La discussion de ces maxima et minima a fourni les éléments provisoires suivants:

Max. 1907 mars 29.7
Min. 1907 mars 21.1
$\Big\}$ + 21^{d}.8 E

d'où $M-m$ = 8^{d}.6.

St. Genis-Laval, 1907 juillet 29. *M. Luizet.*

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71 new variable stars in Harvard Maps Nos. 9, 12, 21, 48, and 51.

(Harvard College Observatory Circular No. 130).

In continuation of the systematic search for variables in all parts of the sky, as described in Circulars 127 and 129 (A. N. 175 p. 91 and 167), five additional regions have been examined by Miss *Leavitt*. The positions of these regions and some of the principal results are given in Table I. The number of the plate in the Map of the Sky, Circular 71 (A. N. 162.281), and the right ascension and declination of its centre, are contained in the first two columns. The third, fourth, and fifth columns give the number of new variables discovered, the total number found in this examination, including known variables, and the proportion of new variables. The number known to exist in the region at the close of the examination is given in the sixth column. This includes all previously known variables as bright at maximum as the magnitude 10.5 and within 15° of the centre of the region, with one exception given below. Novae discovered earlier than 1900, and suspected variables, are omitted. The number previously known may be found by subtracting the number given in the third column from that in the sixth. The seventh column gives the probable number of variables in the region, assuming that the number of known variables found is to the total number found as the number previously known is to the whole number in the region. The eighth column gives the proportion of the probable number which was actually found. The ninth and tenth columns give the probable number remaining undiscovered, and the proportion of these to the assumed total given in the seventh column. The plates examined for region 9 were poor in the southern part, and only very conspicuous variables could be found south of +48°. Seven known variables, between +45° and +48°, have been omitted, therefore, and the region discussed in Table I extends southward from the centre 12° instead of 15°.

Table I. Number and distribution of the variables.

No.	Region	New Variables	Total Found	Proportion New	All	Probable Number	Proportion Found	Probabl. No. Unknown	Proportion Unknown
9	21^{h} +60°	11	16	0.69	21	32	0.50	11	0.39
12	4 +30	9	16	0.51	28	43	0.37	15	0.35
21	22 +30	8	15	0.53	25	36	0.42	11	0.31
48	6 −60	13	16	0.81	22	48	0.33	26	0.54
51	15 −60	30	42	0.72	65	122	0.34	57	0.47

The following known variables were re-discovered: In Region 9, RT Cygni, T Cephei, RU Cygni, 220550 (23.1907 Lacertae), and δ Cephei. In Region 12, U Arietis, R Persei, Nova Persei No. 2, RW Persei, RV Tauri, RX Aurigae, and RW Aurigae. In Region 21, VY Cygni, SS Cygni, RR Pegasi, WY Cygni, VZ Cygni, 215122 (70.1905 Pegasi), and 220134. In Region 48, R Doradûs, R Pictoris, and S Pictoris. In Region 51, 130763$_{n}$, 133357$_{n}$, 134459$_{n}$ (149, 189 and 192.1906 Centauri), R Centauri, 145254$_{n}$ (15.1907 Lupi), 150469$_{n}$ (Gou 20554), R Trianguli Austr., R Normae, U Normae, S Trianguli Austr., U Trianguli Austr., and W Normae. The activity now prevailing in the search for new variables is shown by the fact that 8 out of these 34 variables have been announced since January 1, 1906, and another, 220134, recently discovered by Mrs. Fleming, has not yet been announced.

The new variables are given in Table II, in which the successive columns give our designation, the Harvard number, designation of the editor of the Astr. Nachr., number in the Bonn Durchmusterung or the Cape Photographic Durchmusterung, brightest and faintest magnitudes observed, and range.

Variables 050253$_{n}$, 133664$_{n}$, 142950$_{n}$, 144355$_{n}$, 152157$_{n}$, 192668, 205027, 220045, 222317, and probably 050845$_{n}$, 135251$_{n}$, 150554$_{n}$, and 164461$_{n}$ appear to be of the Algol type. Many of the periods are probably short. The following stars probably vary in long periods: 041528, 043163$_{n}$, 044460$_{n}$, 050964$_{n}$, 060650$_{n}$, 124868$_{n}$, and 215927. The proportion of Algol variables is remarkable, as was the case in Region 50, discussed in Circular 122 (A. N. 173.379).

It appears from the last column of Table I, that about a third of the variables in the three northern regions and about half of those in the two southern regions, remain to be discovered. A number of the new variables are brighter than the eighth magnitude, or have a large range. While the southern regions of the sky contain a relatively large proportion of undiscovered variables, it is evident that abundant opportunity remains for interesting research in regions accessible to American and European observers.

Table II. New Variables.

Designation	Harvard No.	Designation of A. N.	DM No.	RA. 1900	Decl. 1900	Bright.	Faint.	Range
025338	2920	68.1907 Persei	+38°606	$2^h 53^m 42^s$	+38° 47'.7	8.5	10.5	2.0
041041	2921	69.1907 Persei	—	4 10 12	+41 29.2	10.2	11.0	0.8
041528	2922	70.1907 Tauri	+28 645	4 15 43	+28 12.9	9.6	10.6	1.0
043018	2923	71.1907 Tauri [1]	+18 659	4 30 44	+18 33.8	10.0	10.6	0.6
043163n	2924	72.1907 Reticuli	−63 341	4 31 36	−63 11.9	8.8	<11.5	>2.7
044242	2925	73.1907 Persei	+42 1064	4 42 45	+42 7.0	8.5	9.8	1.3
044460n	2926	74.1907 Doradûs	—	4 43 58	−59 59.5	8.8	<11.5	>2.7
044750n	2927	75.1907 Pictoris	—	4 47 36	−50 49.6	10.0	11.5	1.5
044930	2928	76.1907 Aurigae	+30 743	4 49 36	+30 24.4	8.6	9.6	1.0
050253n	2929	77.1907 Pictoris	−53 791	5 2 43	−53 16.6	9.4	10.5	1.1
050239	2930	78.1907 Aurigae	+39 1192	5 2 47	+39 27.7	8.0	9.4	1.4
050442	2931	79.1907 Aurigae	+41 1101	5 4 38	+42 2.0	7.4	8.0	0.6
050542	2932	80.1907 Aurigae	+42 1201	5 5 31	+42 42.7	9.0	10.0	1.0
050845n	2933	81.1907 Pictoris	−45 579	5 8 17	−45 41.9	9.0	10.0	1.0
050964n	2934	82.1907 Doradûs	—	5 9 35	−64 26.5	9.1	<11.5	>2.4
054675n	2935	83.1907 Mensae	−75 333	5 46 2	−75 17.3	9.5	10.6	1.1
060650n	2936	84.1907 Puppis	−50 913	6 6 53	−50 11.2	9.0	<11.0	>2.0
061259n	2937	85.1907 Pictoris	−59 613	6 11 58	−59 53.2	9.2	11.0	1.8
062960n	2938	86.1907 Pictoris	—	6 29 1	−60 9.2	10.0	10.8	0.8
063455n	2939	87.1907 Carinae	—	6 34 23	−55 46.7	9.5	10.5	1.0
063852n	2940	88.1907 Carinae	−52 979	6 38 36	−52 20.2	8.8	9.5	0.7
070558n	2941	89.1907 Carinae	−58 848	7 5 7	−58 13.3	8.2	9.3	1.1
124868n	2942	90.1907 Muscae	−68 1793	12 48 46	−68 21.8	9.4	10.0	0.6
125763n[b]	2943	91.1907 Centauri	−63 2507	12 57 33	−63 33.7	9.8	10.5	0.7
131062n	2944	92.1907 Centauri	−61 3558	13 10 45	−62 5.8	10.2	11.0	0.8
131261n	2945	93.1907 Centauri	−61 3585	13 12 28	−61 51.3	9.2	10.0	0.8
133664n	2946	94.1907 Circini	−64 2524	13 36 15	−64 58.2	10.0	11.0	1.0
134457n	2947	95.1907 Centauri	−56 5960	13 44 2	−57 5.2	7.8	8.6	0.8
135155n	2948	96.1907 Centauri	−55 5802	13 51 34	−55 51.9	9.8	10.5	0.7
135251n	2949	97.1907 Centauri	−51 6466	13 52 0	−51 15.5	9.9	10.6	0.7
140753n	2950	98.1907 Centauri	−53 5915	14 7 22	−53 27.7	9.6	10.5	0.9
142448n	2951	99.1907 Lupi	−48 6504	14 24 7	−48 14.6	10.5	11.5	1.0
142760n	2952	100.1907 Centauri	−60 5432	14 27 16	−60 31.4	8.7	9.3	0.6
142950n	2953	101.1907 Lupi	−50 7071	14 29 45	−50 58.6	10.3	11.1	0.8
144059n	2954	102.1907 Circini	—	14 40 31	−59 35.0	9.5	15.0	5.5
144048n	2955	103.1907 Lupi	−48 6778	14 40 46	−48 54.0	9.8	10.5	0.7
144355n	2956	104.1907 Circini	−55 6204	14 43 48	−55 30.2	9.8	10.6	0.8
144868n	2957	105.1907 Triang. Austr.	−68 2226	14 48 1	−68 25.9	8.7	9.5	0.8
145571n	2958	106.1907 Apodis	−71 1717	14 54 59	−71 12.7	10.5	11.5	1.0
150554n	2959	107.1907 Normae	−54 6379	15 5 4	−54 56.1	9.5	10.5	1.0
150970n	2960	108.1907 Apodis	−70 2005	15 9 39	−70 50.8	10.5	11.3	0.8
152157n	2961	109.1907 Circini	—	15 21 24	−57 43.7	10.0	11.4	1.4
153365n	2962	110.1907 Triang. Austr.	−65 3122	15 33 32	−65 36.1	9.7	10.5	0.8
155344n	2963	111.1907 Normae	−44 7719	15 53 14	−44 50.5	8.6	9.3	0.7
155753n	2964	112.1907 Normae	−53 7039	15 57 24	−53 38.5	10.0	11.0	1.0
160561n	2965	113.1907 Triang. Austr.	—	16 5 17	−61 50.2	9.8	<11.5	>1.7
164360n	2966	114.1907 Arae	—	16 43 35	−60 54.4	10.3	11.1	0.8
164461n	2967	115.1907 Arae	−61 5799	16 44 37	−61 25.0	10.0	10.6	0.6
164565n	2968	116.1907 Triang. Austr.	−64 3573	16 45 4	−65 2.3	9.5	11.5	2.0
164863n	2969	117.1907 Arae	−63 4037	16 48 23	−63 2.9	9.2	10.0	0.8
165161n	2970	118.1907 Arae	−61 5820	16 51 36	−61 15.7	9.2	10.0	0.8
190965	2971	119.1907 Draconis	+65 1327	19 9 44	+65 56.6	8.9	9.8	0.9
192668	2972	120.1907 Draconis	+68 1065	19 26 9	+68 43.7	9.3	10.0	0.7

[1]) Über die Originale der BD vergl. A. N. 149.247. *Kb.*

Designation	Harvard No.	Designation of A. N.	DM No.	RA. 1900	Decl. 1900	Bright.	Faint.	Range
193056	2973	XZ Cygni [1])	+56°2257	19h 30m 22s	+56° 10′.8	8.8	9.8	1.0
200949	2974	283.1904 Cygni [2])	+49 3225	20 9 52	+49 9.0	9.2	10.0	0.8
205027	2975	121.1907 Vulpeculae	+27 3914	20 50 31	+27 32.3	9.0	10.2	1.2
213231	2976	122.1907 Cygni	+31 4504	21 32 15	+31 39.1	7.3	8.3	1.0
214356	2977	123.1907 Cephei	+56 2642	21 43 26	+56 49.9	9.2	9.8	0.6
215927	2978	124.1907 Pegasi	+27 4243	21 59 28	+27 51.6	7.2	7.8	0.6
220045	2979	125.1907 Lacertae	+45 3782	22 0 43	+45 56.2	8.4	9.2	0.8
220445	2980	126.1907 Lacertae	+45 3813	22 4 39	+45 15.0	7	—	0.6
221453	2981	127.1907 Lacertae	—	22 14 11	+53 57.7	9.5	10.2	0.7
221955	2982	128.1907 Cephei [3])	+55 2737	22 19 22	+55 27.6	8.2	8.8	0.6
222317	2983	129.1907 Pegasi	+17 4753	22 23 44	+17 30.9	10.0	11.0	1.0
222924	2984	130.1907 Pegasi	—	22 29 14	+24 2.5	9.5	<11.0	>1.5
223564	2985	131.1907 Cephei	+64 1694	22 35 42	+64 19.3	8.6	9.3	0.7
223656	2986	132.1907 Lacertae	+56 2829	22 36 54	+56 18.6	8.3	9.0	0.7
223755	2987	133.1907 Lacertae	+55 2789	22 37 27	+55 54.6	8.8	9.6	0.8
224029	2988	134.1907 Pegasi	+29 4745	22 40 2	+29 45.6	10.0	11.0	1.0
224426	2989	135.1907 Pegasi	+26 4507	22 44 18	+26 49.8	8.8	9.6	0.8

Remarks.

124868n. Suspected during the examination of region 50, described in Circular 122 (A. N. 173.379), but the range observed at that time was small.

144059n. This star is brighter than the twelfth magnitude on all plates taken in 1906. The dates are as follows: February 14 and 17, March 24 and 27, April 24, May 10, 12, and 14, June 9, 13, 15, and 27, July 10, 13, and 24, August 24. The light gradually diminished, with some fluctuations, from the magnitude 9.5 in February to the magnitude 11.6 in August. On 55 plates taken between 1889 and 1905, the star was not seen and was fainter than the thirteenth magnitude. A fifteenth magnitude star which is probably in the same position is seen on seven early plates of long exposure. The image is not sufficiently well-defined on these plates to determine whether there is variation. The object is probably a Nova. Its magnitude and the time of its appearance are nearly the same as in the case of Nova Velorum, announced in Circular 121 (A. N. 173.295).

220445. This variable is difficult to observe, on account of its brightness. Confirmed photometrically by Professor Wendell, with a range of 0.3 magn.

Harvard College Observatory, Cambridge, Mass., 1907 July 13. *Edward C. Pickering.*

[1]) Schon 1905 von L. Ceraski entdeckt, vergl. A. N. 168.324. *Kb.*
[2]) Schon 1904 als veränderlich erkannt, vergl. A. N. 167.183. *Kb.*
[3]) Schon von T. W. Backhouse (West Hendon House Observatory, Publ. III p. 113) und von Müller und Kempf (Potsdam, Publ. 17 p. 293) für veränderlich gehalten. *Kb.*

Ephemeride des Kometen 1907 d.

Fortsetzung zu A. N. 4194.

1907	α vera	δ vera	log r	log Δ	H.	1907	α vera	δ vera	log r	log Δ	H.
Sept. 1	8h 50m 45s	+13° 34′.6	9.7144	0.0534	19.1	Sept. 13	10h 4m 40s	+9° 45′.9	9.7495	0.1408	10.8
2	8 57 24	13 17.1				14	10 13	9 25.7			
3	9 3 58	12 59.3				15	15 40	9 5.5			
4	10 27	12 41.1				16	21 1	8 45.3			
5	16 50	12 22.6	9.7123	0.0847	16.7	17	26 16	8 25.1	9.7818	0.1654	8.3
6	23 8	12 3.7				18	31 25	8 5.0			
7	29 21	11 44.6				19	36 28	7 44.9			
8	35 28	11 25.3				20	41 25	7 25.0			
9	41 30	11 5.7	9.7250	0.1139	13.7	21	46 17	7 5.1	9.8179	0.1879	6.4
10	47 26	10 45.9				22	51 3	6 45.4			
11	53 17	10 26.0				23	10 55 43	6 25.8			
12	9 59 1	10 6.0				24	11 0 18	6 6.4			
13	10 4 40	+9 45.9	9.7495	0.1408	10.8	25	11 4 47	+5 47.1	9.8550	0.2085	4.9

Korrektion der Ephemeride 1907 Aug. 18 Padua: +30s −0′.7.

Kiel, Bureau der Astr. Nachrichten, 1907 Aug. 22. *Elis Strömgren.*