The profile on the cluster NGC 2264 shows two clearly separated peaks. The distance of the cluster is presumably of the order of 600 pc, which places it at the distant edge of the first peak. The dark cloud, which is known to be immediately behind the cluster, is placed between the two peaks. It is thus indicated that the dark cloud is a region of low neutral hydrogen intensity. The extent of the region that exhibits double peaks is about 6° . Van de Hulst, Muller, and Oort had suggested that the formation of H_2 molecules might produce an apparent decrease in neutral hydrogen density such as we observe here. The observed decrease in intensity may be interpreted as indicating perhaps that the processes of condensation and molecule formation have proceeded to a considerable extent in the dark nebula beyond NGC 2264. It is interesting to recall the discovery by Herbig of a large number of T-Tauri stars in this region and it is tempting to assume that the two phenomena of the exhaustion of neutral hydrogen and the formation of T-Tauri stars are related to each other.

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Miller, F. D. and Liller, W. Photographic and photoelectric observations of Comet 1955g.

Comet 1955g was observed with the Curtis Schmidt telescope on 16, 19 and 20 August, 1955, using the combined objective prisms, two-color direct photography, and the photoelectric photometer on the respective nights.

Direct photographs were taken on 103a-O emulsion through a Schott GG5 filter (thereby isolating the C_2 band at $\lambda 4737$ in the coma) and on 103a-E emulsion with a Wratten 22 filter. On these plates the head is conspicuously elongated along an axis normal to the projected heliocentric radius vector. Similar elongation of the images of the head on the spectrograms demonstrate that this is a phenomenon of the common gaseous constituents.

The observations are intended primarily for study of the surface intensity distribution. We have, for the first time in our program, supplemented the photographic data by a set of 45 photoelectric scans. The agreement between the forms of isophotes obtained from the photographs with the isophotometer, and those drawn up from the photoelectric observations is entirely satisfactory. The relative intensity distributions on the sunward radius, measured photo-

graphically and photoelectrically, differ systematically by an amount corresponding to an error of 10 per cent in the correction for sky brightness applied to the photographic data. The photoelectric observations make it possible to express the surface intensity of the comet in absolute units.

The variation of surface intensity on the sunward radius departs from the inverse-distance law predicted by the simple "fountain" model, the gradient being less at small distance, and greater at large distance, than that predicted by this law.

Compared to the isophotes derived from the 103a-O/GG5 plates, those obtained from the exposure on 103a-E/W22 show a narrower tail, and less conspicuous coma. Similar results were obtained by Yoss in his study of Comet 19521 (Yoss 1953) and by Miller for Comet 1953g (Miller 1955).

Miller, F. D. 1955, *A. J.* **60**, 173.

Yoss, K. M. 1953, *La Physique des Comètes*, p. 72.

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Orrall, F. Q. Photometry of the fine structure in solar-limb prominences.

During the fall of 1954 at Sacramento Peak, a number of large-scale observations of solar prominences were obtained in the light of both the $H\alpha$ and D_3 spectral lines, using the Harvard 15-inch Schupmann telescope and a camera employing a 3.5A birefringent filter. This camera, designed by R. B. Dunn as a forerunner to his multiple-image chromosphere camera, impressed absolute photometric standards on the films and provided a means of correcting the photometry for sight-line velocities. Because of their excellent resolution, these photographs were well-suited for photometric studies of the threads of prominence material that make up so many prominences.

Profiles of total intensity in the $H\alpha$ line as a function of distance in the plane of the sky were obtained for the threads, and these profiles were corrected for seeing by assuming a Gaussian "seeing function." The theoretical resolving power of the telescope was taken as a lower limit to the width of this function, and an upper limit was set by the width of the narrowest feature in the photograph.

Given some model for the thread, it is possible to solve the corrected profile for the amount of self-absorption and for the state of excitation of the prominence material. The following model