

Fig. 3. Detail of the electrode configuration of high-intensity point light source.

port is a slit 0.5 mm wide and about 10 cm long in the direction of dispersion. The grating can be changed to give other values of dispersion, although greater dispersion is possible only by sacrificing already limited light intensity. Wavelength calibration of all records after the first one was achieved with a pulsed argon laser (TRW model 71A).

The TRW (model 1D) image converter streak camera used in the present system operates with an S-11 photocathode. Effective time and wavelength resolutions of 75 nsec and 40 Å are achieved. This limitation on the system is the most stringent because of the narrow spectral sensitivity of this surface (0.4–0.63

μm). The spectral response of the system is shown in Figure 6. The S-20 photocathode available on the same model camera would be preferable because of its greater sensitivity (about 50% greater) and slightly wider response. Of the various surfaces now available, one of the GaAs surfaces such as RCA's 128 or 134 would be best if it were available because of the sensitivity and flatness throughout the visible part of the spectrum.

Sample.—The sample configuration used with this system is shown in Figure 7. The sample is a gem quality single crystal polished on two parallel sides, one of which is aluminized to form a back surface mirror. The sample is

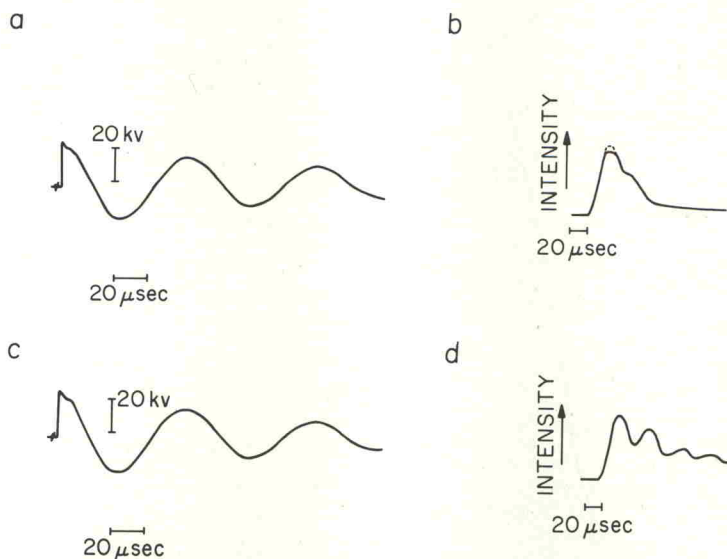


Fig. 4. Time variability of high-intensity point light source. (a) Voltage between ignitron anode and ground. The capacitor bank is charged to 19.5 kv. The ground electrode diameter is 1/16 inch. (b) Intensity of light emitted by source in (a). (c) Same as (a) with a ground electrode diameter of 1/8 inch. (d) Intensity of light emitted by source in (c).

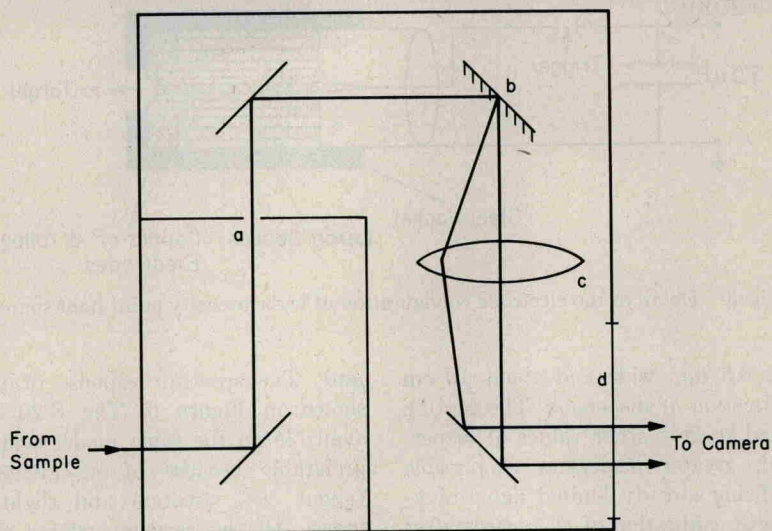


Fig. 5. Schematic representation of spectrograph used for measuring optical absorption spectra of shocked solids. (a) Entrance slit (0.8 mm). (b) Diffraction grating (Bausch and Lomb 35-53-04-350), 600 lines/mm, 13° blaze. (c) An $f/2.7$ 13.5-mm lens. (d) Exit slit (0.5 mm wide).

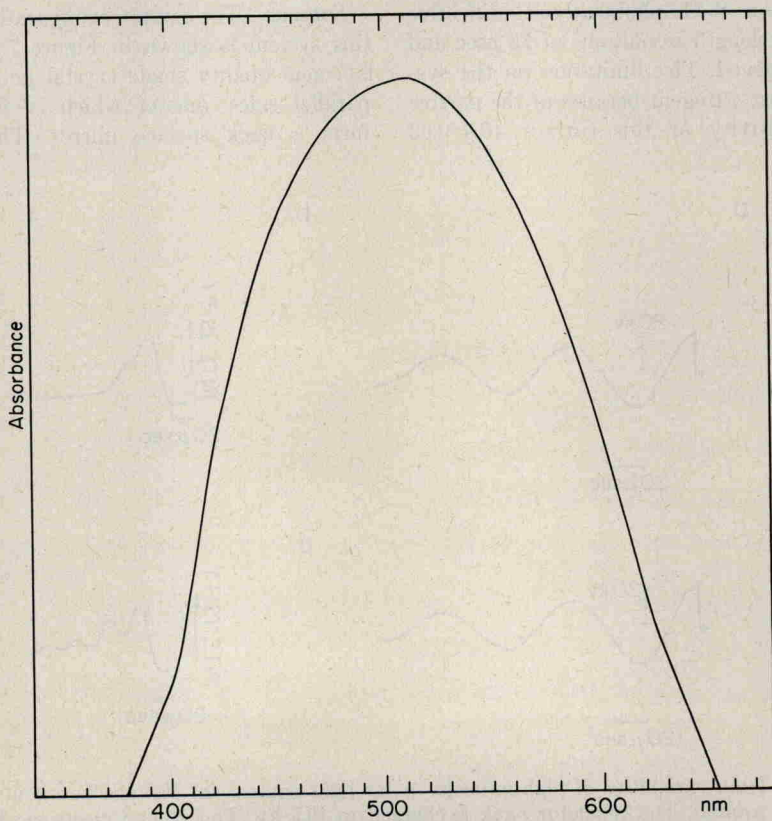


Fig. 6. Spectral response of TRW model 1D streak camera combined with the optics used in this study.