The best-known peculiarities are: (1) strong $[Ne\ III]$ as in Nova Persei; (2) strong $[Fe\ II]$ as in Nova Herculis; (3) strong $[O\ I]$ as in Nova Herculis; (4) weak $[O\ I]$ and $[O\ III]$ as in Nova Pictoris; (5) coronal emissions, as in RS Ophiuchi.

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Menzel, Donald H. Continuous spectrum of the solar corona.

Most of the light of the inner corona is in the continuum; only a fraction appears in the bright emission lines. What is the source of this continuum? Grotrian has reported presence of broadened Fraunhofer lines in this continuum. Pannekoek has developed the theory of electron scattering in the corona as a source of emission.

My own records of several eclipses, obtained with a slitless instrument, show no indication even of broadened H and K. If electron scattering is the source of the continuum, the broadening must be at least 200 Å, corresponding to an electron temperature of almost 2,000,000°K. Although this figure is in keeping with the temperature derived from excitation conditions, the occurrence of multiply ionized iron and the breadth of the coronal emission lines, I find one difficulty in the interpretation. All slitless spectrograms that I have examined show that this continuous emission appears to be closely associated with the brightness of the coronal line $\lambda 5303$ ($Fe\ XIV$) and definitely not with $\lambda 6374$ ($Fe\ X$). In both of the regions where coronal emissions appear, hydrogen must be almost completely ionized. Indeed, the absence of the Balmer spectrum is itself additional evidence of the high coronal temperatures. Most of the electrons must come from hydrogen. It is difficult, therefore, to see how a reduction of excitation merely from $Fe\ XIV$ to $Fe\ X$ can seriously affect the electron density. Even if the corona were pure iron, the reduction would be only 30 per cent.

The close correspondence between coronal emission and $\lambda 5303$ is clearly shown by spectra obtained at the 1936 and 1932 eclipses. The latter was especially significant, for $\lambda 6374$ was generally more intense than $\lambda 5303$ all around the limb, except for two tiny condensations. The coronal continuum was confined primarily to the $\lambda 5303$ knot.

The foregoing argument is, perhaps, not conclusive. Nevertheless, it points to the need for further work in the continuum, in spectral and geometric distribution. Until further facts are available we should hesitate to accept uncondi-

tionally the conventional explanation of electron scattering as the source of the continuum.

Unfortunately, the sky background is sufficiently intense that the coronagraph cannot be used as a test. Studies of this phenomenon should receive high priority at the next total solar eclipse. Although a slit instrument has certain advantages, great care should be taken to avoid sky fog, and to check that the light actually does come from the eclipsed sun. Slitless coronagraphs, even though the effective emission line has a natural width equal to that of the coronal formation, will not show absorption lines from mere scattered sky light.

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Nassau, J. J. and C. K. Seyfert. Spectra of BD stars within 5° of the north pole.

This paper represents the first contribution made through the use of the 4°, 24-inch objective prism attached to the Burrell telescope of the Warner and Swasey Observatory.

The investigation deals primarily with the spectral luminosity classifications of all the BD stars within five degrees of the north celestial pole. We have established spectral criteria which place our classification on the Henry Draper system. Luminosity criteria have also been established enabling us to classify most of the stars later than G2 as to giant and dwarf.

The stars common to the Upsala Observatory and Case lists which are classified as giants and dwarfs indicate that there is agreement between the two lists for 88 per cent of the stars in common, while a comparison with the *Bergedorfer Spektral Durchmusterung* and our list shows an agreement in only 33 per cent of the cases.

The percentage of dwarf stars near the pole from photovisual magnitude 6 to 11 and from G2 to M5 have been investigated with results agreeing with the work of other investigators. A marked change in the percentage of dwarfs from G2 to G8 exists.

Combining our spectral classifications with the magnitudes and colors given in the *Mount Wilson Polar Catalogue* we find that the selective absorption in this part of the sky increases linearly to 0.30 mag. at 450 parsecs and remains sensibly constant thereafter. The average intrinsic color is determined for each spectral class and for giant and dwarf stars later than G0.

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