number, more closely spaced across the surface (since the wedge angle has increased). It is convenient now to turn the plates to bring this thinnest shim nearest the operator (Figs. 50, 51). Note that *the central fringe depicts the cross section of the surface under test, at such magnification that one interfringe space corresponds to about 0.3 micron (the effective half wavelength for neon light).*

Figures 50 and 51 illustrate how the method is applied. Errors are measured by noting the deviation of the fringes from a straight line and comparing this deviation with the inter-fringe spacing. A thread stretched across a wire bow forms a convenient straight-line reference. If the defective surface is other than a figure of revolution, interpretation may be difficult.

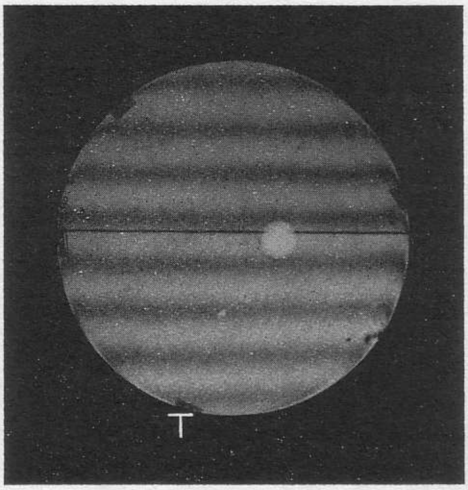

Fig. 51. Interference test on a flat mirror. Note: Reference line near the central fringe is formed by a taut wire or string. White spot is reflection of the neon lamp. The thin shim is marked T. The extreme edge is turned down.

In this case the direction of maximum slope of the wedge should be changed, for example, by interchanging two spacers, in order to bring out the surface shape along several different diameters. This is particularly helpful on noncircular mirrors (Fig. 50).

It is essential that the plates be uniformly at room temperature, and that we avoid heating them during the test. Ordinarily, after handling the reference and mirror, we wait several hours before making the test; or better, we allow the pieces to settle overnight to a uniform temperature. We avoid leaning over the apparatus longer than necessary, and shield the plates from body heat by enclosing them in a chimney, for example, a corrugated paper collar that extends up to the height of the lens.

The interferometric method is easy to apply and can be interpreted directly, without calculation. Its only disadvantage, as we have mentioned, is that it assumes that we possess a reference flat at least as large as the