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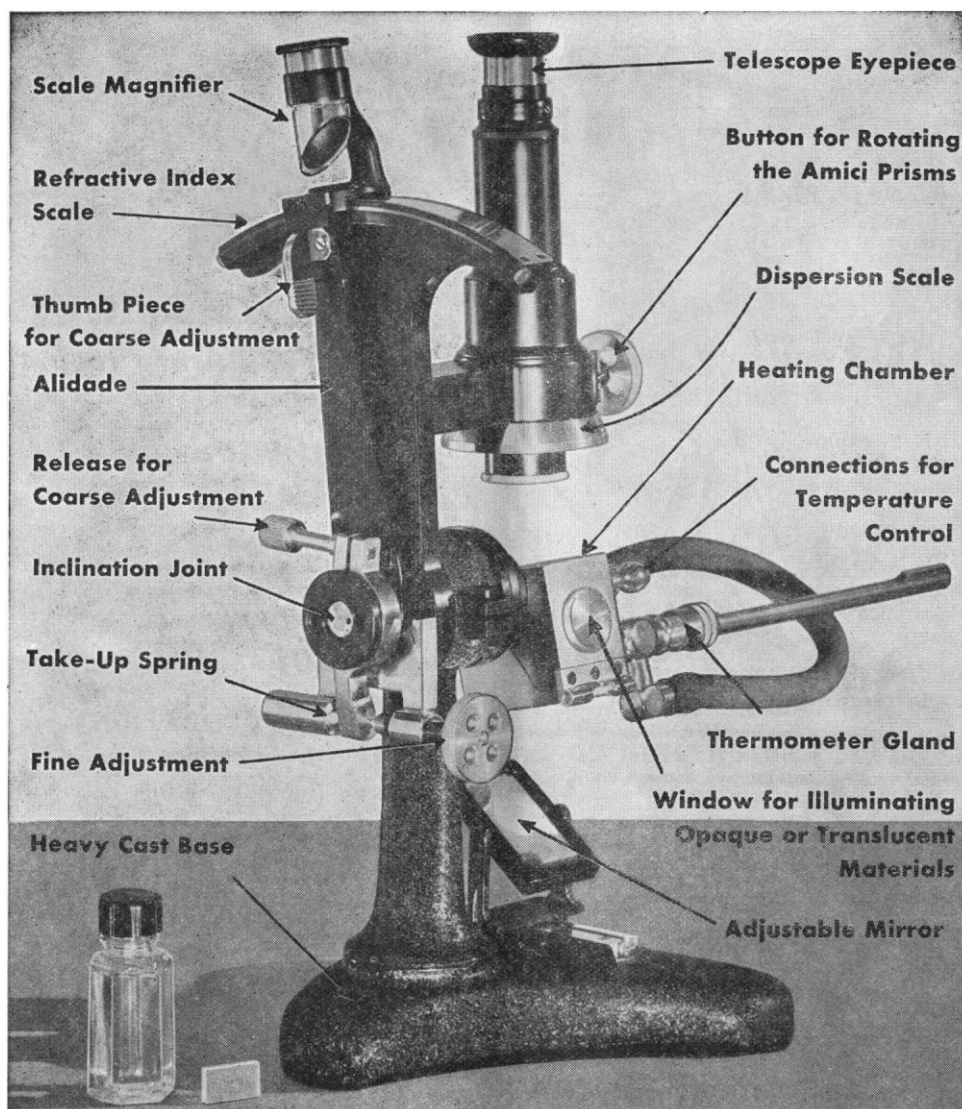
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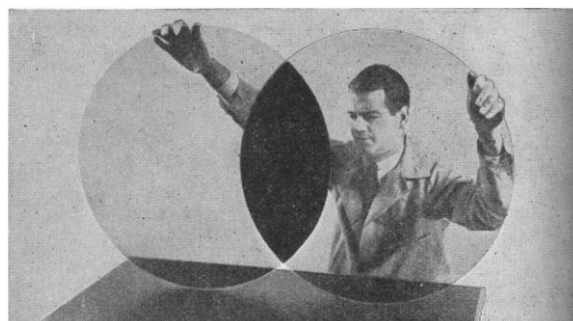
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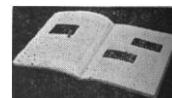
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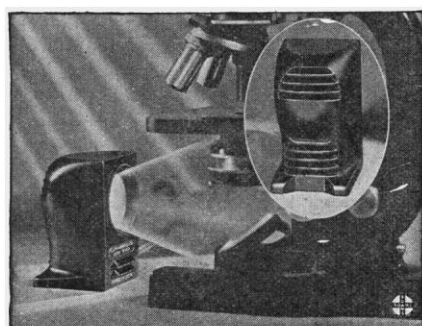
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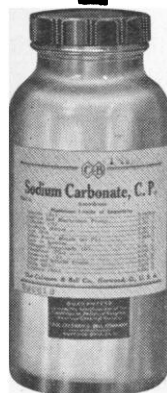
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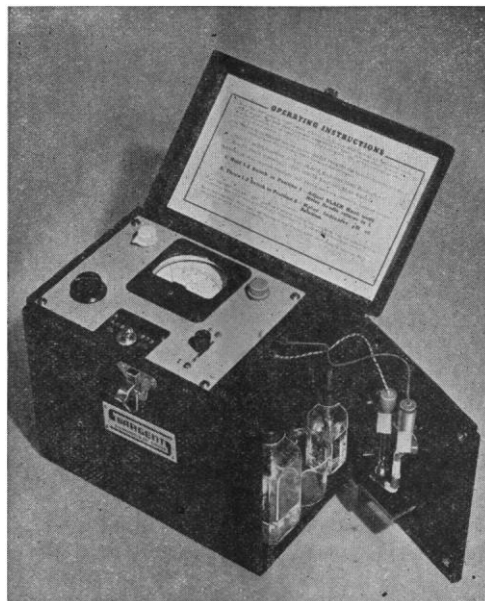
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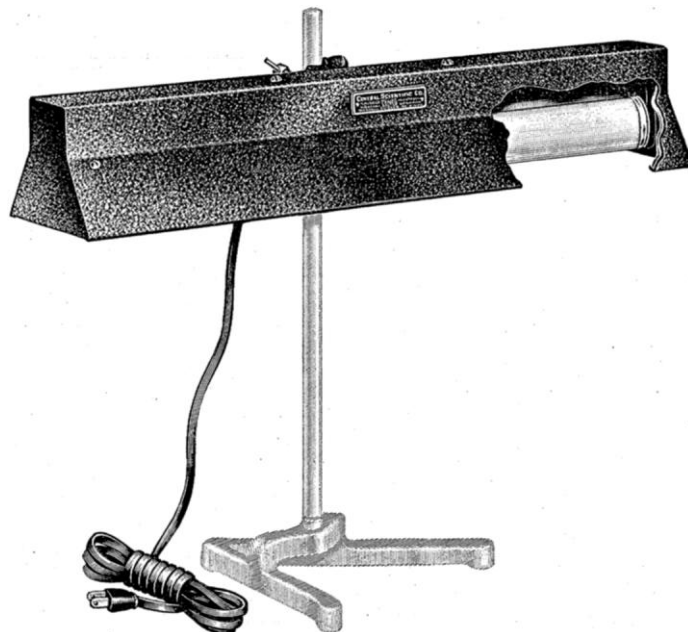
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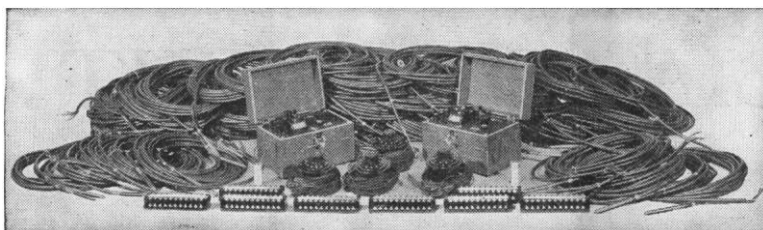
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Forty-two Leeds & Northrup Resistance Thermometers, two L&N Wheatstone Bridges and various accessories are now located at various points in the Antarctic. Information about sub-surface conditions is made available by this equipment.

## Antarctic Snow Is Measured At 160 Foot Depth

### *L&N Bridges Used To Study Temperature*

Apparatus which the Antarctic Expedition is using to determine the temperature of snow and ice at various depths was made by Leeds & Northrup and calibrated at the National Bureau of Standards.

The expedition is installing elec-

trical resistance thermometers in the snow at the surface and at various depths down to 160 feet, to measure the temperatures and to study the way in which they are influenced by air temperatures. In addition, measurements will be carried out at different stations to determine the influence of local topography on subsurface temperatures.

The Bureau of Standards supplied the expedition with the equipment, which consists of forty-two electrical resistance thermometers and two Wheatstone bridges, including such accessories as switches and extra galvanometers. The instruments are graduated from plus 50 degrees to minus 94 degrees Fahrenheit.

Thermometers are located in holes about two inches in diameter. Specially designed drills had to be constructed to make these holes. Where it is not possible to drill holes to the full depths with the limited manpower available, an electric heating device is used.

## New Catalog Describes Type K Potentiometers

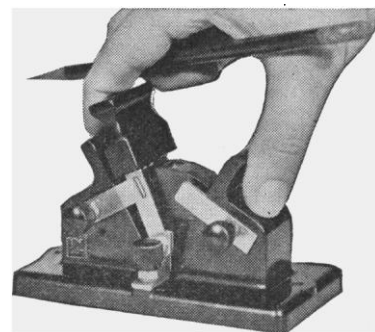
Interesting application pictures, a circuit diagram, and detailed closeups make this new catalog of Type K Potentiometers useful and easy to understand.

Devoted principally to the modernized, triple range Type K-2, this publication describes its convenient controls, covered switches, improved standardizing circuit and other features. A 24-page book, it gives information about assemblies for typical measurements and lists a complete line of accessories. Included are the L&N Thermionic Amplifier (for use in measuring potential in high-resistance circuits), galvanometers, reading devices, shunts, volt boxes, etc. Galvanometer damping is discussed, and a short description of the potentiometer principle is included. See Catalog E50B (3).

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## WASHINGTON ASSEMBLY OF THE INTERNATIONAL UNION OF GEODESY AND GEOPHYSICS AND THE AMERICAN GEOPHYSICAL UNION

By Dr. J. A. FLEMING

GENERAL SECRETARY, AMERICAN GEOPHYSICAL UNION

### INTERNATIONAL UNION OF GEODESY AND GEOPHYSICS

THE Seventh General Assembly of the International Union of Geodesy and Geophysics was held at Washington, D. C., September 4 to 15, 1939. The various organizing committees of the American Geophysical Union, in collaboration with the National Research Council, made adequate preparations for the reception and entertainment of some 800 delegates and guests. Unfortunately the war in Europe broke out just before the assembly convened and prevented the attendance of many foreign delegates and guests who had registered for the meetings. Despite these adverse condi-

tions, there was a total actual registration and attendance of 719 delegates and guests, including 120 from foreign countries representing 26 nations of the 38 that had designated delegates. The total number of delegates and guests who had promised attendance included 246 from outside the United States and 701 from the United States, a grand total of 947. The wide-spread interest aroused by the assembly in the United States is demonstrated by the fact that 79 universities and scientific and commercial research organizations sent representatives in addition to those delegated by 18 bureaus and services of the United States Government. A considerable number of French

After a small hole had been made in the paraffin wall to allow air to escape from the artificial air sac, the egg was ready for manipulation of the membrane into position in contact with the coverslip by inflation of the natural air sac. Holding the egg tilted away from the opening in the paraffin wall, air pressure was applied by blowing gently through the rubber tube. The air pressure was carefully controlled by means of the screw clamp while the opening in the wall was sealed by the application of a pair of heated forceps to the glass immediately above it. The screw clamp was then closed tightly.

These membranes were found to remain in contact with the coverslip from two to seven days, or could be lowered and raised again at will. If desired, the glass tube can be removed from the egg and the opening in the wall of the natural air sac sealed with the vaseline and paraffin mixture. The apparatus is cheap, convenient and easily constructed.

RACHEL E. HOFFSTADT  
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#### A TUBE FOR NITROGEN PURIFICATION

WE have found it necessary to devise a rugged, high capacity tube for the removal of traces of oxygen from nitrogen for our work in an oxygen-free atmosphere. Several designs of tubes have been described<sup>1,2</sup> that appear to have certain unique features. However, our apparatus is rugged, efficient, inexpensive and can be constructed in a very short time from materials available in most laboratories. These characteristics make it seem worthwhile to describe the apparatus briefly here.

The apparatus is described pictorially in Fig. 1.

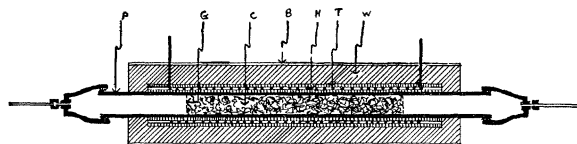


FIG. 1. P—iron pipe; G—copper gauze; C—copper turnings; B—asbestos paper; H—Nichrome wire (heater); T—asbestos tape; W—asbestos wool.

In brief, the apparatus is as follows: a 2 inch  $\times$  24 inch iron pipe is fitted with reducers to each end of which is attached a 1 foot length  $\frac{3}{8}$  inch copper tubing by means of sleeves and connectors. The copper tubing can be sealed easily to a glass line or rubber tubing by means of de Khotinsky cement or sealing wax. The tube is packed with fine, bright copper turnings to serve as the oxygen remover; the turnings are held in place with loose wads of copper screen. The outside of the iron pipe is wrapped with three layers of asbes-

tos tape then wound with 40 feet of No. 18 Nichrome wire (0.4 ohm per foot) to serve as the heater coil. This is wrapped with two layers of asbestos tape, then with a  $1\frac{1}{2}$ -inch layer of asbestos wool (commercial asbestos), held in place with two layers of asbestos paper and finally with several more layers of asbestos tape. The temperature may be regulated by means of an outside resistance. In fact it is highly desirable to calibrate the external resistance for several temperatures in the heater pipe.

The copper may be regenerated by slow, careful flushing with hydrogen.

A safety feature that is desirable in the use of any of these oxygen-removal tubes is a bottle of alkaline pyrogallic acid through which the purified gas may be passed after it leaves the heater tube; the pyrogallic acid will become discolored as it is exposed to and reacts with oxygen. This will serve both as an indicator of the efficiency of the tube as well as a safety trap to remove traces of oxygen should they not be removed in the hot tube. After the pyrogallic acid has become appreciably discolored it should then be replaced with a fresh solution and the copper must be regenerated. If the rate of flow of gas through the heated tube is very rapid it may be necessary to cool the gas before passing it through the pyrogallic acid solution. This is done easily by using a longer piece of copper tubing as an exit tube, coiling it several times and placing the coil under a stream of cold water.

A. B. GARRETT  
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- ZIPORYN, I. *Cosmo-Retardation*. Pp. 251. 10 figures. Dexter Publishing Company, Detroit.

<sup>1</sup> E. C. Kendall, *SCIENCE*, 73: 394, 1931.

<sup>2</sup> Savage and Ordal, *ibid.*, 91: 222, 1940.

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