also in some plants, having been found n the leaves of *Gymnema sylvestre*,[1] in tobacco leaves,[2] and in East India ko-sam seeds, *Brucea sumatrana*.[3] With this information regarding its occurrence as a natural product and in the absence of any information regarding the possibility of its formation from other soil organic matter, this paraffin hydrocarbon may be regarded as an unchanged plant residue.

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CONVENIENT ATTACHMENTS FOR A MELTING-POINT APPARATUS.

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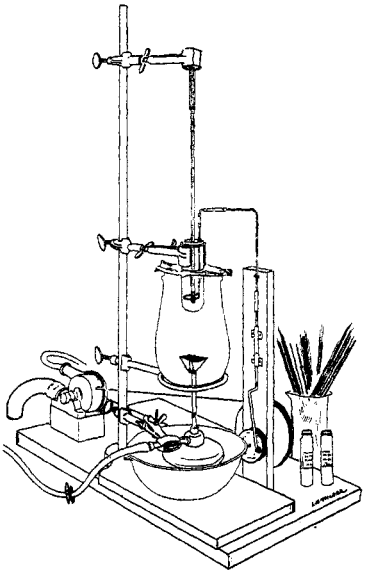
In a bulletin[4] of the Hygienic Laboratory entitled "A Study of Melting-Point Determinations," Dr. Geo. A. Menge describes a simplified form of melting-point apparatus which he found, after numerous experiments, to embody all the essential features required for the practical and reasonably accurate determination of melting points. In using the apparatus it was specified that the bath be constantly stirred during the determination and that the heat be applied in such a manner that the rate of rise of the temperature remain constant (3 degrees per min.) over a range of 20° immediately preceding the temperature of melting and at a slower constant rate ($^1/_2$ degree per min.) while the compound was melting. To accomplish this it was necessary to operate the stirrer continually with one hand and the Bunsen burner with the other. Although this cannot be called a difficult feat for most persons it was apparent that a certain amount of skill and practice would be required on the part of some individuals. It was on this account, therefore, that it appeared desirable to devise attachments to operate the stirrer automatically and



[1] Power and Tutin, *Pharm. J.*, [4] **19**, 234 (1904).

[2] Thorpe and Holmes, *J. Chem. Soc.*, **79**, 982 (1901).

[3] Power and Lees, *Pharm. J.*, [4] **17**, 183 (1903).

[4] *Bull.* **70**, Hygienic Laboratory, U. S. P. H. and M.-H. Service, Washington, October, 1910.

provide a source of heat which would not require constant attention. The accompanying illustration shows how these two ends were accomplished with the aid of attachments made from materials on hand in the laboratory.

The melting-point apparatus itself is the one used by Dr. Menge and will be found described in detail in the Bulletin mentioned. The mechanical stirrer as will be seen from the figure consists simply of an upright piece of wood fixed into a solid base; a pulley driven by a small water motor is provided at the lower end of the upright and to the opposite side is attached a rod connected in such a way as to give a perpendicular reciprocating motion. At its upper end, the rod is bored out to about $^1/_2$ inch depth and a diameter slightly larger than the glass tube of the stirrer. The end of the stirrer is placed loosely in this hole and the water motor started when it is desired that the melting-point bath be automatically stirred.

The device for securing the constant source of heat consists of a small-sized Bunsen burner provided with a piece of wire gauze about one inch square fastened in a horizontal position about one inch above the upper end of the burner. This wire gauze serves to spread out the heat and prevent the free flame coming near the bath of the melting-point apparatus. An ordinary lantern chimney is used as a screen for preventing the dissipation of the heat and to protect the flame from air currents. The upper end of the lantern chimney is nearly closed with a piece of asbestos board through a hole in which passes the bath of the melting-point apparatus. The size of the flame of the burner is regulated by means of a screw pinchcock.

In using the apparatus with the attachments as shown no manipulation is required other than occasional adjustment of the pinchcock of the burner. It has been found advantageous to plot the rate of the rise of temperature against time on profile paper while the determination is in progress and in this way obtain a visible record of the rate of heating at all stages of the determination, but especially so for the range near the melting point of the compound, since it has been shown that it is the rate in this vicinity which affects most markedly the melting values obtained.

The mechanical stirrer shown in the illustration will, no doubt, also be found useful in the case of melting-point determinations made according to the method of Landolt, in which a sufficient quantity of the sample to surround completely the bulb of the thermometer is employed. It is also probable that it could be advantageously adapted to the usual forms of apparatus used for the determination of freezing points.

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