An explanation for non-uniformity of surface illumination may lie in non-uniform formation of titanium oxide in the atmospheres of the two components. Such a phenomenon would lead to a mottled blanketing of the stellar surface in the wave-length regions of the titanium oxide absorption bands, and a subsequent non-uniform distribution of surface temperature.

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Kuiper, Gerard P. Some results on planets.

Three topics are discussed: (1) Pluto, Triton, Titania and Oberon were photographed with low dispersion up to 8800 Å. No methane or other absorptions were detected, though the test is much sharper than that made previously on panchromatic plates. Saturn and its rings were observed up to 12000 Å (on Z plates), but the spectrum stops near the first, rather weak, absorption band of snow so that nothing significant is added to previous results with the *PbS* cell.

(2) In a systematic survey of planetary spectra a system of four or five new narrow bands was found near 7500 Å in the spectra of Uranus and Neptune; they appear to be not due to CH_4 , C_2H_4 , C_2H_6 , CO , CO_2 , H_2O , O_2 , N_2 , N_2O , H_2S , NH_3 and probably not to CH_2 .

(3) The second satellite of Neptune was confirmed; its period is about two years, its semi-major axis 400'', its orbital plane inclined 6° to the ecliptic, but its direction of motion as yet undetermined.

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McKellar, Andrew. Intensities of isotopic carbon bands in the $\lambda 6191$ sequence of the Swan system for some R-type spectra.

Recently a study of the intensities of the main and isotopic bands of the $\lambda 4737$ 1,0 sequence of Swan bands in the spectra of twenty-one R-type stars has been concluded.¹ For six of the stars, the bands were too intense to allow accurate evaluation of their intensities. The present paper deals with five stars of the latter group, and describes the measurement of the intensities of members of the considerably weaker $\lambda 6191$ sequence of C_2 bands.

On the spectrograms used (dispersion 35 and 20 Å/mm at $\lambda 6200$), serious blending was encountered for three of the six bands in the 0,2 ($\lambda 6191$) and 1,3 ($\lambda 6122$) transitions. The only bands usable for a study of the isotopic abundance ratio

were the $C^{12}C^{12}$ $\lambda 6122$, 1,3 band and the $C^{12}C^{13}$ $\lambda 6101$ 1,3 band. From these, ratios of the $C^{12}C^{12}$ to $C^{12}C^{13}$ band intensities varying from 1.4 to 1.0 were found for the five stars, giving, on the assumption of direct proportionality between intensity and abundance, C^{12} to C^{13} abundance-ratios from 2.7 to 2.0.

It is possible that blending effects are present even in the bands used. This matter is being further examined using spectrograms of higher dispersion.

1. *Pub. Dom. Astroph. Obs.* 1, 395, 1948.

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Mayall, Margaret Walton. Six novae, one with a late-type spectrum.

As a result of the nova patrol program in the Sagittarius region, I have found 6 more novae in the last few years. They were all found on objective prism plates taken with the 10-inch Metcalf telescope in South Africa. They are listed in the table with their 1900 positions and approximate maximum magnitudes.

The spectrum of Nova Sgr 1943 is the most interesting of the group, but the light curve is the most poorly observed, for it was seen on only 3 chart plates. On a spectrum plate taken August 19, it appeared to be of a K type, with strong absorption H and K, and possibly TiO bands, and $\lambda 4227$. Five days later, a plate showed a banded nova spectrum, with widened hydrogen emission and strong absorption H and K and $\lambda 4227$. On August 29th, the spectrum consisted mostly of wide bright bands. The nova is on the edge of the globular cluster, NGC 6533.

Nova	α	(1900)	δ	m_{pg}
Sgr 1943	18 ^h 2 ^m 54 ^s		-26° 0'.4	8
Sgr 1944	18 1 8		-33 21.8	8
Sco 1944	17 46 27		-35 48.9	7.5
Sgr 1945	18 12 11		-28 19.6	9
Sgr 1946	18 12 48		-24 8.1	12
Sgr 1947	18 19 24		-20 15.1	10

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Cambridge, Mass.*

Mikesell, Alfred H. Comparison of signal-to-noise ratios of a number of 1P21 photo-multipliers.

Thirty-nine type 1P21 photo-multipliers were tested at dome temperatures on a source equivalent to a 3.5 magnitude A0 star in a 5-inch refractor, through 49Å plus 34Å Wratten filters with effective wave length near 4450 Å. One multiplier constructed with mica spacers did not