

fig. 24, where the horizontal scale is the wave length. In this illustration

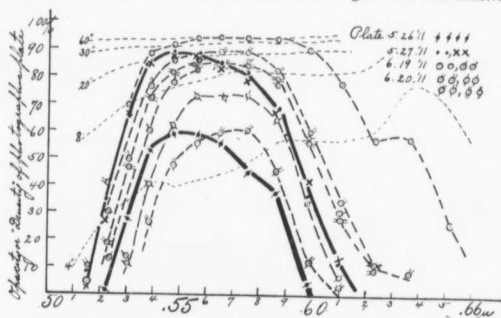


FIG. 24.—Density curves of photographic plates of *Photuris pennsylvanica* X—X—X—X

Photinus pyralis φ—φ—φ—φ

Glow Lamp — — — — —

the heavy black lines give the effect of the light of *Photuris pennsylvanica* (X—X—X—X, •—•—•—•, φ—φ—φ—φ), of *Photinus pyralis* (θ—θ—θ—θ), and of the carbon glow lamp (— — — — —).

This illustration, in itself, is an ample demonstration that the light of the *Photinus pyralis* is much richer in red and yellow rays than is the *Photuris*; for the curves intersect, and all those of the *Photinus*, whatever the density, lie to the right of those of the *Photuris* of equal density. But we can go a step farther by comparing densities of the negatives. It is assumed that the density or the effect of the light upon the photographic plate is proportional to the time of exposure. This is, of course, not true for very long exposures, and hence the highest parts of the curves are not used in this work. For convenience I have taken the four seconds glow lamp density curve as my unit. Hence the 8 seconds density curve represents 2 units, the 12 seconds density curve represents 3 units, etc. Turning now to the fire-fly curves we see that the upper, heavy, density curve of *Photuris pennsylvanica* intersects the 4 seconds density curve of the glow lamp at $.52\mu$ and at $.592\mu$; i.e., at these two points, the two