prevented from escape, there will occur local changes in opacity and the ionization in the captured material which is less than that of its new environment. These will affect both terms

$$\left\{\left(\frac{d\ln T}{d\ln P}\right)_{\text{rad.}}-\left(\frac{d\ln T}{d\ln P}\right)_{\text{adiab.}}\right\}$$

representing the consequences of abnormal gradients upon stability. A corresponding effect at greater depths has been invoked by Biermann(13) and others as origin of ordinary novae, but here the eruption after suppressed instability can be much slighter because less deep-seated in origin. The work of Gerasimovic(14) and of Miss Underhill(15) has shown the nearness to instability of B star surface layers, and prominence activity is therefore probable at all times, but only under an optimum coincidence of timing which provides temporary suppression will the incessant prominences become amplified to visible irregularity in the star's total brightness. Much calculation would be needed to separate the initial instability, the intermediate stage of suppression of relieving convective transport, and final eruption of stored energy, with their successive effects on luminosity due to expansion, temperature, and fluorescence. Favourable circumstances giving eruption of the T CrB or Z And intensity would be unusual, and the slighter eruptiveness of the others more common. Calculations of instability have so far only been approachable through theories of thermodynamic gradients designed for an atmosphere initially in equilibrium, and require much supplementing. The fact that the undoubted blue-red pair α Sco is very quiescent but is a widely separated pair, raises the query as to how small an orbit must be for interaction of prominence with stream to store energy towards amplification in this way: it might also be asked whether prominence and ring could not also occur in a single star, with reversion of the amplifier process to a non-binary explanation.

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24. THE SPECTRUM OF WY VELORUM

By Jorge Sahade. (*Presented by* J. W Swensson)

WY Velorum(1) is a southern peculiar star discovered at Harvard(2) as being variable both in light and spectrum.

The available light observations start as far back as 1890. The first reference(2) to magnitude observations covers the years 1890–1922 and is based on 101 photographs which are distributed rather evenly throughout the interval, they show that from 1890 to 1901 there was a slow and apparently steady increase in light from magnitude 9·8 to 9·2; and since 1902 the light has slowly decreased. The magnitude was 10·1 in May

1922. Five years ago Mrs C. Payne-Gaposchkin(3) published further photometric results from photographic observations covering the interval 1900–42. Her light curve indicates that the decrease in magnitude which had begun in 1902 lasted to about 1916, that from 1916 to 1933 there was a practically stationary interval, and that from 1933 on the brightness of WY Vel has steadily increased. Furthermore, during the decline of brightness (JD 2415000 to 2421000) a rough cycle of 550 days may be suspected; during the more recent rise there was (JD 24 27000 to 24 30000) a vaguer cycle of 370 days, which is, however, so near a year as to be open to suspicion.

As far as the spectrographic observations of WY Vel are concerned, the first mention of its spectrum appears in the *Henry Draper Catalogue*, where the star is listed as being of spectral type Ma. Apparently no emission lines nor any peculiarity was observed in the spectral range covered. At the time the star must have been around its maximum brightness(4). The presence of emission lines superimposed upon the late-type absorption spectrum was discovered by Miss Cannon(2) on a plate taken on 15 May 1922. She remarked then that the spectrum, which is of class Ma, contains also five well-marked bright lines or bands which appear, on the dispersion available, to coincide with some of the strongest bright lines of unknown origin in the spectrum of η Carinae. The approximate positions are 4244 (perhaps including the enhanced iron line 4233), 4287, 4352 to 4358, 4414 to 4416 and 4452 to 4457. The last is much fainter than the other four. H_β does not appear as a bright line. The spectral classification of WY Vel in the *Henry Draper Extension*(5) is M1p.

In his article in the *Handbuch der Astrophysik*, Ludendorff includes WY Vel among those variables which might belong to the R CrB class, with the remark that at the time (the article was published in 1928) it was not possible to decide about this point; furthermore, that if it should turn out that the star is not a variable of the R CrB-type, then it would have to be placed among the irregular red variables.

Table 1

Spectrographic material for WY Velorum

Plate	Date		U.T.	Eastman emulsion	Exposure time (min.)	Equivalent slit-width (A.)	Remarks
	1944	May 15	0:24	Film XX	180	1·5	
	1945	March 8	2:47	103–F	90	1·5	Underexposed
	1946	Feb. 20	4:50	103–O	100	1·1	Continuum overexposed
S 392		Dec. 16	7:36	103a–O	66	1·2	Continuum underexposed
462	1947	March 8	~5:50	103a–O	~100	1·5	Continuum underexposed
466		March 9	2:45	IIa–O	86	1·5	Underexposed
I 14	1948	Jan. 24	6:36	103a–O	80	1·2	Underexposed
32		Jan. 30	5:38	103a–F	195	1·2	
34		Feb. 26	3:56	103a–F	91	1·2	Underexposed
40		Feb. 27	2:40	103a–F	93	1·2	Underexposed
46		Feb. 28	1:26	103a–F	147	1·2	
53		Feb. 29	1:26	103a–O	118	1·2	
59		March 1	2:45	103a–O	122	1·5	
65		March 24	3:38	103a–O	180	1·5	
99		April 23	23:53	103a–O	122	1·2	
124		June 3	23:21	103a–O	146	1·5	
1898	1952	May 7	23:56	103a–F3	118	1·2	
1899		May 8	1:40	103a–O	75	1·2	
1902		May 9	0:06	103a–F3	143	1·2	

In May 1952, on nights in which the stellar image was extremely small and steady, one 103a–F3 plate (65^m exposure—the image was held at one extremity of the slit-length) and one 103a–O plate (123^m exposure—the image hidden at one extremity of the slit-length) were taken. No trace of emission extending outside the spectrum strip was observed.

Schneller's *Katalog* for 1939 attributes WY Vel to the R CrB type with a question mark, while according to Kukarkin and Parenago's *General Catalogue* it might be a pseudo-nova. In her above-mentioned paper, Mrs Gaposchkin lists WY Vel as an irregular variable with a range in light variation from 8·84 to 10·22 mag.

In order to make a thorough study of the spectrum of WY Vel, the star was placed on the spectrographic programme of the Bosque Alegre reflector. Slit spectrograms were obtained in the years 1944, 1945, 1946, 1947, 1948 and 1952 with the Wood-grating spectrograph attached to the 154-cm. telescope, giving a dispersion of about 42 A./mm. The relevant data for the material analysed in the present investigation are gathered in Table 1. For the plates taken before March 1946, the writer is greatly indebted to Dr E. Gaviola, who kindly turned them over to him for study.

Our material covers the wave-length interval λλ3270–6940 and shows (Fig. 1) an absorption spectrum which corresponds to about that of a M3 super-giant, perhaps of luminosity class I b(6). Upon it we observe a number of single emission lines—we have measured more than 120 of them—which have been identified as due to H, [N II], N III, [O I], Si II, [S II], [Cr II]?, Fe II, [Fe II], [Fe III], Ni II, [Ni II], and [Cu II].

The available plates secured prior to 1952 do not show any perceptible change.

Table 2

The emission spectrum of WY Velorum

Measured wave-lengths	No. of plates	Estimated intensities	Identifications*
3277·61	1	2	Fe II 3277·347 (9, **1**)
81·90	1	0	Fe II 3281·293 (7, **1**)
96·28	1	1	Fe II 3295·814 (6, **1**)
3303·33	1	0	Fe II 3302·861 (4, **1**), 03·466 (4, **1**)
76·46	3	5	[Fe II] 3376·20 (**26F**)
78·24	3	1	[Ni II] 3378·20 (**5F**)
87·50	1	1	[Fe II] 3387·10 (**26F**)
3439·12	3	6	[Ni II] 3438·92 (**5F**)
41·18	2	1	[Fe II] 3440·99 (**26F**)
52·54	3	4	[Fe II] 3452·30 (**26F**)
55·23	2	2	[Fe II] 3455·11 (**26F**)
94·46	1	1	Fe II 3493·468 (10, **114**)?
3501·79	3	4	[Fe II] 3501·62 (**26F**)
04·36	3	4	[Fe II] 3504·51 (**26F**), 04·02 (**26F**)
14·42	2	1	Ni II 3513·933 (8, **1**)
24·07	1	0	[Fe II] 3524·38 (**26F**)?
36·50	1	0	[Fe II] 3536·25 (**26F**)
39·25	3	5	[Fe II] 3538·69 (**26F**), 39·19 (**26F**)
59·69	3	4	[Ni II] 3559·45 (**5F**)
3627·11	3	5	[Ni II] 3626·93 (**5F**)
3765·01	3	2	
3806·48	4	4	[Cu II] 3806·34 (**2F**)
56·06	2	0	Si II 3856·021 (8, **1**)
62·80	2	0	Si II 3862·592 (6, **1**)
3993·34	7	8	[Ni II] 3993·15 (**4F**); [Cr II] 3993·57, 91·47, 92,08, 93·29 (**4F**)?
4033·63	1	0	[Ni II] 4033·06 (**4F**)
68·75	9	10	[S II] 4068·62 (**1F**)
76·50	2	0	[S II] 4076·22 (**1F**)
84·12	1	0	[Fe II] 4083·78 (**23F**)
97·76	3	2	N III 4097·31 (10, **1**)
4114·59	8	5	[Fe II] 4114·48 (**23F**)
47·29	1	0	[Fe II] 4146·65 (**21F**)
73·88	1	0	Fe II 4173·450 (8, **27**)

* The multiplet numbers, as in the *RMT*, are in bold face type.

Table 2 (*continued*)

Measured wave-lengths	No. of plates	Estimated intensities	Identifications
77·30	7	7	[Fe II] 4177·21 (**21F**)
79·12	8	8	[Fe II] 4178·95 (**23F**); Fe II 78·885 (8, **28**)
4201·32	8	5	[Ni II] 4201·19 (**3F**)
33·39	11	20	Fe II 4233·167 (11, **27**)
44·35	13	80	[Fe II] 4243·98 (**21F**), 44·81 (**21F**)
49·39	3	4	[Fe II] 4249·07 (**36F**)
77·08	13	40	[Fe II] 4276·83 (**21F**)
87·65	13	60	[Fe II] 4287·40 (**7F**)
93·66	2	3	[Ni II] 4294·11 (**4F**)?
97·10	4	3	Fe II 4296·567 (6, **28**)
4303·76	1	1	Fe II 4303·166 (8, **27**)
06·14	9	6	[Fe II] 4305·90 (**21F**)
11·51	1	2	[Ni II] 4310·46 (**10F**)?
19·87	13	30	[Fe II] 4319·62 (**21F**)
26·56	5	2	[Ni II] 4326·27 (**3F**)
35·94	3	3	
46·87	7	8	[Fe II] 4346·85 (**21F**)
52·16	9	15	Fe II 4351·764 (9, 27); [Fe II] 4351·80 (**36F**)?
53·29			[Fe II] 4352·78 (**21F**)
4358·61	8	90	[Fe II] 4358·37 (**21F**), 58·10 (**6F**)
59·45	13		[Fe II] 4359·34 (**7F**)
72·68	11	12	[Fe II] 4372·43 (**21F**)
77·84	7	6	[Cu II] 4375·71 (**1F**)??
82·84	7	5	[Fe II] 4382·75 (**6F**)
85·96	2	0	Fe II 4385·381 (7, **27**)
4402·50	2	0	[Fe II] 4402·60 (**36F**)
13·98	14	45	[Fe II] 4413·78 (**7F**)
16·55	14	40	[Fe II] 4416·27 (**6F**)
32·61	7	7	[Fe II] 4432·45 (**6F**)
36·83	1	2	[Fe II] 4435·08 (**36F**)?
39·20	2	2	[Fe II] 4438·92 (**36F**)
52·30	12	40	[Fe II] 4452·11 (**7F**)
58·17	12	38	[Fe II] 4457·95 (**6F**)
64·14	4	7	
75·00	10	10	[Fe II] 4474·91 (**7F**)
85·83	3	1	[Ni II] 4485·22 (**3F**)
88·94	8	12	[Fe II] 4488·75 (**6F**)
91·81	2	25	Fe II 4491·401 (5, **37**)
93·14	2		[Fe II] 4492·64 (**6F**)
4508·45	3	4	Fe II 4508·283 (8, **38**)
15·40	6	20	[Fe II] 4514·90 (**6F**); Fe II 15·337 (7, **37**)
20·31	5	6	Fe II 4520·225 (7, **37**)
23·04	3	6	Fe II 4522·634 (9, **38**)
49·83	7	20	Fe II 4549·467 (10, **38**)
56·12	6	12	Fe II 4555·890 (8, **37**)
81·30	1	8	[Cr II] 4581·18, 80·80, 80·88 (**3F**)?
84·06	8	30	Fe II 4583·829 (11, **38**)
4629·56	5	20	Fe II 4629·336 (7, **37**)
39·85	5	12	[Fe II] 4639·68 (**4F**)
58·26	2	4*n*?	[Fe III] 4658·1 (**3F**)
64·86	1	4*n*?	[Fe II] 4664·45 (**4F**)
4728·37	5	25	[Fe II] 4728·07 (**4F**)
74·78	4	10	[Fe II] 4774·74 (**20F**)
4814·74	5	25	[Fe II] 4814·55 (**20F**)
74·34	3	10	[Fe II] 4874·49 (**20F**)
89·80	5	25	[Fe II] 4889·63 (**4F**), 89·70 (**3F**)
98·66	4	8	

Table 2 (*continued*)

Measured wave-length	No. of plates	Estimated intensities	Identifications
4905·59	4	15	[Fe II] 4905·35 (**20F**)
17·74	1	5	[Fe II] 4917·22 (**3F**)
24·06	3	25	Fe II 4923·921 (12, **42**)
51·48	1	20	[Fe II] 4950·74 (**20F**)
73·85	2	4	[Fe II] 4973·39 (**20F**)
5005·44	2	4*n*	[Fe II] 5005·52 (**20F**)
06·57	2		
18·63	3	15	Fe II 5018·434 (12, **42**)
5108·42	1	5	[Fe II] 5107·95 (**18F**)
11·95	1	10	[Fe II] 5111·63 (**19F**)
58·64	2	45	[Fe II] 5158·00 (**18F**), 58·81 (**19F**)
64·22	2	18	[Fe II] 5163·94 (**35F**)
69·30	3	2	Fe II 5169·030 (12, **42**)
97·85	2	3	Fe II 5197·569 (6, **49**)
5220·79	1	0	[Fe II] 5220·06 (**19F**)
34·74	1	0	Fe II 5234·620 (7, **49**)
61·99	2	8	[Fe II] 5261·61 (**19F**)
68·28	1	3	[Fe II] 5268·88 (**18F**)
5273·75	2	15	[Fe II] 5273·38 (**18F**)
76·22	1	1	Fe II 5275·994 (7, **49**)
5306·13	2	6*n*	
17·04	2	20	Fe II 5316·609 (8, **49**)
33·78	1	12	[Fe II] 5333·65 (**19F**)
76·33	1	8	[Fe II] 5376·47 (**19F**)
5413·08	1	8	[Fe II] 5412·64 (**17F**)
28·66	1	7	Fe II 5427·832 (30, .)?
33·55	1	5	[Fe II] 5433·15 (**18F**)
5527·84	1	10	[Fe II] 5527·61 (**34F**), 27·33 (**17F**)
5747·24	1	6	[Fe II] 5746·96 (**34F**)
6300·66	1	12	[O I] 6300·23 (**1F**)
6563·77*	3	250	H 6562·817
83·81	3	40	[N II] 6583·6 (**1F**)
6631·35	1	8	[Fe II] 6631·20 (**31F**)
66·88	1	8	[Ni II] 6666·79 (**2F**)

* The measured wave-length of the violet displaced H_α displayed in 1952 is 6561·65, as obtained from one of the plates.

The measured wave-lengths of the emission features, as a mean from many different plates (allowance having previously been made for the Earth's motion), are listed in Table 2 together with the estimated intensities and the identifications. The intensities have been estimated on a completely arbitrary scale; moreover, the homogeneity of the whole set of intensities is lowered by the fact that the wave-length interval studied has been covered by means of several different plates and by the fact that the underlying continuum becomes stronger toward the red and is cut by the absorption bands. For the identification of the spectral emission features of WY Vel we have used Mrs Moore-Sitterly's *Revised Multiplet Table* all the way through, the laboratory intensities and all data—except the wave-lengths for [Ni II]—concerning the different multiplets involved are taken from the same source. The [Ni II] wave-lengths are those computed by Swensson(7) from Shenstone's term values(8).

Remarks concerning the identifications in the emission spectrum of WY Vel follow:

H. The only member of the Balmer series which is present in emission is H_α. Other members of the series do not appear in emission, even on the most over-exposed spectrograms. However, on the plate obtained on 16 December 1946 a faint feature was measured at λ4340·8, but this observation has not been duplicated and might not be real.

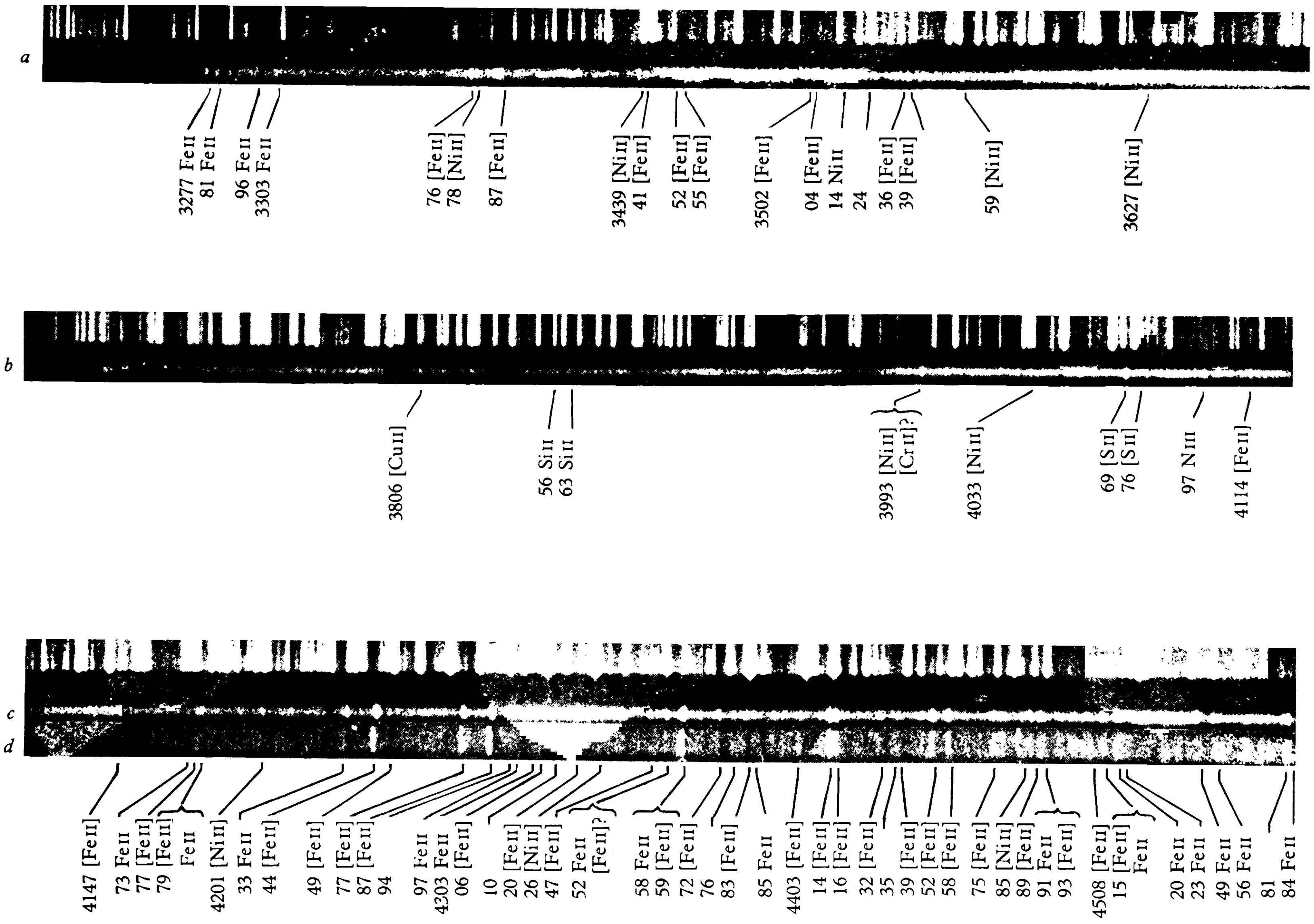

Fig. 1. The spectrum of WY Velorum (positive enlargements). *a*, from the plate taken on 3 June 1848; *b*, from the plate taken on 20 February 1946; *c*, from the plate taken on 30 January 1948; *d*, from the plate taken on 9 May 1952.

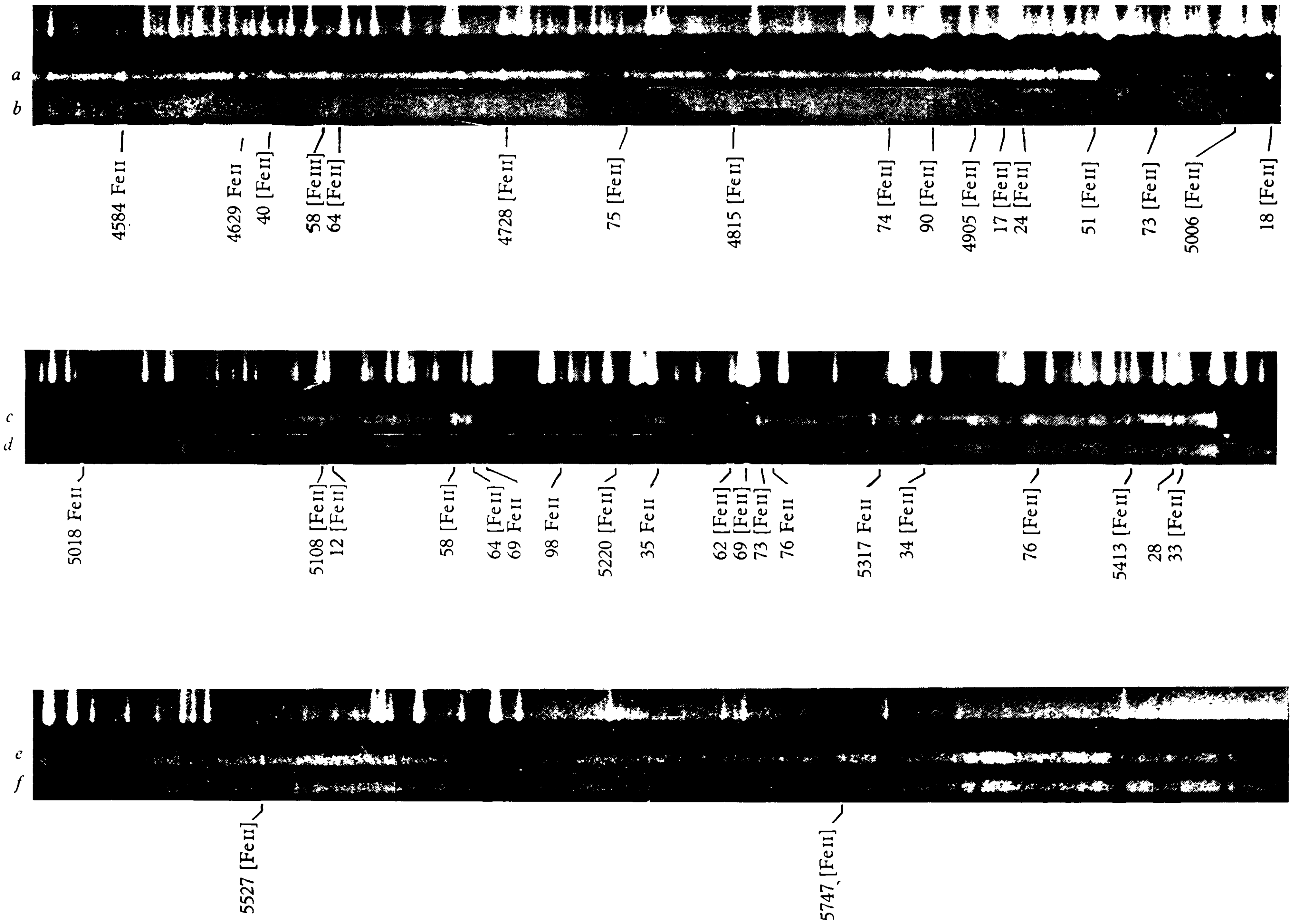

Fig. 2. The spectrum of WY Velorum (positive enlargements). *a*, from the plate taken on 30 January 1948; *b*, from the plate taken on

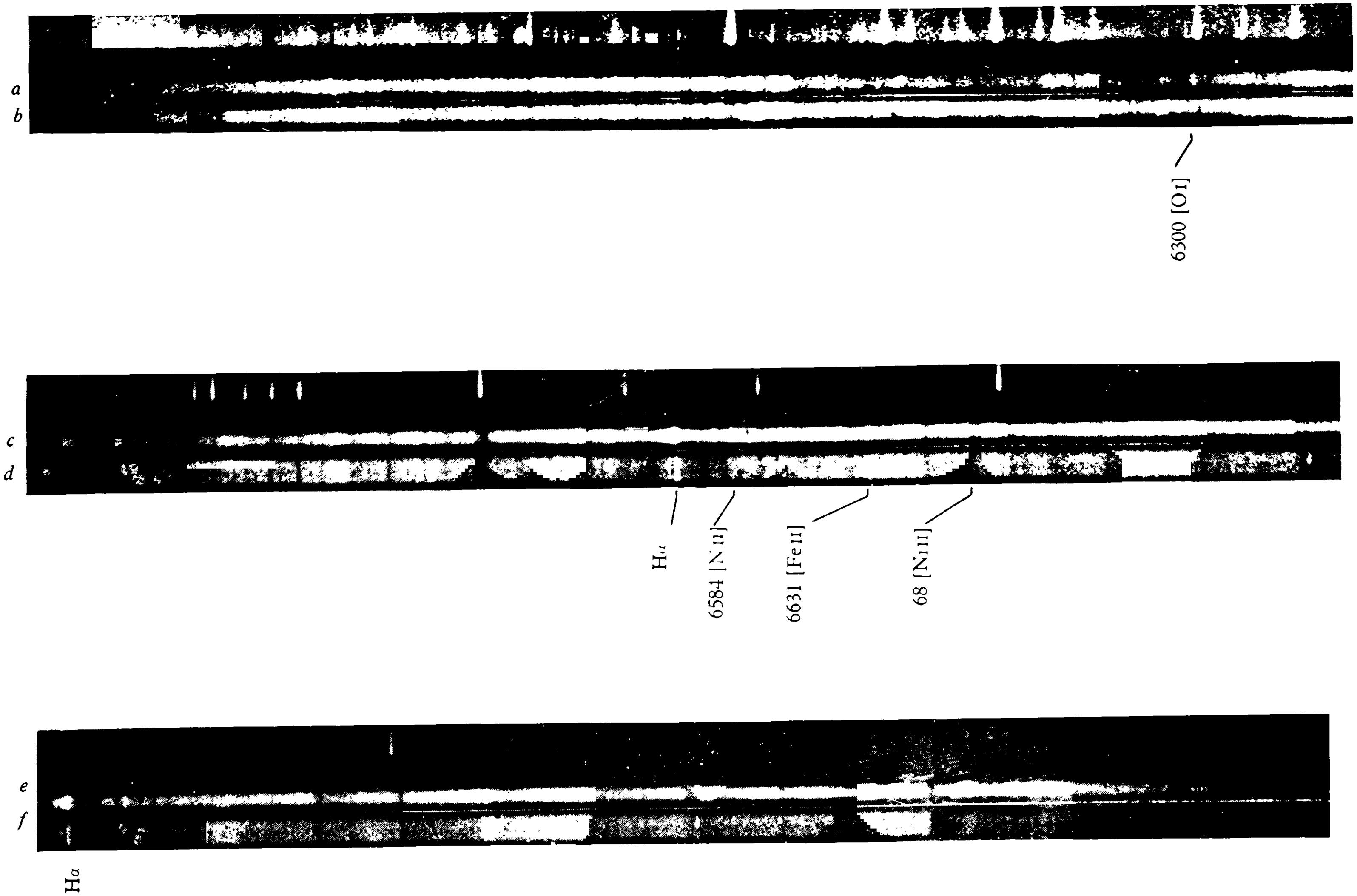

Fig. 3. The spectrum of WY Velorum (positive enlargements). *a, c, e,* from the plate taken on 28 February 1948; *b,* from the plate taken on 9 May 1952; *d, f,* from the plate taken on 7 May 1952.

II]. Only the nebular line at λ6583 is present as quite a strong emission. The other lar line and the auroral line are absent.

III. This ion has been considered responsible for the feature measured at λ4097·31.

I]. Only the nebular line at λ6300 is present as a rather strong emission. λ6363 and 7 are absent.

II. Two very faint features measured at λ3856·06 and λ3862·80 have been ascribed II. There is no trace of the $3^2D-4^2F^\circ$ transitions at λ4131 and λ4128, but we should mber that in the kind of star we are dealing with, usually the stellar intensities of 1 and λ4128 are small relative to λ3856 and λ3863(9).

II]. The two transauroral lines λ4069 and λ4076 are present.

r II]. Forbidden Cr II seems to be present in the spectrum of WY Vel. This element t contribute to the emissions at λ3993 (largely due to forbidden Ni II) and at 1—transitions a^6S–b^4D and a^6S–a^4P, respectively(10).

II. The lines of Fe II are strong. All the strongest multiplets—with the exception of one corresponding to the transition a^6S–z^6D°—whose high excitation potential is higher than 5·59v are represented in the spectrum of WY Vel: thus, we find lines of iplets 1, 27, 28, 37, 38, 42 and 49, which correspond to the transitions a^4D–z^6D°, z^4D°, b^4P–z^4F°, b^4F–z^4F°, b^4F–z^4D°, a^6S–z^6P° and a^4G–z^4F°, respectively.

line measured at λ5428·7 has been tentatively ascribed to the unclassified line at 7·832 of laboratory intensity 30. Another line measured at λ3494·5 could also be atively ascribed to a Fe II line of high excitation potential (7·7v), but the identifica- is not quite satisfactory; furthermore, the reality of the line is questionable.

e II]. The strongest emission features of WY Vel—besides H_α—are identified as due rbidden transitions of Fe II, namely, a^6D–a^2D (multiplet 3F), a^6D–b^4P (multiplet a^6D–b^4F (multiplet 6F), a^6D–a^6S (multiplet 7F), a^4F–a^2D (multiplet 17F), a^4F–b^4P tiplet 18F), a^4F–a^4H (multiplet 19F), a^4F–b^4F (multiplet 20F), a^4F–a^4G (multiplet , a^4F–b^2H (multiplet 23F), a^4F–b^4D (multiplet 26F), a^4D–b^4F (multiplet 31F), -b^2P (multiplet 34F), a^4D–a^2F (multiplet 35F), and a^4D–b^4D (multiplet 36F). As s the writer is aware, of all these multiplets, only multiplet 35F has not been iously found in other stars.

e III]. One faint feature has been measured at a wave-length which coincides with strongest forbidden transition of Fe III.

II. One very faint emission at λ3514·4 has been ascribed to Ni II.

i II]. Forbidden Ni II is represented by the transitions a^2D–a^2F (multiplet 2F), -b^2D (multiplet 3F), a^2D–a^4P (multiplet 4F), and a^2D–a^2P (multiplet 5F). A very feature at λ4311·5 has been tentatively attributed to [Ni II] 4310·46 (of multiplet but the identification is not completely satisfactory.

ultiplet 2F is represented by the only line which falls in the observed range, namely 7, which appears as a very faint line, partly because the underlying continuum is ng; this multiplet has been previously observed by Thackeray(11) in η Car.

II. The *RMT* lists two forbidden multiplets of Cu II, corresponding to the transitions ^1S–$4s^3D$ (multiplet 1F) and $3d^{10}\,{}^1S$–$4s^1D$ (multiplet 2F), respectively. The latter ists of one line, at λ3806, which is present in the spectrum of WY Vel. It is tempting lentify the measured emission feature at λ4377·84 (the correction for the radial city, to be added, is $-0{\cdot}23$ A.) with the λ4375·81 line of multiplet 1F, but the tification is unsatisfactory. Perhaps it is worthy of note that the wave-length of ine differs by nearly 1 A. from the wave-length of an unidentified line (at λ4378·5) in pectrum of AX Persei(12).

nidentified lines—$\lambda\lambda$3765·0, 4335·9, 4464·1, 4898·7 and 5306·1 (double?).

ne simultaneous presence of [N II], [O I], [S II] and [Fe II] is a feature already found wings and Struve(13) in MWC 17, a star which also displays weak [Fe III] and weak . Since η Car, which comes next in order of decreasing excitation, is characterized(13) rong [Fe II] and absence of both [Fe III] and He I, we may place WY Vel in between C 17 and η Car, as far as the excitation conditions of the emitting gaseous mass are erned.

As already mentioned, our plates taken before 1952 do not give evidence of any noticeable changes in the spectral features during the interval 1944–48. But the 1952 plates show at once that a change has occurred in the structure of H_α. The previously observed strong single emission shifted redwards is now accompanied by a violet component, making a double emission, of which the red component is much the stronger (Fig. 3). On the plates taken in 1952 the region of H_β is underexposed, but extremely faint emission components are suspected at H_β on one of the spectrograms. There is no conclusive evidence for other changes, but this may only be because of the fact that our 1952 plates are underexposed shortward of about λ5200 and, therefore, no reliable comparison of relative line intensities through all the wave-length range covered by the earlier spectrograms is possible.

The radial velocities of WY Vel in km./sec., from all our material, are summarized in the accompanying tabulation:

Absorption.	Ca II	−11	±2·4 (p.e.)	mean of	6 plates
	Na I	+ 6		,,	2 ,,
	Other elements	+14	±1·2	,,	7 ,,
Emission	H excluded	+15·8	±0·9	,,	16 ,,
	H_α	+46	±2·4	,,	4 ,,
	H_α	−53 (shortward component displayed in 1952)			

By 'other elements' we mean principally Ca I 4226, although in some cases Sr II 4215 and/or Cr I 4254 were also measured.

The agreement between the radial velocities from the emission lines and from what we have called 'other elements' in absorption is excellent.

The star will be kept on the observing programme. It is to be hoped that photometric data will be released from time to time. It would be especially interesting to know whether or not the star's brightness has already reached its maximum and whether a correlation exists between magnitude and spectral features.

I am especially grateful to Drs P Swings and J. Swensson for their kindness in taking care of the presentation of this paper. I am also indebted to Mr Julio Albarracín for assisting in the reduction of the plate measurements.

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(4) The writer understands that the spectrum was taken in 1902.

(5) A. J. Cannon and M. W. Mayall: *Harvard Ann.* **112**, 3, 121 (Chart 101), 1949.

(6) For the classification we have used the prints in Morgan, Keenan and Kellman's *Atlas of Stellar Spectra* (Chicago: The University of Chicago Press, 1943) and Keenan's paper in the *Ap. J* **95**, 461, 1942 (*McDonald Contr.* No. 48), but the unavailability of suitable standards obtained with the same dispersion makes our classification not entirely certain.

(7) The writer is very much indebted to Drs P. Swings and J. Swensson for kindly calling his attention to these calculations and for putting them at his disposal before publication.

(8) These data were furnished to Dr Swensson by Mrs C. E. Moore-Sitterly before the publication of the second volume of her *Atomic Energy Levels* (National Bureau of Standards Circular No. 467, 1952).

(9) Cf. Swings and Struve: *Ap. J* **101**, 224, 1945; *McDonald Contr.* No. 103.

(10) In a private communication, Dr P Swings remarked that the evidence in favour of [Cr II] does not appear conclusive to him and that a study of the infra-red region would help.

(11) Unpublished. I owe this reference to Dr P. Swings.

(12) Cf. Swings: *J.O.S.A.* **41**, 153, 1951.

(13) *Ap. J* **93**, 349, 1941; *McDonald Contr.* No. 30.