activation analysis laboratory consists of all the equipment necessary for inducing artificial radioactivity by exposing the unknown to neutrons and analyzing the resulting radioactivity to identify and quantify the elements present in the sample. Neutrons are produced in a Texas nuclear neutron generator unit that provides a fast flux of 5×10^9 neutrons per square centimeter per second. A pneumatic transfer system and programmer delivers the sample to the neutron flux for a selected time, then rapidly transfers the sample through 50 ft of tubing to a scintillation counter, where the activity is analyzed in terms of energy distribution and radioactive half life. Various options are available for programming to optimize radiation and counting times, and automatic re-runs can be programmed. Analysis of the results are made on a 400-channel pulse light analyzer, a multiscaler programmer, a digital printer, and a flux-monitoring system.—R.L.B. (Nuclear-Chicago Corp., 359 E. Howard Ave., Des Plaines, Ill.)

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Digitizer for wind and water direction and velocity is essentially a shaft-angle encoder comprising two input shafts and dual function internal construction that allows it to serve simultaneously as an absolute angle encoder and digital tachometer. The angle encoder supplies absolute direction information to the nearest degree and is positioned by means of a vane mounted on its input shaft. The tachometer provides velocity data in the form of pulses at 1° intervals from wind cups or water cups on the rotor shaft. Magnetic sensing is used in the digitizer, which is designed to withstand extremes of temperature, shock, and vibration.—J.S. (Data Tech, Inc., 238 Main St., Cambridge, Mass.)

Circle 9 on Readers' Service card

Electron gun is said to eliminate the contamination problem in thin film deposition by virtue of the design feature in which the gun and filament are hidden from the evaporant and substrate. This prevents shorting and arcing from coating buildup on the filament. The gun, measuring 1¾ by 1½ by 2½ inches, is designed for use in any evaporator. It is bakeable to 250°C and can be removed easily for crucible cleaning. In the gun, the filament is located below and shielded from the evaporant crucible. A powerful, compact magnet bends the electron stream through more than 180 deg to heat the evaporant. A control unit designed specifically for use with the gun features single-knob control of evaporation. The one knob controls beam

current and maintains a constant 4000-volt accelerating potential between the filament and target. Interlocks prevent operation at high pressures or during cooling-water failure.—J.S. (Varian Associates, Palo Alto, Calif.)

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Adsorbent and demineralizer cartridges are designed to handle both adsorptive or ion exchange activity and fine filtration in a single cartridge. Interchangeable with many other filter cartridges, the adsorbent cartridges consist of a 30-in.^{3} annular bed of adsorbent or ion exchange resin contained between an outer perforated cylinder and a high-area corrugated filter "core" on the downstream side. The filter cartridge combines activated carbon with a 3-μ (98 percent) rated filter element. When filtering water and other fluids, this combination cartridge filters out odor, taste, and color frequently due in whole or in part to colloidally suspended foreign matter, on which activated carbon operates very slowly. This unit removes bacteria quantitatively, as well as colloidal solids. Also, organic vapors will be removed from gases by the desiccant cartridges which contain a high capacity adsorbent type desiccant with a capacity of approximately 600 grains of water vapor, and provides approximately 475 standard cubic feet of 80-lb./in.^{2} dry air at 70°F. The demineralizer cartridges provide water of low mineral content from which all incident bacteria and colloidal materials have been removed. Capacity of single cartridge is 600 grains of hardness. Demineralizers are of the mixed bed type and remove both cations and anions—D.J.P. (Pall Trinity Micro Corp., Cortland, N.Y.)

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Oxygen isotopes are available in high enrichments for tracer work. Oxygen-18 can be supplied in up to 99 atom percent concentration. Oxygen-17 is available in enrichments of over 10 atom percent in water and 50 atom percent in oxygen gas. These concentrations represent a 250-fold enrichment of oxygen-17 in water and 1350-fold enrichment in oxygen gas. Oxygen-17, with a spin of 5/2, is the only isotope of oxygen that can be used for nuclear-magnetic-resonance and electron-spin-resonance studies.—J.S. (YEDA Research and Development Co., Rehovoth, Israel)

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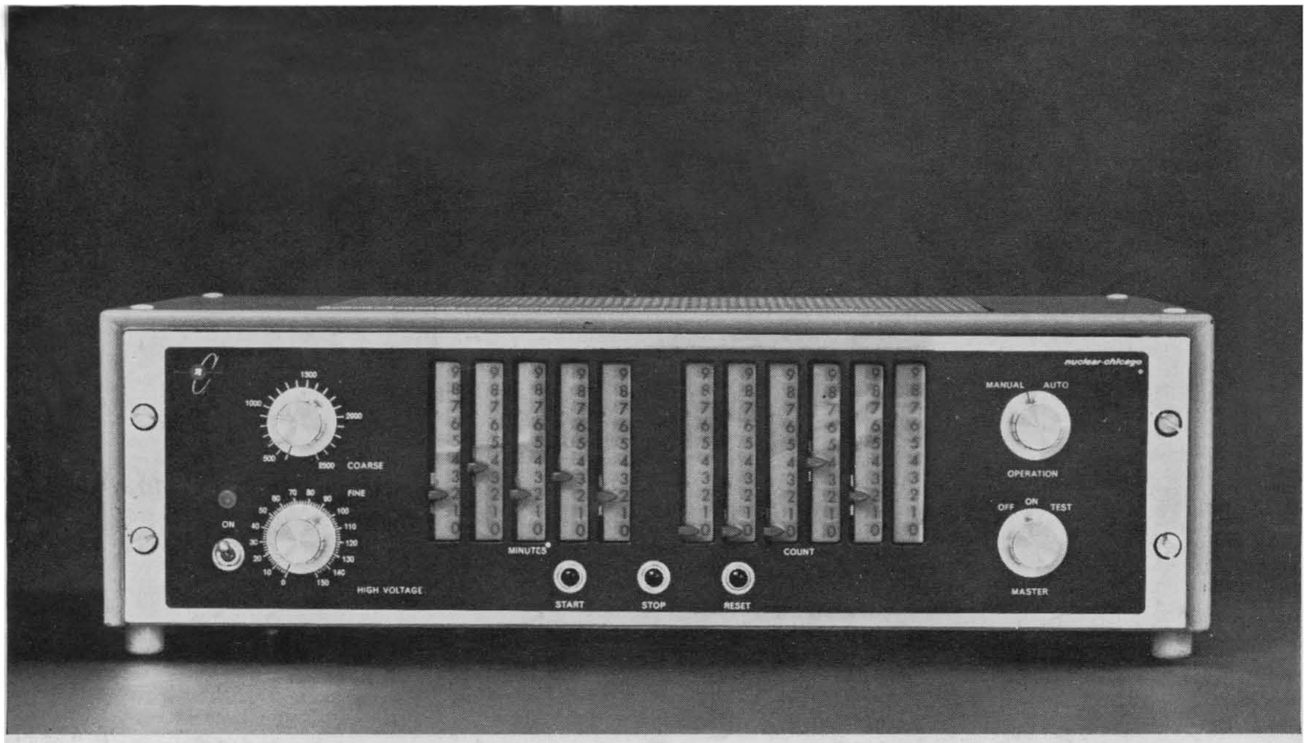

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