possible ranges in one instrument make it suitable for radio-activity and gas conductivity experiments as well as for measurements in atmospheric electricity where relatively high potentials may be encountered. The accuracy depends upon the magnifying power of the microscope and upon the means for reading the angle of tilt. Much may be hoped for from improved design.

TABLE III.

Cell.	V	d (cm.).
Weston	1.018	1.02
Dry cell	1.474	1.47
Storage cell	2.016	2.02
3 storage cells	6.097	6.08

It should be further noticed that the instrument has a *constant and very small capacity* for any deflection, making it available for the comparison of small capacities by the method of divided charge.

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SPECTRAL LUMINOSITY CURVES DETERMINED BY THE METHOD OF CRITICAL FREQUENCIES.[1]

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SPECTRAL luminosity curves obtained from determination of the speed of disappearance of flicker (light against darkness) have been supposed to be similar to those obtained by the flicker photometer (alternation of two lights under comparison). The method of critical frequencies has however been found to give a Purkinje shift (increase of brightness of blue) as the illumination is decreased, while the results of the author with the flicker photometer show that method to exhibit a reversed Purkinje shift (increase of brightness of red). With the same apparatus as previously used the two methods have been compared and agree in both showing the reversed Purkinje effect. At very low illuminations, however, the method of critical frequencies shows a shift in the opposite direction, or true Purkinje effect.

It has been found by Porter that if log. illumination is plotted against critical frequencies, with white light, a straight line results. At about .25 meter candles the line abruptly changes its direction, perhaps due to change from cone to rod vision. Upon plotting in this manner the illuminations at which the present results were obtained, the reversed Purkinje effect is found to hold above the bend in the straight line, the Purkinje effect below.

Attention was then turned to securing the relation between log I and critical frequency for the different spectral colors. Red light plots as a straight line without bend, blue light as a straight line which bends to the horizontal, that is, the critical frequency becomes independent of illumination. Consequently the relative inclination of red and blue lines changes, giving the two kinds of Purkinje effect.

[1] Abstract of a paper presented at the New York meeting of the Physical Society, October 14, 1911.

The question whether the flicker photometer might be considered as a simple dove-tailing of two flicker sensations each following the relation just discussed was next investigated. Apparently it is not, although the phenomena of critical frequency exert a dominating influence on the results with the flicker photometer.

Some experiments on the relative sensibility of the peripheral and central retina indicate that at high illuminations there is little difference. At low illuminations the periphery is more sensitive than the center to blue flicker, but for red flicker the condition is exactly reversed. The periphery quickly tires and possesses such advantage as it has for detecting flicker only for momentary observation. It is therefore unfitted for continuous photometric work. A large photometric field is always more sensitive to flicker than a small one.