to one designed by H. L. Johnson, and it is possible to measure the intensity of an emission line having a brightness equivalent to a 20th magnitude star when the instrument is used at the focus of the 24–36 inch Curtis Schmidt.

The observations were made during the early months of 1956 with the monochromator mounted at the Newtonian focus of the Curtis Schmidt. All spectral traces were of a region 15" east of the Trapezium.

Our observed line intensities for the Orion Nebula are, for the most part, in excellent accord with those given by Wyse. We find the electron temperature, estimated in the usual way from the $4363/(N_1 + N_2)$ ratio, to be 9600°K, somewhat lower than that found using Wyse's measures. The space absorption can be estimated by comparing Balmer and Paschen lines that originate from the same higher level, provided that the Balmer lines are not affected by self-reversal. However, further observations are needed to establish more accurately the intensity ratio of $H\alpha$ to $H\beta$. The intensity measures of lines of [SII] and [OII] permit an estimate of the electron density, and we find it to be in the vicinity of 7×10^3 electrons/cm³. It is of interest to note that the [SIII] nebular lines at 9069Å and 9540Å are the second strongest forbidden lines in the nebula. We have estimated that the relative abundance of sulphur atoms in the nebula is some seven times greater than in stars. Other atomic and ionic abundances have been calculated, and the results will appear elsewhere.

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McKellar, Andrew. The ultraviolet chromospheric spectrum of ζ Aurigae at the 1955–56 eclipse.

With new adaptations of the Victoria stellar spectrograph, it is possible to photograph to the limit of atmospheric transmission near $\lambda 3000$. At the time of the recent 1955–56 eclipse of ζ Aurigae, a number of spectrograms of the ultraviolet region were obtained by various staff members. Among the points of interest revealed by these plates are:

(1) The onset of totality occurred at about the right time, but perhaps a fraction of a day later than predicted.

(2) A week before totality over 50 chromospheric lines representing seven multiplets of TiII, five multiplets of FeII and four multiplets

of CrII could be measured between $\lambda 3100$ and $\lambda 3440$.

(3) The mean radial velocity given by these lines was about 6 km/sec. more positive than the radial component of orbital motion.

(4) Fourteen days after totality, a good number of these chromospheric lines of the ionized metals remained and the strongest of them were comparable in intensity with the K line of CaII.

(5) At both ingress and egress, the height of the chromosphere of the K-type supergiant star was "normal," not the much more extreme value sometimes found for this star.

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McLaughlin, Dean B. Possible condensation clouds over Martian volcanoes.

An unusual Martian cloud, observed in 1954 by Pettit and Richardson (1955), had the form of a letter "W," with dense knots at ends and junctions of the strokes. The strongest knot was at longitude 120°6, latitude –10°8. They called attention to an apparent association of the knots with oases. Some of the cloud knots, including the strongest one, were found near the same locations at two times a month apart. Slipher's observations (Sinton 1955) showed that they disappeared at night and re-formed each afternoon.

I am much indebted to O. H. Truman of Hollywood, Calif., for making available photographs he took in 1941 with the 100-inch telescope. One in blue light, August 18, 11^h48^m UT, shows a cloud 10° in diameter near the terminator, with center at longitude 115°8, latitude –17°0, near Phoenicis Lacus. A tail extends to longitude 103°5, latitude –6°2, near Tithonius Lacus.

Clouds in the same small area were photographed in 1939 by Wright (1939) and in 1926 by Ross (1926) and Wright (1927). The center of the cloud of 1926, October 14–18 was at longitude 120°8, latitude –12°6. Thus, on four occasions over an interval of 28 years, unusual clouds have appeared in the same small area. On the last occasion they formed repeatedly about the same place. A mechanism associated with a fixed location on the planet's surface is indicated. Condensation of moisture from air currents rising along a mountain front is improbable, in view of the lack of mountain ranges on Mars. Condensation of moisture issuing from volcanic vents is suggested as a working hypothesis.