

feet. It is obvious that, if the walls, floor and ceiling were perfect reflectors (i.e., reflected 100 per cent. of the light) the intensity at the plane of illumination (3 feet above the floor level) would be independent altogether of the mounting height. As such walls are not obtainable, the only loss in efficiency is due to the additional reflected light caused by raising the lamps; this loss can be obviated by using a shade with a more focussing characteristic; that is, one which directs its light in a cone, with a smaller apical angle. Moreover, by mounting lamps high, they are taken further from the eye, and the "glare" effect will therefore be less marked. It will be noted from the photograph of the Technical College Auditorium that this effect is almost entirely absent.

Uniform or general lighting, over an area such as the above, is, however, not always required. In a large office, where seven or eight clerks work at desks, the position of which are fixed, a high, general illumination over the whole room would be wasteful. Problems such as these might be called "local" illumination in contradistinction to the "general" illumination outlined in the preceding.

By far the majority of such problems consists in the lighting of desks, and the requirements of good desk-lighting may be enumerated as follows:

1. There should not be any interfering shadows.
2. There should be a good light over the whole desk, and sufficient general light to enable surrounding objects to be easily distinguished.
3. The direct rays of the lamp must not be visible to the sitter.

The method of desk-lighting adopted by the Public Works Department is to mount the lamp 3ft. 6in. to 4ft. above the desk level, 3ft. from the front edge of the desk, and 1ft. 6in. to the left of the sitter. A 30 watt tip frosted metal filament lamp in a 10in. x 6in. green opal shade is employed.

This method fulfils the above three conditions, in that the shadow is parallel to the right forearm when writing; it is thrown backwards, and thus does not interfere; the intensity varies from four foot candles directly under the lamp to 1.5 ft. candles at a point on the desk 6ft. from the point directly under the lamp; no direct rays can be seen, and, owing to its height and position, the lamp does not catch the eye on looking up. This arrangement has, with one or two exceptions, given satisfaction wherever it has been adopted.

To complete this paper, some figures are given of some rooms in the various Government buildings in which the illumination has been measured, and also the photometric curves of some of the commoner types of shades, as obtained by the authors. They are both self-explanatory, and there is little need to comment on them.

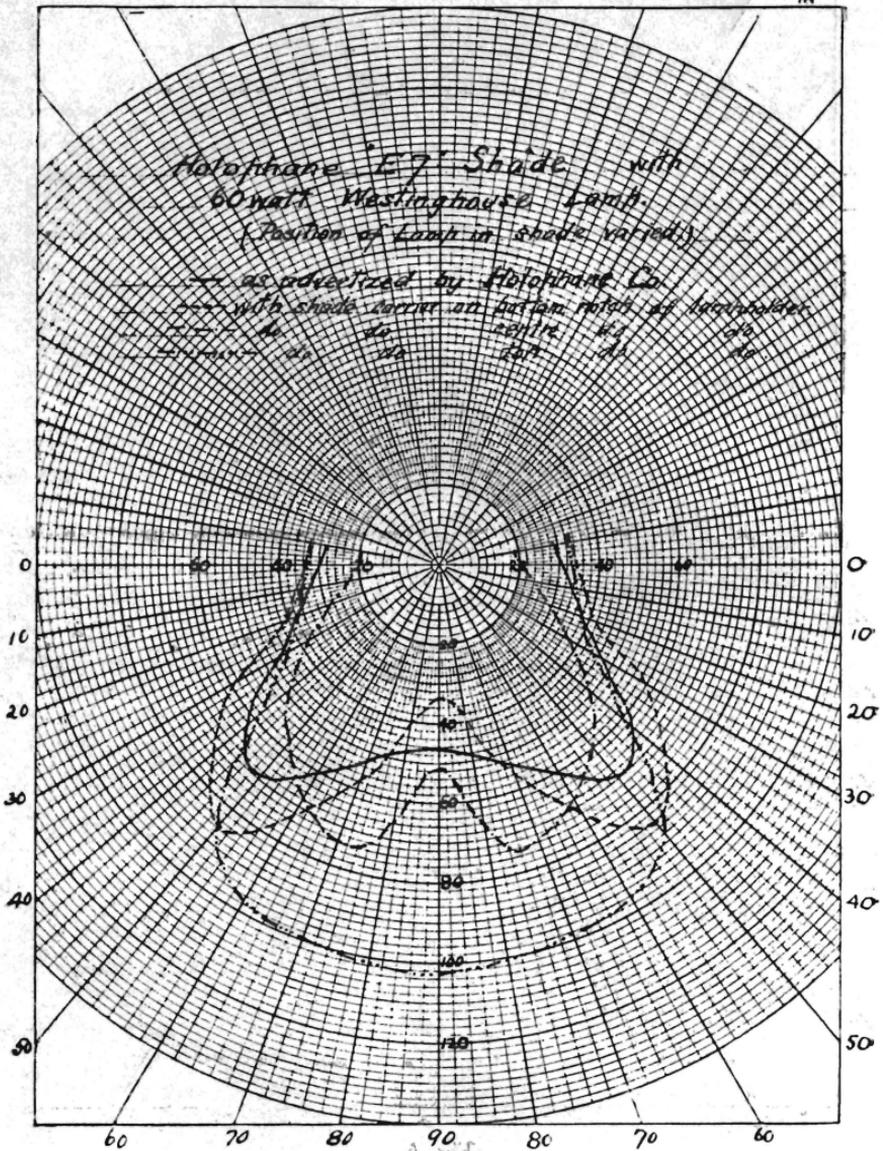


Fig. 4.

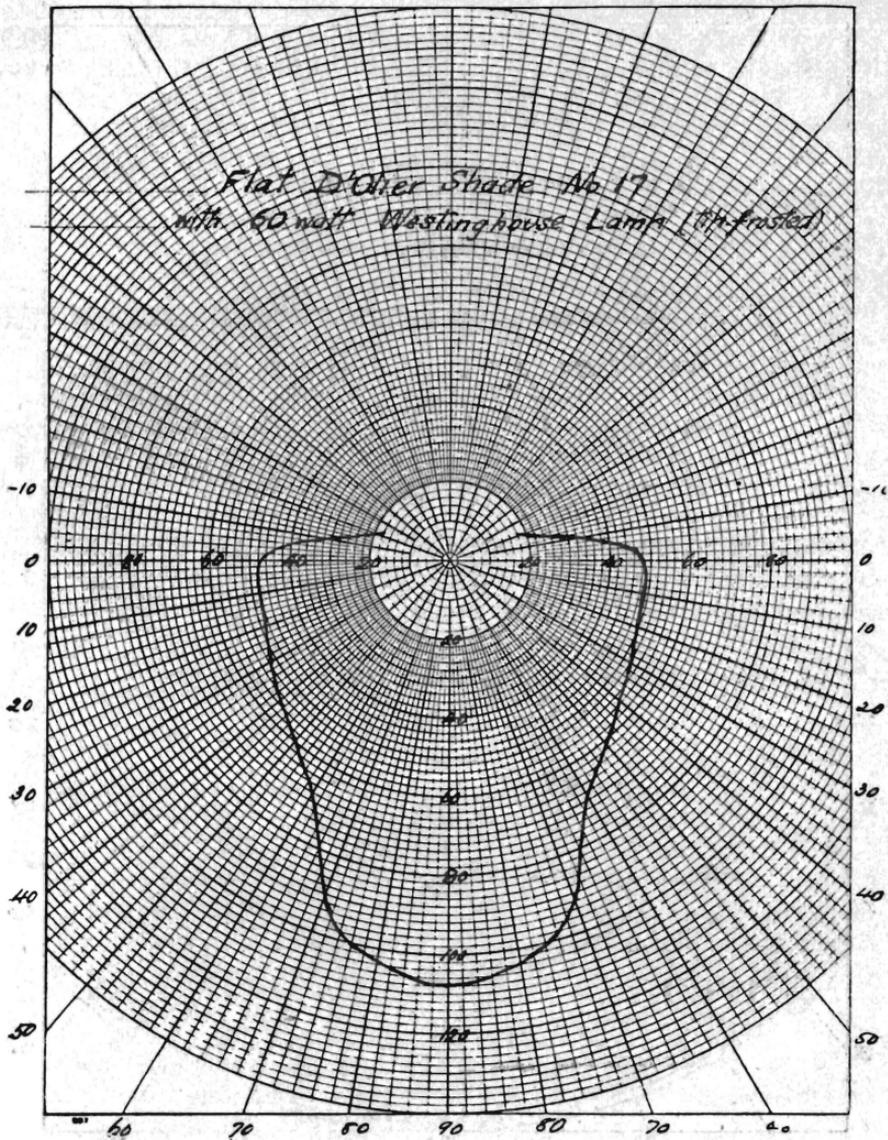


Fig. 5.

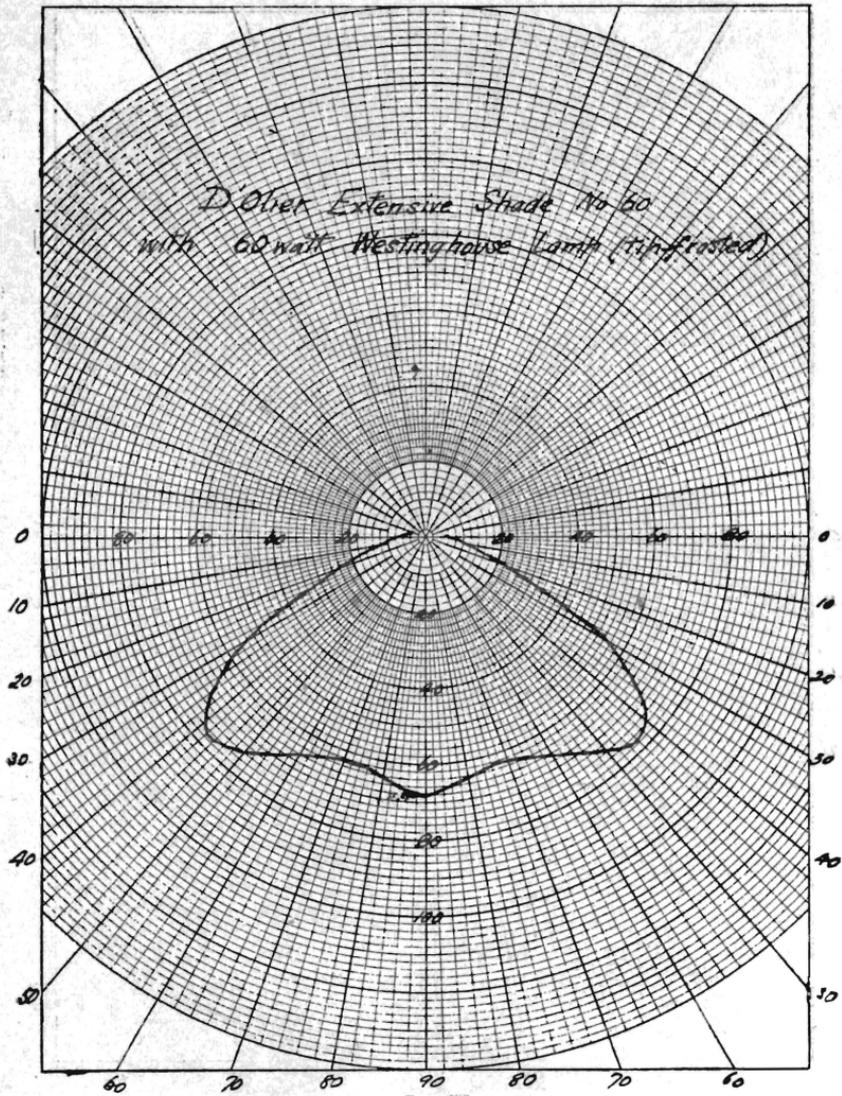


Fig. 6.

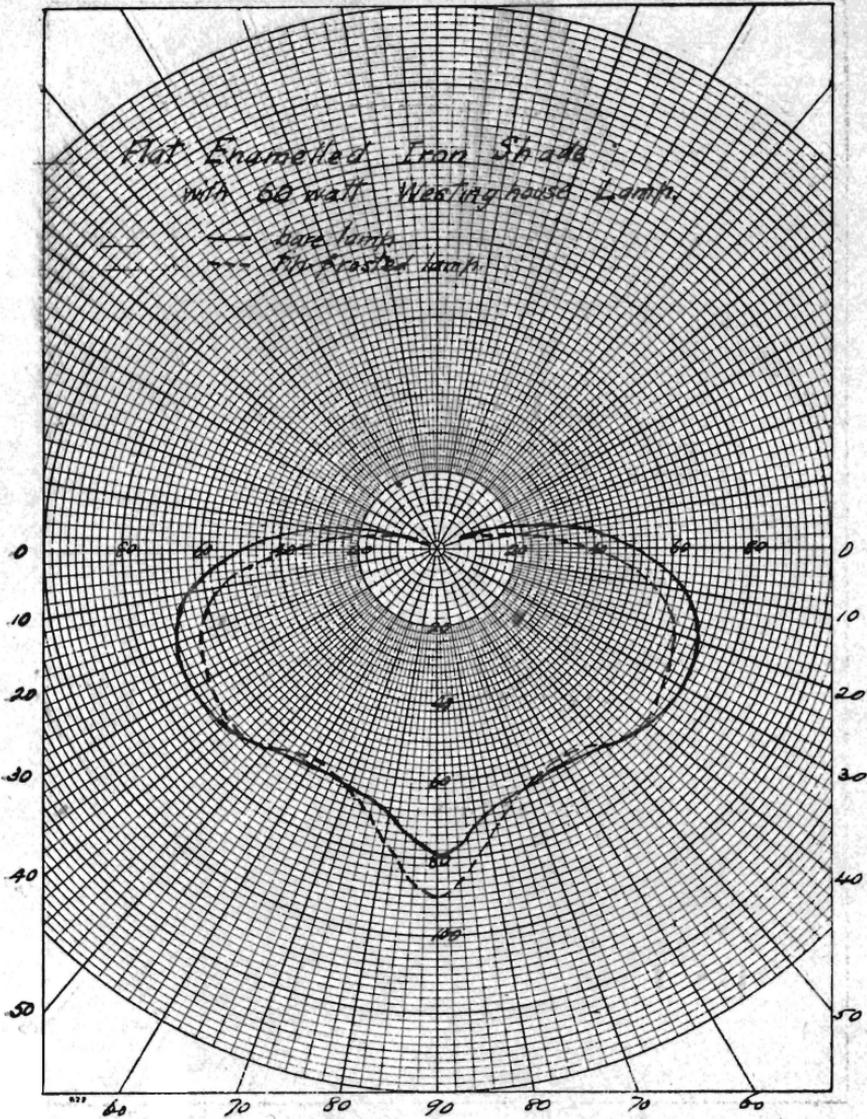


Fig. 7.

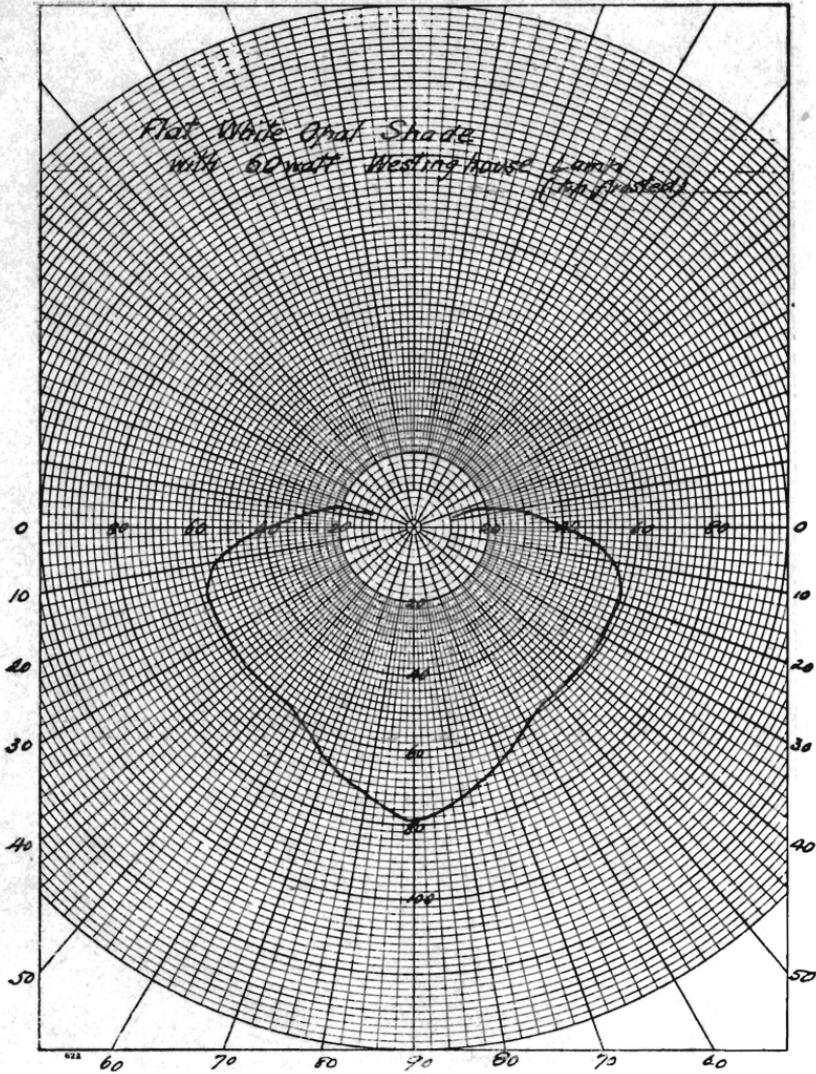


Fig. 8.

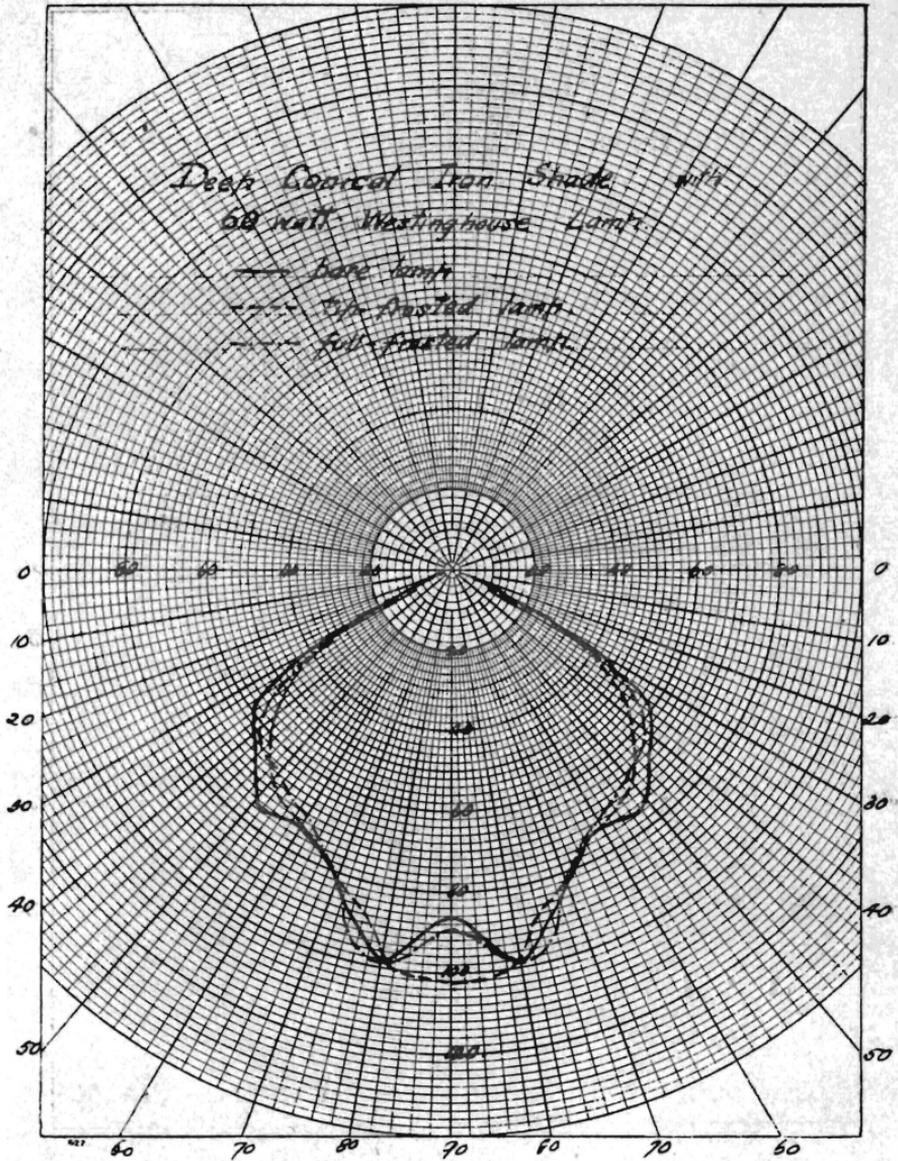


Fig. 9.