on plates taken with the 100-inch telescope, and found to be $0^{\circ}.013$. He also found a very large proper motion, $0^{\circ}.080$, which indicated the star was a dwarf with absolute magnitude at maximum of $+2.8$.² No spectrum has been obtained at maximum light, but Humason observed it in 1934 and found a fairly strong continuous spectrum with no lines visible; and noted that it was similar to that of intrinsically brighter novae.³

1. *Circ. Harv. Coll. Obs.* 219, 1919.

2. *Contr. Mt. W. Obs.* 321, 5, 1926.

3. *Contr. Mt. W. Obs.* 596, 13, 1938.

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Minnaert, M. The Utrecht catalogue of Fraunhofer-line intensities.

The *Photometric Atlas of the Solar Spectrum* was edited in 1940 by several cooperating astronomers of the Utrecht Observatory. A few copies were sent to America just before the interruption of international relations by the war. For the American observatories and for other countries which were inaccessible, a great number of copies have been kept in store. Since the international exchange of scientific literature is again resumed, it has been possible to send twenty-five atlases to America and more will follow soon.

One of the first results to be derived from the atlas is the equivalent width of the various Fraunhofer lines. A catalogue of Fraunhofer-line intensities is being derived as a cooperative undertaking of Utrecht astronomers with the help of some other collaborators. This catalogue is already complete for the first order records, extending from the infrared to about $\lambda 6500$. Strong lines are measured with a planimeter. For lines fainter than 20 m μ several sets of typical profiles were drawn, having different widths and depths. These profiles were photographed on a reduced scale and their areas carefully determined once for all. Glass copies of these curves are superposed on the spectrum and the equivalent widths are determined by comparison and interpolation.

In order to analyze line blends, a rather elaborate investigation had to be undertaken. (1) The starting point was the precise examination of numerous single lines by Mr. H. C. van de Hulst. He approximated the atlas profiles by "Voigt profiles," giving all transitions between Doppler and damping curves. The instrumental profile was approximated in the same way. (2) Since a Voigt profile, obliterated by another Voigt profile, results in a new Voigt profile, Mr. van de Hulst

was able to determine the true individual profiles and to show that they differ according to the elements and to the excitation potential. (3) Now these true profiles were theoretically combined into doublets, assuming a solar model intermediate between the Schwarzschild-Schuster and the Milne-Eddington model; a great number of combinations between lines of different intensities at several distances were made. (4) Finally the theoretical doublets were obliterated again by the instrumental profile. The doublet curves thus obtained are compared to the atlas doublets and used for the analysis into separate lines.

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Petrie, R. M. The orbits and dimensions of the spectroscopic binary HD 43246.

The spectroscopic binary HD 43246 has been studied from thirty single-prism spectrograms. Two spectra are found to be present. The primary is a normal F5 star while the secondary spectrum is detected in the K line and by the unusual intensities of the Balmer lines. The orbital elements are: $P = 23.1756$ days, $T = \text{J.D. } 2429926.119$, $\omega = 134^{\circ}$, $e = 0.024$, $K = 67.2$ km/sec, $V_0 = +0.5$ km/sec, K (secondary) = 31.3 km/sec. The minimum masses are $0.7\odot$, and $1.6\odot$, the fainter star being the more massive.

Spectrophotometric studies of K and the hydrogen lines show that the fainter star is of early type, probably about B9, and several magnitudes below normal luminosity, although its mass is normal for the spectral type. It is, consequently, a small, very dense star and is considered to be a *sub-dwarf*.

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Pierce, Newton L. A Finding List for observers of eclipsing variables.

A new and completely revised Finding List, similar to that issued by Professor Raymond S. Dugan in 1934, has been compiled by the writer. It will be issued as *Contribution from the Princeton University Observatory* No. 22, and it is hoped that copies may be available for distribution by the end of the year. The new Finding List has been prepared in the same style and to serve the same purpose as the first edition. It includes eclipsing stars north of declination -30° that are brighter than magnitude 13 at minimum and in addition those stars brighter than magnitude