



Fig. 5. Poorly Lighted Room—Adjacent to Room Shown in Fig. 4.

First: Night shifts, or for that matter, evening shifts, are notoriously inefficient. Their production averages from ten to twenty-five per cent less than that of day shifts. The difference is due, in part at least, to the inadequacy of the lighting ordinarily supplied.

Second: In plants averaging, say, 100 square feet of floor space per employee the cost of good artificial lighting per foot-candle supplied is usually not in excess of 0.1 per cent of employees' remuneration during the period.

Third: It is the consensus of opinion that while good lighting, as well as all other hygienic conditions, is conducive to a willingness to do more work, the increased production resulting from improved illumination is not due chiefly to a stimulative effect, but principally to the elimination of those small losses of time, and aggravating interruptions in the work, which result from inadequate illumination.

Fourth: In all of the efficiency tests conducted to date the highest level of illumination investigated has invariably shown the greatest production and the greatest economy. In fact, in the range considered, the relation of decreased production costs to total lighting costs is of the order of ten to one. Four such tests which were conducted in a thoroughly scientific manner under the supervision of Mr. W. A. Durgin show increases in production of ten to twenty-five per cent resulting from better lighting.¹

In addition to the Durgin tests noted above, there have been several other less complete investigations in various industries which have also indicated substantial gains from the liberal employment of properly designed illumination. It is evident, however, that the imperative need of the art is for a far greater number

¹A record of these tests was published in *Electrical Review*, Chicago, March 22, 1919.



Fig. 6. Correct Method of Office Lighting.

of exhaustive tests covering many industries, tests which not only establish the range over which illumination may be profitably increased for a given operation, but which are also carried to such a point of extremely high illumination that an actual decrease in economy is recorded, due to the increased production, if there is any, being insufficient to compensate for the added cost of the light. All of these needs seem so simple and so obvious that you are inclined to ask why hasn't all this been taken care of long ago. The answer is that those interested in the subject of scientific illumination have been men trained in designing better lighting systems, and in improving the efficiency of our lighting units. It is only through their efforts that artificial lighting comparable with daylight has become available and at a reasonable price. These men very properly look to those skilled in the science

of management to cooperate with them in solving the second part of the problem; that is, determining just what degree of illumination is desirable and profitable in a given industry. As Chairman of the Reciprocal Relations Committee of the Illuminating Engineering Society, I commend this subject to the serious consideration of the members of the Taylor Society, and assure you that if you see fit to inaugurate such tests in your plants or in the plants of your clients, to furnish you with the best technical advice on the design of the various lighting systems and the choice of equipment.

The following is a list of factors which have been found in previous tests to require particular attention:

1. The test should cover a considerable number of operators working in the test area, supplied with a uniform illumination.