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[2] Dyer, *J. Chem. Soc.*, 67, 811; Sherman, McLaughlin and Osterberg, THIS JOURNAL, 26, 367; Sherman and Falk, *Ibid.*, 26, 1469; Emmett, *Proc. Assoc. Off. Agr. Chem.*, U. S. Dept. Agr., Bur. Chem., *Bull.* 162, 145; Trescot, *J. Ind. Eng. Chem.*, 5, 914.

[3] Grindley and Emmett, THIS JOURNAL, 27, 658.

[4] Folin, *Z. physiol. Chem.*, 41, 223; also *Am. J. Physiol.*, 13, 48; Benedict and Myers, *Ibid.*, 18, 395; Emmett and Grindley, *Ibid.*, 3, 6.

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NOTE.

Uses of the Concentrated Filament Tungsten Lamp in the Laboratory.— In laboratories where much microscopic work is done, it is frequently necessary, or preferable, to depend upon artificial light; and for this purpose the Welsbach gas lamp seems to be quite generally used, while the Nernst lamp is also used to some extent, with seemingly good results. During the past few months there has been in use in this laboratory, for such work, a stereopticon type of tungsten lamp which has proven so satisfactory as to make it seem probable that a description of it may be of interest to others. The lamp is rated at 100 watts, and probably gives

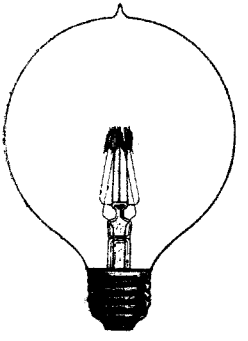

Fig. 1.

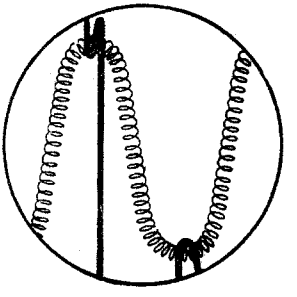

Fig. 2.

about 60 c. p. The filament, instead of being strung out in straight loops between the points of support, is formed into a close coil, which is looped over supports about one centimeter apart (see Fig. 2), and loops forming an open cylinder about one centimeter in diameter. Thus when looked at from the side, the entire light-giving element is concentrated in a space about one centimeter square. The lamp is provided with a round blub about 7.5 cm. in diameter.

The lamp has also been used with the polarimeter for the investigation of the rotatory power of solutions which are too highly colored or which cannot be cleared by the ordinary methods and are too cloudy to transmit sufficient light from the ordinary sources for satisfactory reading. It has the advantage over the ordinary clear bulb tungsten lamp, that no

bright-line images of portions of the filament are formed in the field of the instrument, and the intensity is very much greater than that obtainable with the frosted bulb lamp. No doubt other uses may be found for such a lamp in general laboratories.

The lamp is shown in the accompanying figures, and the specifications for it are as follows: Mazda, stereopticon type (concentrated filament), 100-watt, 110-volt, G-30 bulb, unskirted.

A 60-watt lamp has also been made, having a smaller bulb. So far as the writer knows, they have not been made for 220-volt circuits, though two in series could be operated at this voltage, of course.

In laboratories having the proper current, the new nitrogen-filled Mazda lamps will, no doubt, prove useful for the same purposes as the above described stereopticon lamp. This lamp is made in a 100 c. p. size, taking 10 amperes at 6 volts—about 0.6 watt per candle—in a bulb of the same size as the first lamp mentioned, the filament consisting of a single heavy loop; also for 6.6 ampere (street-series) at voltages from 6 to 50.

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NEW BOOKS.

L'Etude physico-chimique des Sels chromiques. PAR A. SÉNÉSCHAL. Nr. 5 des Publications de la Societe de Chimie-Physique, pp. 28, 1913. Paris, Librairie Scientifique, A. Hermann et Fils. Price 2 francs.

The differently colored modifications of chromium chloride, nitrate, sulfate, etc., have offered an alluring problem to chemists for more than a century. Little progress was made in their study until Recoura, in 1887, resorted to methods of physico-chemical analysis.

Sénéschal in this short pamphlet reviews the work of Recoura and the physico-chemical investigations which have succeeded it in this field, displaying that lucidity of statement which is so often encountered among French writers. Of these investigations those of Werner have been of the greatest importance. His coördination theory has proven very illuminating when applied to these salts, and has furnished the only satisfactory classification of them; indeed, by its aid, we can deduce the architecture of the green hexahydrate of chromium chloride, in greater detail than is possible with almost any other inorganic compound. Werner's work and the careful measurements of Bjerrum on the rates of transformation of, and on the equilibria between, different modifications of chromium chloride in solution, constitute the principal subject matter of the pamphlet.

Since what the author gives is so well given, we regret that he did not give us more. He has ignored a number of recent investigations specifically