Comments and Communications

Welding Thermocouples

In a recent technical paper (*Science*, March 18, 1949, p. 281) James A. Riley presented "A Simple Method for Welding Thermocouples."

I should like to bring to your attention a description of a similar apparatus invented in Russia by a member of the "Vnidi," Engineer Velixon, for making pyrometers to be used on engine pistons. The usual couples, consisting of copper, constantan, nickel, and nichrome, cannot be used for such purposes because of the high incidence of breakage due to the low elasticity of these materials.

The best couple for measurement of the temperatures of high speed Diesel engines (1500 rpm) has been found

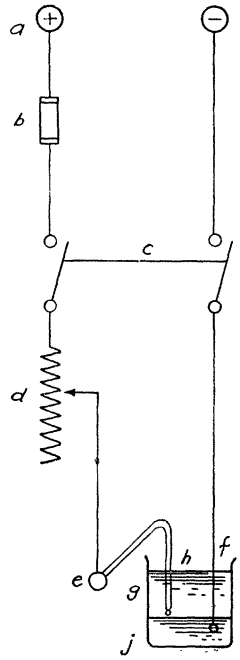

FIG. 1. Velixon apparatus for welding fine wires.

to be annealed steel and constantan. However, welding of the materials is difficult in an ordinary voltaic arc as the steel oxidizes.

Essential features of the Russian apparatus are shown in Fig. 1, and a description of the process (*Dieselestroyenive*, Nos. 4–5, 1932, p. 38) is as follows:

"One of the poles of the source of current (D.C. is preferable) is connected through fuse *b*, knife-switch *c*, and resistance *d*, to the terminal *e*. The other pole is connected to a wire dipped into vessel *f* containing mercury *j* and oil *g*. To weld the couple, the ends of the wires are twisted into a knot *h*, the free end of one of the wires being connected to terminal *e*. The knot is then dipped into the mercury and rapidly withdrawn. For an instant an arc is formed between the mercury and the wire knot while the latter passes through the oil, and this arc welds the tips of the wires together. An excellent joint is produced as the process takes place in a complete absence of air. Wire of diameter from 0.05 to 2.0 mm. can be welded by this method."

JOSEPH T. HOGAN
Southern Regional Research Laboratory,
New Orleans, Louisiana

International Polar Year of 1932–1933

The Second International or Jubilee Polar Year of 1932–1933 was sponsored by the International Meteorological Organization. That organization had also sponsored the First International Polar Year of 1882–1883, as the result of a suggestion made in 1875 by Lieutenant Karl Weyprecht of Austria. Weyprecht's premise that the scientific worth of polar expeditions would be immeasurably increased were they arranged to follow a uniform program to supply simultaneous physical data at many stations in high latitudes, was more than justified by the 20 or more published volumes on the results during 1882–1883.

Advances in all geophysical sciences since 1883, and especially since 1900, indicated that international pooling of resources in instruments, techniques, and methods would be most desirable for any program of polar expeditions, as for example, a second Polar Year of 1932–1933. The preparation of plans for the effort of 1932–1933 was placed by the International Meteorological Organization in the hands of a special International Polar Year Commission, under the presidency of the late Dr. D. la Cour, director of the Danish Meteorological Institute. Dr. La Cour instituted world-wide cooperation in the subject with the result that some 44 countries undertook to participate in the program. Twenty-two of these countries sent out special expeditions, several of which established new stations outside their own borders. In spite of the world-wide economic depression in the early 1930's the necessary funds were found through governmental appropriations and liberal grants from scientific endowments. The polar network of stations was augmented by special programs at existing geophysical observatories in lower latitudes and thus the Second Polar Year was in the truest sense world-wide.

The realization and accomplishment of the program as an international project is a monument to the enthusiasm and indefatigability of La Cour and to the support generously provided by the Danish Meteorological Institute. In spite of interruptions in investigations arising from World War II and the world's unrest in several years preceding that war, many valuable contributions to polar geophysical knowledge have already been made. But there remains much material not yet fully compiled or discussed and many completed or partially