which also, in some cases, are transmissible directly or indirectly to man.

International Good Will Is Sought

Though primarily a scientific gathering, the Twelfth International Veterinary Congress was flavored with a universal desire among the delegates to promote world-wide good will and improved international relations. It was pointed out that accurate technical knowledge is necessary for wise administrative action and that the results of scientific study are a material aid in bringing about economic stability and safety for man as well as for his animals.

Supplementary features of the congress included especially arranged radio broadcasts on August 14 and 16 over a network of about 60 stations in the United States, with a pick-up by 3 short-wave stations which provided far-reaching international distribution. The radio addresses dealt largely with the constructive purposes of the congress and the desire to improve the safety of animal production through prevention and control of diseases and parasites.

Additional features of the congress were educational and commercial exhibits, daily showings of motion pictures, a trip to the Rockefeller Institute near Princeton, N. J., to the Walker-Gordon Farm at Plainsboro, N. J., and to local milk-handling and pasteurizing plants. There were also a surgical clinic and post-congress tours to government laboratories and experimental farms at Washington, D. C., Ottawa and Montreal, Canada, the stockyards and meat-packing establishments of Chicago, and other points of scientific, industrial or scenic interest. Special programs were arranged also for the ladies present.

The total attendance at the sessions of the congress in New York was approximately 1,850 delegates. In addition, about 1,350 veterinarians and allied scientific workers who were unable to attend forwarded their registration by mail or through delegates, making a total registration of approximately 3,200. Thirty-seven foreign countries or colonial possessions were represented by 164 delegates from abroad, all these members being present. The world-wide character of representation was apparent by the presence of delegates from Norway and Canada to South Africa and Australia. All important live-stock countries of the globe were represented.

Resolutions on Wide Range of Topics

The deliberation of the congress resulted in a series of 9 resolutions. Those of scientific import dealt with the following topics: Further scientific study and administrative procedures for the prevention and eradication of tuberculosis; intensified international study of lymphadenitis of sheep; greater consideration of diseases affecting young animals; appointment of a permanent international committee on control of parasites and parasitic diseases; greater attention to diseases of poultry; increased study of genetics in relation to veterinary science; improved organization and facilities for the international exchange of veterinary knowledge, and veterinary supervision of milk supplies.

At its closing session, the congress voted to hold its next meeting in Switzerland in August, 1938. Details of arrangements will be announced later.

JOHN R. MOHLER,
President of the Congress

SCIENTIFIC APPARATUS AND LABORATORY METHODS

A MELTING POINT APPARATUS FOR MINUTE SAMPLES[1]

IN a study of the volatile constituents of tomato and cactus fruits, it was found that the yield of certain crystalline derivatives was insufficient even to make an ordinary melting point determination on them. Under ideal conditions the observations of the melting point of individual crystals by means of a microscope will allow of the identification of a millionth of a gram or less of material. Mixtures of crystals can also be detected. The sublimation temperature of certain crystals and the appearance of the condensed sublimate are additional properties that may be used to check the identity of a crystal.

A variety of micro melting point or hot-stage instruments have been described.[2,3,4,5] Chamot and Mason[6] give a good discussion concerning the desiderata of such instruments. Köfler[7] discusses the practical applications of the instruments in the identification of crystals.

The apparatus, shown in the illustration, was devised after a number of trials and may be obtained from H. S. Kern, of Ann Arbor. It has been in use in this laboratory for more than a year and has given satisfactory results.

[1] Paper No. 498 of the Botany Department, University of Michigan.

[2] Cram, *Jour. Am. Chem. Soc.*, 34: 954, 1912.

[3] Köfler and Dernbach, *Arch. der Pharmazie*, 269: 104, 1931.

[4] R. Kempf, ''Methoden der Organischen Chemie,'' J. Houben, Vol. 1, 1925.

[5] G. Klein, *Mikrochemie*, Pregl Festschrift, 1929.

[6] Chamot and Mason, ''Handbook of Chemical Microscopy,'' Vol. 1, John Wiley and Son, 1930.

[7] L. Köfler, *Arch. der Pharmazie*, 270: 293, 1932.

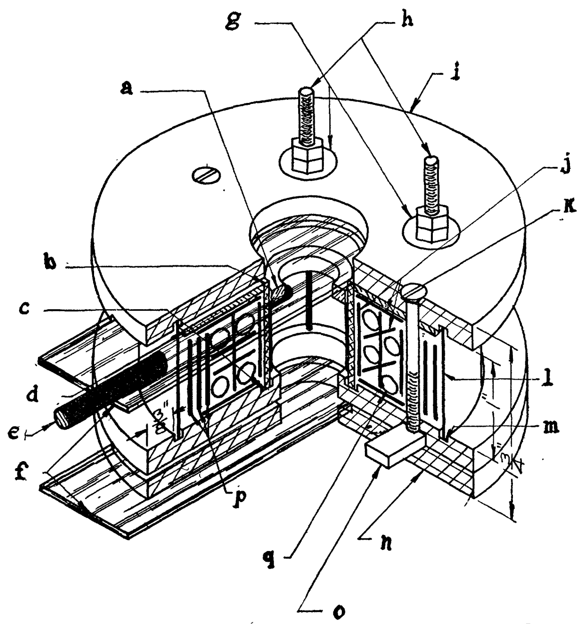

FIG. 1. Melting point apparatus for minute samples.
a—Tripod, made by press fitting three $\frac{7}{8}''$ steel pins into a brass ring $\frac{7}{8}''$ diam.
A thin $\frac{5}{8}''$ disk of glass, which supports the crystals, is placed upon the tripod.
b—Copper tube $1\frac{1}{8}''$ long, 1″ diam., set in
c—a groove, and flanged and pressed at the top into
d—a brass disk 2″ diam.
e—Thermometer.
f—Ordinary microscope slides.
g—Brass washers.
h—Brass binding posts.
i—Transite top $\frac{1}{4}'' \times 3\frac{3}{4}''$ with 1″ hole drilled at the center.
j—Mica insulation.
k—Brass bolts.
l—Nickeled iron, 21 gauge, set in
m—a groove in the transite.
n—Base of two $\frac{1}{4}'' \times 3\frac{3}{4}''$ layers of transite riveted together with a $\frac{5}{8}''$ hole at the center of the base.
o—Brass strip 1″ set into transite base.
p—Sheet asbestos.
q—Heating element—110V, 1.25 amp., formed by winding 15 ft. of 30 gauge chromel wire on a 5/32 in. rod.
All space around the insulation and heating element, filled with fireproof cement. This apparatus was connected in parallel with a 50, a 75, and a 100 watt light bulb which were used to vary the amount of current passing into the apparatus.

The instrument is inexpensive and easily constructed. It is essentially a short copper tube wound with chromel resistance wire as the heating element and insulated on the top and bottom with transite. The heat is concentrated around the copper tube, thus decreasing greatly the heat lag from the heating element to the center of the copper tube. The upper and lower windows of the tube are snug-fitting glass slides which can be moved horizontally in and out of the transite insulation. This arrangement, therefore, permits of a shifting of the upper glass window when the field of vision becomes befogged by steam or sublimate. The crystals are placed on a thin coverslip which rests upon a brass tripod. The coverslip is close enough to the upper glass slide to permit the use of a 16 mm objective. Because of the arrangement of the heating element, the instrument may be placed on an ordinary microscope without fear of injury to its hard rubber stage. A rheostat, or simply a number of lamps in parallel, connected to a 110 volt A.C. line, will permit easy regulation of the temperature up to 300° C. The instrument has a low heat lag and therefore heats rapidly and cools rapidly. This is of advantage in shortening the period of observation.

The reading of the thermometer is not that of the melting point of the crystals except below 100° C. A calibration curve is constructed for the thermometer, using pure crystals of known melting point. The approximate melting point of the unknown crystal is first determined. A crystal of known melting point is selected in this immediate melting point range, and placed on the same coverslip with the unknown. The melting points of both are then observed simultaneously.

There is no advantage in using a thermocouple in place of a thermometer. A thermocouple arrangement, as Linser[8] has shown, requires that the apparatus be heated up in exactly the same manner each time, otherwise the heat lag of the apparatus will produce a considerable error in the reading. The reading can therefore only be an approximation of the true melting point.

Professor F. G. Gustafson has given his kind suggestions and advice in connection with planning the apparatus.

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LABORATORY STIRRERS

I HAD occasion to do some research work on clay plastics at one time and had to rig up a set of agitators in a hurry. The general arrangement is as shown in Fig. 1. A small grinding motor was used for power, though almost any sort of motor would do. I procured a ten-foot length of ½-inch steel rod to use for a shaft. I found out that the bearings, pulley and collars could be obtained as parts of the home workshop sets found in hardware and department stores. These fittings are all for ½-inch shaft. Small lengths of shafting can also be obtained at these places. I needed a longer shaft and picked it up at a machine shop. I had four agitators connected up at one time. The speed could be regulated by using different-sized pulleys on the top of the vertical shafts of the agitator. Ordinary grooved pulleys were used with a round leather belt. It is unusually hard to find pulleys in the store of much more than 6 inches

[8] H. Linser, *Mikrochemie*, 9: 253, 1931.