Westinghouse
Type PX-20 Light Meter
STYLE NO. 838094
INSTRUCTIONS

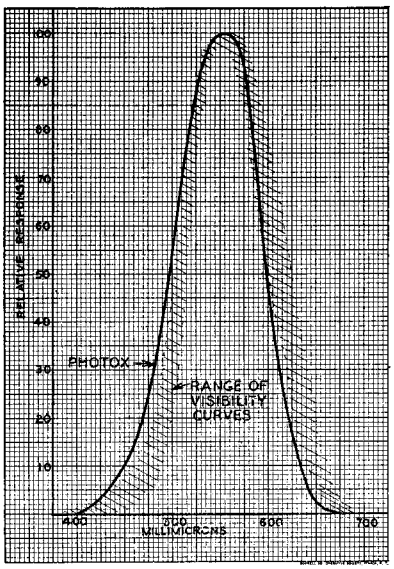

FIG. 1—COLOR RESPONSE CURVE

The PX-20 light meter is an accurately calibrated light measuring device, calibrated from 0 to 50 foot candles. The light sensitive disc is a copper oxide cell developed by Westinghouse and known as the Photox cell. This cell has a color response similar to the human eye, which means that it indicates light intensity of various colors with practically the same sensitivity as the eye. (See Fig. 1). Accurate measurements can be obtained of monochromatic light intensities if the meter indication is multiplied by some factor based upon the difference between the eye and Photox cell sensitivities for the type of light being measured. Multiplier factors are given for the following:

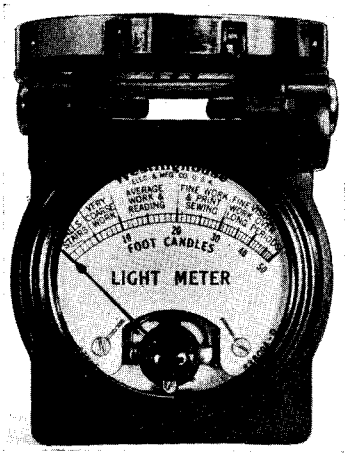

FIG. 2—TYPE PX-20 LIGHT METER WITH CELL POSITIONED FOR MEASURING VERTICAL INTENSITIES

Type of Light	Multiply Meter Reading By
Tungsten (2870° K.)	1.00
Tungsten (2400° K.)	.98
Tungsten (3400° K.)	1.11
High Intensity Mercury	.81
Sodium	1.22
Reflected Skylight (Horizon)	1.26
Reflected Daylight	.99

Factors for other types of monochromatic light intensities will be available.

Since the active area of the Photox is .02 square feet, an intensity of 50 foot candles on this area will equal one lumen.

The indicating instrument is a sensitive direct current microammeter with its dial calibrated to read foot-candles directly, and divided into zones showing

FIG. 3—TYPE PX-20 LIGHT METER IS EXCELLENT FOR WALL AND CEILING SURVEYS

the light useful for certain types or grades of eye work. These zones are self explanatory.

To measure horizontal illumination on desk or table tops the cell housing should be swung through its complete arc (approximately 270 degrees) and the light meter placed in an upright position upon the surface whose illumination is to be measured. See Fig. 2. The pointer deflection will be a measure of the actual illumination and will show if more or less light is required for the type of work under consideration. In this position shadows are not cast on the cell as it is necessary for the observer to be out of range of the Photox cell to observe the pointer deflection.

In vertical illumination measurements, such as wall reflections, head light illuminations, etc., the light meter should be opened through its full arc position and the photo cell housing placed in a vertical plane and perpendicular to the light flux to be measured. See Fig. 3. For these measurements the meter can be held in the hand with the dial in full view.

To determine the illumination on a paper, magazine, or book while it is being read, open the photo cell housing

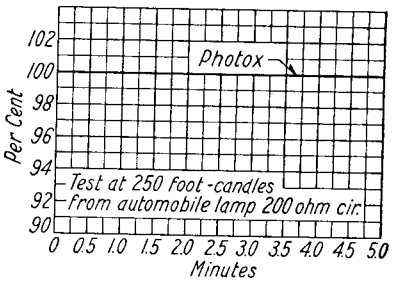

FIG. 4—PHOTOX FATIGUE CURVE

180° of its travel. It will then be in the same plane as the instrument dial. Hold Light Meter on the printed material at average reading position and read the illumination.

When not in use the hinged cell housing should be swung to the closed position, thus providing protection for the photo cell. See Fig. 5. When closed, the two glass windows are protected from possible damage when being carried in a bag or pocket with other articles.

Because the Photox cell has no initial fatigue, See Fig. 4, accurate readings can be taken as soon as the cell is exposed to light, even though the cell may be kept dark for long periods.

One precaution to be observed in the use of this light meter is that its readings are affected if it is used in temperatures below minus 10 degrees or above 50 degrees Centigrade. These errors will be greater than permitted during actual calibration. If cell is exposed to temperatures above 50°C. or below—50°C. permanent injury may result.

As far as is known, the Photox cell has indefinite life, and this light meter should give a lifetime of service. As in the case of all indicating devices, the meter should be checked periodically if it is in constant use and occasionally if its use is not frequent. We recommend that the calibration be done at the factory or by some recognized laboratory specializing in light measurements or photometry.

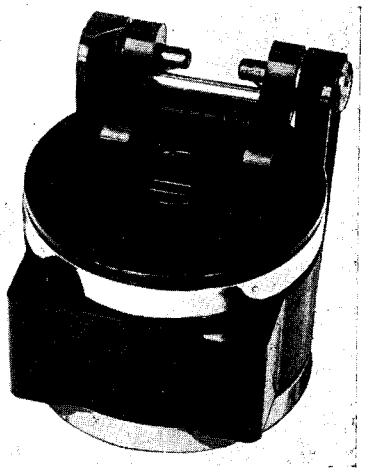

FIG. 5—TYPE PX-20 LIGHT METER (CLOSED POSITION)

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