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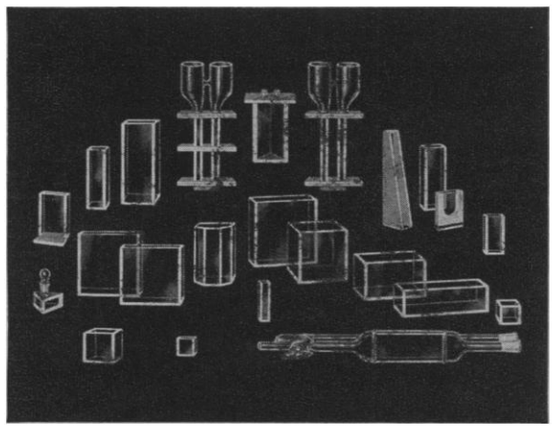

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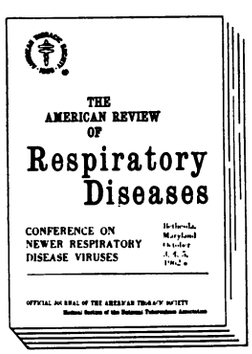

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Over 100 outstanding virologists examine the diagnosis, treatment, and present status of the new respiratory diseases in this collection of 42 papers presented at a three-day conference in Bethesda, Maryland, in October, 1962. This exposition of scientific advances in the field of acute respiratory diseases, as reported by participants from seven countries, is all in readable English. Furnishing up-to-date material nowhere else available, it was published by the National Tuberculosis Association as a Supplement to the American Review of Respiratory Diseases. September, 1963, 432 pages.

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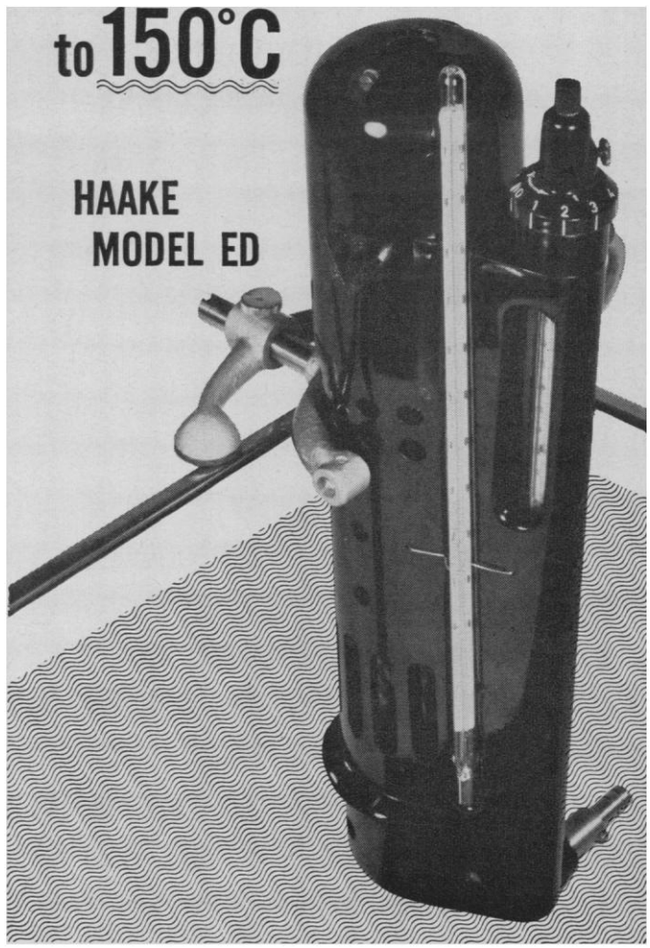

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NEC	Bromodeoxyuridine-2-C^{14}	15			In process		
NEC-348	Cytidine-5′-Monophosphate-C^{14} (u.l.)	225	55	200	400	†	†
NEC-355	Deoxyuridine-2-C^{14}	32.4	—	80	140	700	1400
NEC-51	Guanine-8-C^{14} Sulfate	12.7	—	30	40	200	400
NEC-354	Guanosine-5′-Monophosphate-C^{14} (u.l.)	196	55	200	400	†	†
NEC-149	Hypoxanthine-8-C^{14}	4.1	—	35	53	265	530
NEC-185	6-Mercaptopurine-8-C^{14} Hydrate	4.4	—	40	66	330	660
NEC-73	Orotic-6-C^{14} Acid Hydrate	6.5	—	25	34	170	340
NEC-176	Orotic-carboxyl-C^{14} Acid Hydrate	8.4	—	20	30	150	300
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NET-41	Deoxyuridine-H^3	0.1	30	80	240	720
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NET-27A	Thymidine-methyl-H^3	2.0	15	40	150	600
NET-27X	Thymidine-methyl-H^3	10.0	—	40	150	600
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Digital voltmeter (model 2660) is an automatic instrument for the measurement of d-c voltage from 1 μv to 1000 volts. Resolution is extended by a front-panel meter that verifies the null balance condition. Automatic ranging is provided down to 3 volts full scale with manual switching for ranges to 30 mv full scale. Automatic polarity switching and decade sensitivity control are standard features. Bridge switching is effected by dry reed relays operated under zero-current conditions. Input resistance is greater than 100 meg to 3 volts and greater than 1000 megohms on higher ranges. Accuracy in the 30-mv range is said to be $\pm$ 3 μv; in the 300 mv range, 0.01 percent or 2 digits; in higher ranges, 0.01 percent or 1 digit. Input is isolated from ground and may be operated as much as 500 volts above ground. Common mode rejection is specified greater than 100 db at 60 cy/sec.—J.S. (Houston Instrument Corp., Dept. S61, 4950 Terminal Ave., Bellaire 101, Tex.)

Spectrum analyzer (model 2112) covers the frequency range from 22 to 45,000 cy/sec and provides 1/3-octave band analysis as well as full-octave band analysis. The 1/3-octave band analysis is said to be accurate within $\pm$0.5 db throughout the entire frequency spectrum of the instrument. The instrument uses contiguous filtering with all data provided in terms of 33 standardized frequency bands. The analyzer provides measurement of root mean square, absolute average, or instantaneous peak value of the input signal. The r.m.s. reading is said to be accurate for sinusoidal, periodic, or random signals.—J.S. (B & K Instruments, Inc., Dept. S62, 3044 W. 106th St., Cleveland 11, Ohio)

Vector voltmeter (type 248) requires no adjustment for frequency change between 40 cy and 40 kcy/sec when it is used for direct reading of phase angle between an unknown and a reference signal, or for when measuring the in-phase component of an unknown signal with respect to a reference signal, or for reading the total amplitude of an unknown signal. When used with the manufacturer's type 209 phase shifter, measurement of the quadrature component with respect to a reference signal can also be performed over the same frequency range. The instrument consists of an input attenuator, a bandpass filter, and a feedback amplifier in the unknown channel, and a phase inverter, phase shifting network, and a push-pull amplifier in the reference channel. The outputs of the two channels are applied to a phase-sensitive detector that rejects all even harmonics and attenuates the odd harmonics in inverse proportion to their orders. The panel meter has its center at 90° or 270° and provides full-scale deflections of $\mp$90°, $\mp$30°, and $\pm$10°. Accuracy is said to be ¼° or 1 percent relative and 1° or 2 percent absolute.—J.S. (Ad-Yu Electronics, Inc., Dept. S63, 249 Terhune Ave., Passaic, N.J.)

Combination spectrograph and scanning monochromator is a one-meter instrument of the Czerny-Turner type. The instrument is furnished with a 1200 line/mm grating, 4- by 4-inch square, mounted kinematically. With this grating, the dispersion is 8.3 Å/mm, resolution is better than 0.15 Å with a 10-μ slit, and wavelength range is 2000 to 10,000 Å. Effective aperture ratio is approximately f/9. A light-tight housing behind the focal curve is designed to hold up to 18 photomultiplier tubes to adapt the instrument for direct reading. Provision is made for purging with helium or nitrogen to improve efficiency at wavelengths below 2200 Å. Twelve scanning speeds are provided for manual and electrical operation.—J.S (McPherson Instrument Corp., Dept. S64, 530 Main St., Acton, Mass.;

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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).

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Address inquiries to the manufacturer, mentioning *Science* and the department number.

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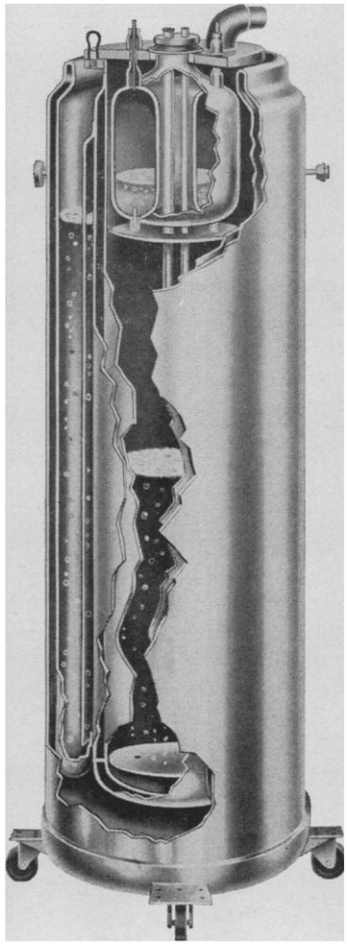

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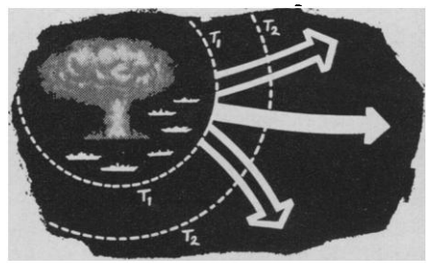

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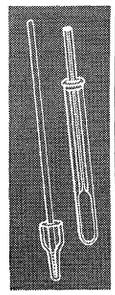

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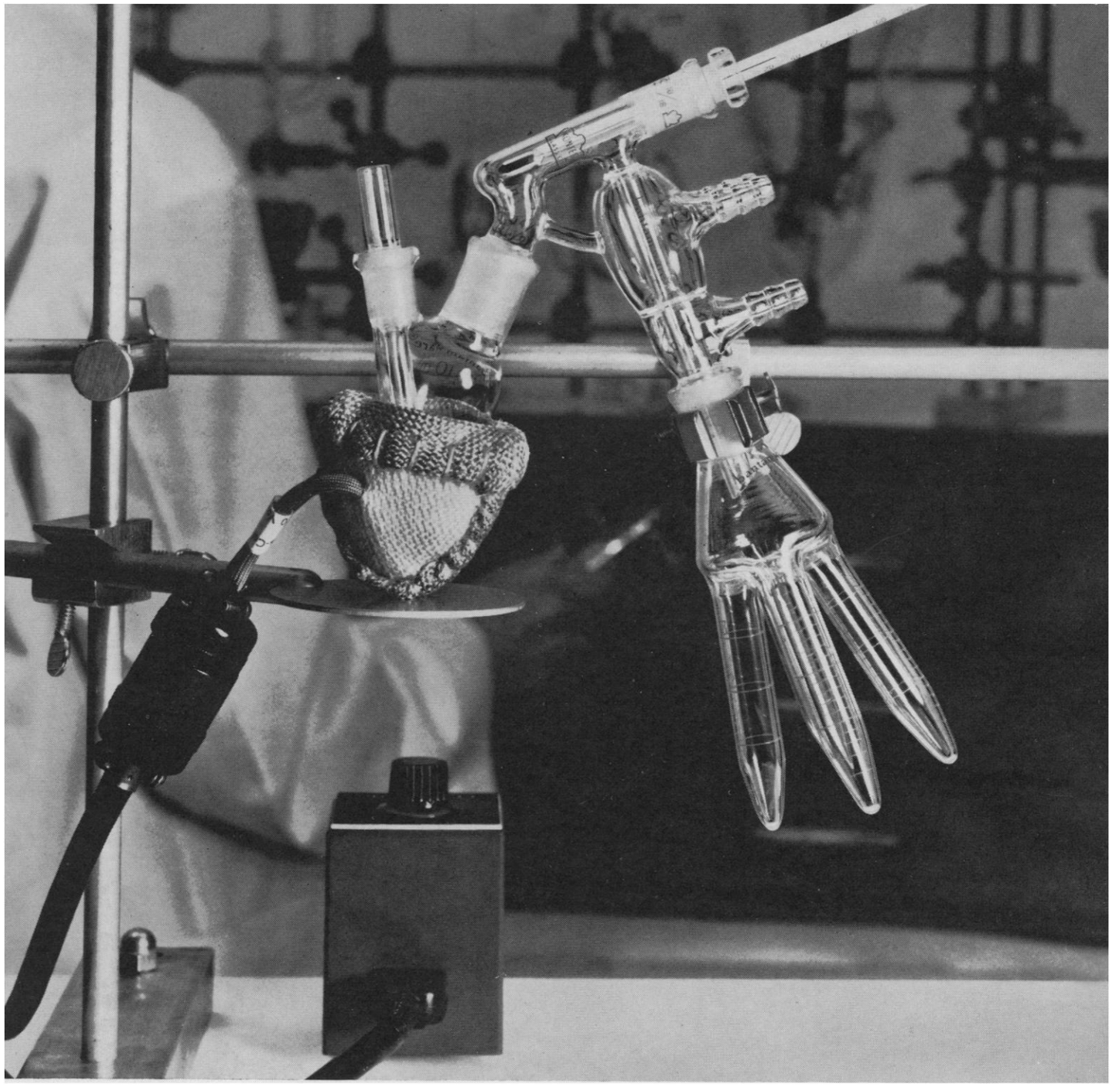

The Case of the Meandering ML's

In the vicinity of many research laboratories, small organic solutions are being mysteriously lost, daily. They are placed in small flasks, heated, and then . . . they vanish. Chemists patiently wait for their meandering ml's to show up. Sometimes a few straggle into fraction cutters, but most of them escape. The M.O. is always the same. Our job . . . find them.

Acting on a tip from Dr. Raymond Firestone at Merck & Co., Rahway, we went to work on our new K-28480 Bantam-ware Short Path Fractionator. Make the column about an inch long and let the thermometer bulb and stem serve as a packing, he said. Construct the condenser and vacuum connection in two inches, total length. Use only one joint on the fraction cutter but design it so that pipettes can be inserted to the bottom of any of the four receivers. Then, tilt the whole assembly so that drops fall from the drip tip ₹ 14/20 joint into one of the four receivers without unnecessary wetting. But nothing is vertically aligned, we pleaded. I know, he said. In desperation, we tried it.

We're happy to report that most of the meandering ml's now show up as product. The case is closed. Sequel: K-28480 has been added to the line because it fits in with the whole Bantam-ware concept. Very compact, low hold-up . . . functional.

Incidentally, that little rectangular box in the photo is our new Un-A-Watt voltage controller. It occupies 1/15th the space and weighs only 1/10th as much as a conventional coil transformer. It is custom made for Bantam-ware heating mantles with 0-60 Volt range, sparkless operation, removable support rod and high sensitivity. It fits in with the Bantam-ware concept also.

Bantam-ware Kits and hundreds of individual pieces are described in Catalog BW-2. Write for it today.

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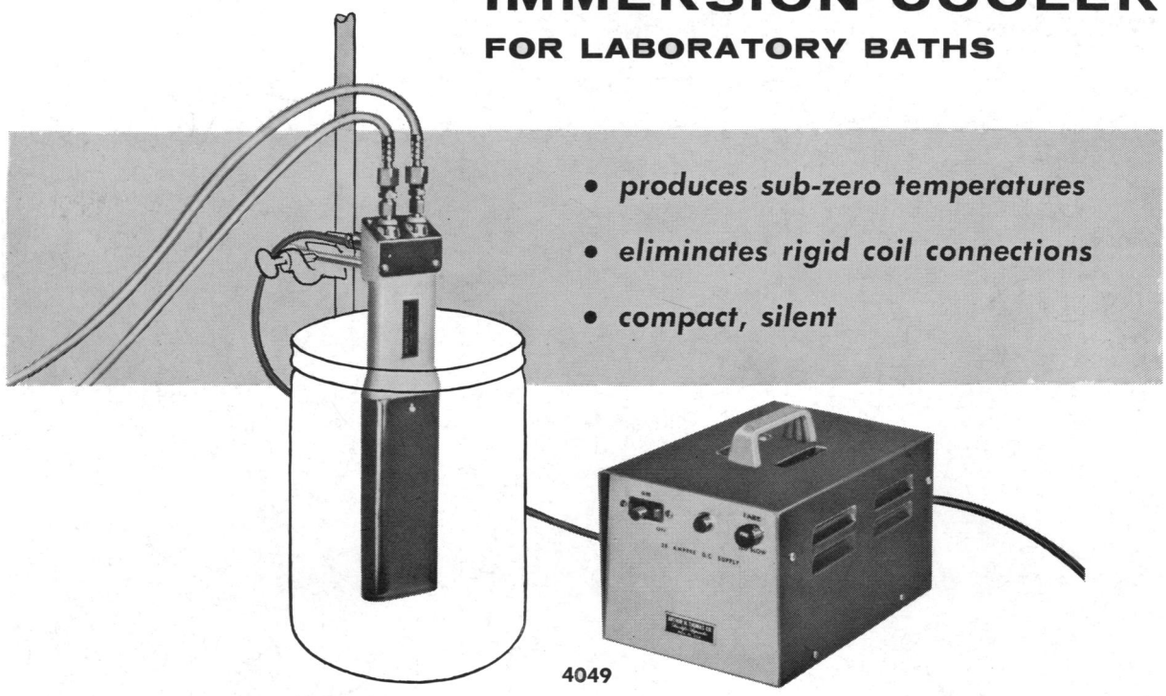

- *produces sub-zero temperatures*
- *eliminates rigid coil connections*
- *compact, silent*

4049

COOLER, IMMERSION, THERMOELECTRIC, Whirlpool. A Peltier-principle thermal pump for lowering the temperature of laboratory baths. Capable of producing sub-zero temperatures (to −25°C from 25°C ambient) in bath volumes up to 4 liters in insulated vessels. Can be used in larger baths to provide cooling required to maintain control near ambient temperature. Operates on a 115-volt, 50 or 60 cycle a.c. line, on which the unit draws 165 watts. A slow-flowing source of cooling water at normal temperature is also required.

Cooling Unit. Made in the form of a thick nickel-plated copper blade, the cooling surface is 6 inches long × 2¾ wide × 1⅛ inches thick, providing an effective area of approximately 45 square inches when immersed to recommended depth. Three-pin receptacle for power input and tapped hole for horizontal attachment of 5½ × ⅜-inch diameter mounting rod are provided in polypropylene shank. Two ¼-inch o.d. tubulations emerge from top for connection of tubing for cooling water input and discharge. Thermoelectric modules within the outer shell are bonded to a cast bronze heat sink which is cooled by the passage of tap water. A thermal cut-off switch attached to the heat sink closes at 71°C if cooling water is inadvertently shut off *(see Power Supply)*.

Power Supply. Suitable for unattended, continuous operation to provide 3-volt, 25-ampere d.c. operating power. Contains transformer, two silicon diode rectifiers, choke for reducing output ripple, fuse, pilot lamp and thermal cut-off power switch. Heater in thermal cut-off switch is activated by closure of a bimetal switch attached to the heat sink inside the cooling unit. Although bimetal switch in cooling unit reopens when heat sink temperature drops to 55°C, power will not be restored until power supply switch is reset manually. Plug on d.c. power cable connects the power supply to cooling unit. A.c. input is supplied through a 3-wire cord, with 3-prong plug and adapter.

Cooling Rate. Non-linear; depends upon bath volume and temperature of heat sink coolant. In test with 3.5 liters of ethylene glycol, with coolant and initial bath temperature of 24°C, hourly temperatures were recorded as follows: 14, 4, −3, −8, −12, −14, −16, −17, −18, −19, −20, −21, −22, −23, −24 degrees Centigrade.

4049. THERMOELECTRIC COOLER, as above described, complete with d.c. power supply unit. . **250.00**

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