

NOTES

REMARKS ON THE SPECTRA OF COMETS 1941c
(PARASKEVOPOULOS-DE KOCK)
AND 1941d (VAN GENT)*

The relative intensities of the C_2 and CH bands compared to CN are definitely lower in Comet 1941c (Paraskevopoulos-de Kock) than in Comet 1940c (Cunningham) for similar heliocentric distances, thus suggesting differences in chemical constitution of the heads of these two comets. Such differences have been mentioned for other comets, especially by F. Baldet.¹ Our spectrograms of Comet 1941c show NH bands having the same structure as in Comet 1940c; their intensity relative to CN is also similar in these two objects. A spectrogram of 1941c taken with a dispersion of 44.5 Å/mm at λ 3870 and with an effective slit width of 0.8 Å shows interesting features in the structure of

TABLE 1
OH LINES IN THE SPECTRUM OF COMET 1941d (VAN GENT)

COMET		LABORATORY		
λ	Intensity	λ	Notation	K'
3079.0.....	1-0	3078.43	$Q_1(1\frac{1}{2})$	I
3081.7.....	3	3081.64	$P_1(1\frac{1}{2})$	0
3090.2.....	1	3090.46	$Q_2(\frac{3}{2})$	I
3093.6.....	2	3093.72	$P_2(1\frac{1}{2})$	I

the $\Delta v = 0$ sequence of CN . The strong P branch has two maxima at $\lambda\lambda$ 3880.3 and 3881.7; the first one corresponds to $P(11)$, the emission extending from $P(8)$ to $P(13)$, and the latter to $P(15)$, the emission extending from $P(13)$ to $P(19)$. Emission is observed in the entire spectral interval from λ 3862.2 to λ 3870.5, with three maxima at $\lambda\lambda$ 3863.8 (intensity 1), 3866.6 (intensity 1), and 3869.6 (intensity 3). This emission belongs to the R branch of the (0, 0) band. Between the strong P and R branches the lines which had been observed as single and sharp with lower dispersion in Comet 1940c² show now a definite width corresponding, respectively, to $P(2) + P(3) + P(4)$ and $R(1) + R(2) + R(3)$. The effective slit width being 0.8 Å, the three components obviously cannot be separated, although there appears some kind of structure in the lines.

The spectrum of Comet 1941d (van Gent) between June 21 and July 25, 1941 (r from 1.51 to 1.25), was characterized by the strength of the OH bands compared with the NH bands, whereas in Comet 1940c the OH lines were always weak with respect to the NH lines. Differential extinction would tend to give this effect since the comets were observed at different zenith distance; however, the magnitude of the effect is so large that the major portion of it is real. That the heliocentric distance r plays an important role

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¹ *Ann. Obs. Astr. Phys. de Paris*, 7, 1926.

² *Ap. J.*, 94, 320, 1941.