Positions of minor planets and the orbit of new minor planets, discovered by H. van Gent (Errata: 13 VI)

Pels, G.

BULLETIN OF THE ASTRONOMICAL INSTITUTES OF THE NETHERLANDS.

1936 December 29. Volume VIII. No. 291.

COMMUNICATIONS FROM THE OBSERVATORY AT LEIDEN.

Positions of minor planets and the orbits of new minor planets, discovered by H. VAN GENT, by *G. Pels.*

On the plates taken at Johannesburg with the 10-inch Franklin-Adams camera Dr. VAN GENT has identified the minor planets of which the positions are communicated in this note. The plates have been measured at Leiden and the measurements have been reduced according to COMRIE's method (*J. B. A. A.* vol. **39**, p. 203). Each position depends on two plates taken with an interval of about half an hour, and reduced independently. The magnitudes have been estimated by Dr. VAN GENT.

Planet	Magn.	Date U.T.	α_{1900}	δ_{1900}	Comparison stars
	m	1935	h m s	° ′ ″	
3	9·0	Sept. 28·99646	2 7 40·46	+ 0 51 24·3	Algiers 2^h4^m, + 1°: 106, 107, 113
7	10·	May 5·09441	17 21 52·61	— 24 37 7·2	Cordoba 17^h24^m, — 25°: 435, 438, 444
	9·0	„ 26·97625	17 4 47·34	— 23 49 36·0	„ $17^h\ 4^m$, — 24°: 844, 931, 949
17	10·5	Oct. 28·83698	2 4 16·18	+ 3 7 40·2	Algiers 2^h4^m, + 3°: 51, 59, 61
53	12·2	May 5·00784	16 40 1·56	— 14 47 33·4	Tacubaya 16^h36^m, — 15°: 224, 229, 234
	12·5	„ 24·87091	16 23 34·06	— 14 0 25·0	„ 16^h20^m, — 15°: 150, 156, 193
59	11·5	June 25·77383	16 26 45·02	— 8 44 53·8	San Fern. 16^h28^m, — 9°: 26, 35, 42
66	13·5	May 5·05121	16 30 25·49	— 25 26 29·8	Cordoba 16^h28^m, — 25°: 248, 249, 262
	12·7	„ 24·82728	16 13 2·20	— 25 4 7·2	„ 16^h12^m, — 25°: 937, 941, 950
	13·7	„ 25·89899	16 11 59·87	— 25 2 8·8	„ 16^h12^m, — 25°: 937, 950, 957
	13·7	June 21·72806	15 48 22·62	— 23 58 52·6	„ 15^h52^m, — 24°: 495, 555, 556
76	13·8	May 5·05121	16 33 30·20	— 20 30 45·6	Hyd. 16^h32^m, — 20°: 52535, 52570, 52595
	12·8	„ 24·82728	16 20 6·78	— 19 52 45·8	„ 16^h24^m, — 20°: 52194, 52205, 52217
	13·8	June 21·72806	16 1 0·56	— 18 57 36·8	„ $16^h\ 4^m$, — 19°: 43855, 43857, 43865
77	13·0	May 5·09441	17 20 4·07	— 26 18 22·8	Cordoba 17^h20^m, — 26°: 514, 515, 530
	12·8	„ 26·97625	17 3 57·95	— 26 18 22·4	„ $17^h\ 4^m$, — 26°: 61, 70, 72
86	12·2	May 26·97625	17 20 13·63	— 21 53 25·8	Hyd. 17^h20^m, — 22°: 57178, 57205, 57210
95	12·0	May 5·05121	16 17 7·89	— 22 29 14·1	Hyd. 16^h16^m, — 22°: 55167, 55182, 55197
	12·0	„ 25·89899	16 1 17·02	— 20 51 43·2	„ $16^h\ 4^m$, — 21°: 63624, 63644, 63645
	13·0	June 21·72806	15 42 13·79	— 18 40 27·0	„ 15^h40^m, — 19°: 43109, 43150, 43159
	13·5	July 4·70910	15 36 41·88	— 17 50 31·8	„ 15^h36^m, — 18°: 42717, 42755, 42756
137	11·0	May 5·00784	16 28 13·08	— 9 47 47·8	San Fern. 16^h28^m, — 9°: 49, 50, 80
159	11·0	Oct. 28·83698	2 20 5·76	+ 4 25 33·0	Algiers 2^h24^m, + 4°: 3, 7, 9
211	12·5	May 25·89899	15 38 31·41	— 21 50 7·2	Hyd. 15^h36^m, — 22°: 53076, 53078, 53127
256	13·8	Sept. 28·99646	2 8 49·69	+ 5 55 2·3	Toulouse 2^h12^m, + 5°: 7; + 7°: 56, 65
	13·5	Oct. 28·83698	1 48 59·10	+ 2 14 0·0	Algiers 1^h48^m, + 3°: 121, 124, 136
319	13·0	Oct. 1·96749	0 39 14·28	+ 3 58 22·4	Algiers 0^h40^m, + 4°: 47, 68, 177
	13·5	„ 15·81915	0 30 41·54	+ 2 1 56·1	„ 0^h32^m, + 2°: 26, 35, 120
	13·5	„ 18·89684	0 28 56·73	+ 1 37 26·2	„ 0^h32^m, + 2°: 101, 102, 108

Planet	Magn.	Date U.T.	α_{1900}	δ_{1900}	Comparison stars
	m	1935	h m s	° ′ ″	
321	13·0	Sept. 28·95231	1 33 22·03	+ 8 6 27·8	Toulouse 1^h32^m, + 9°: 61, 64, 65
	13·8	Oct. 2·88045	1 30 30·99	+ 7 52 24·0	,, 1^h32^m, + 7°: 5, 13, 16
	13·2	,, 18·81096	1 17 36·47	+ 6 49 5·6	,, 1^h16^m, + 7°: 78, 81, 87
333	13·8	May 25·89899	15 42 39·84	— 24 46 40·2	Cordoba 15^h40^m, — 25°: 588, 594, 600
335	11·0	Sept. 28·99646	2 3 7·04	+ 5 28 38·7	Toulouse 2^h4^m, + 5°: 22, 30, 31
	11·0	Oct. 18·81096	1 46 31·10	+ 3 15 51·3	Algiers 1^h48^m, + 3°: 14, 21, 22
	11·2	,, 27·92143	1 38 13·27	+ 2 21 49·2	,, 1^h36^m, + 2°: 41, 44, 47
	12·0	,, 30·84260	1 35 41·70	+ 2 6 47·8	,, 1^h36^m, + 2°: 22, 31, 90
363	12·5	May 5·09441	16 56 54·70	— 22 38 14·1	Hyd. 17^h 0^m, — 23°: 63902, 63920, 63930
	12·0	,, 24·82728	16 41 44·74	— 22 52 43·2	,, 16^h44^m, — 23°: 63288, 63311, 63332
	13·0	June 24·75302	16 13 46·94	— 22 52 31·2	,, 16^h12^m, — 23°: 62424, 62425, 62468
	13·0	July 4·70910	16 7 38·00	— 22 52 27·0	,, 16^h 4^m, — 23°: 62196, 62204, 62221
380	12·8	May 5·00784	16 45 48·35	— 17 6 21·6	Hyd. 16^h44^m, — 17°: 46272, 46278, 46287
	11·5	,, 24·87091	16 30 12·69	— 16 58 35·4	,, 16^h28^m, — 17°: 45759, 45780, 45795
382	13·5	Oct. 15·81915	0 3 10·98	+ 9 18 36·8	Toulouse 0^h4^m, + 9°: 15, 21, 26
	13·4	,, 18·89684	0 1 13·04	+ 9 5 21·0	,, 0^h4^m, + 9°: 10, 11, 63
417	12·5	Sept. 28·86280	0 8 59·87	+ 3 48 22·5	Algiers 0^h12^m, + 3°: 8, 11, 17
441	11·0	Oct. 27·78457	23 37 20·43	+ 9 6 49·0	Toulouse 23^h40^m, + 9°: 5, 8, 64
517	14·0	May 24·82728	16 33 0·63	— 23 57 38·4	Cordoba 16^h32^m, — 24°: 777, 790, 799
	13·8	,, 29·83994	16 28 59·62	— 23 46 58·4	Hyd. 16^h28^m, — 23°: 62879, 62892, 62896
548	12·0	Oct. 28·83698	2 10 40·00	+ 4 55 54·4	Toulouse 2^h12^m, + 5°: 28, 90, 96
571	11·8	Sept. 28·90677	0 57 27·48	+ 7 38 53·4	Toulouse 1^h 0^m, + 7°: 4, 6, 9
	12·5	Oct. 1·96749	0 54 45·60	+ 7 39 55·4	,, 0^h52^m, + 7°: 50, 55, 65
	13·0	,, 16·78838	0 41 3·92	+ 7 36 31·6	,, 0^h44^m, + 7°: 1, 2, 5
	12·5	,, 18·85563	0 39 16·43	+ 7 35 44·2	,, 0^h36^m, + 7°: 34, 35; 0^h44^m, + 7°: 1
	13·0	,, 27·83002	0 32 33·75	+ 7 34 30·4	,, 0^h36^m, + 7°: 1, 2, 5
	13·3	,, 30·75413	0 31 51·89	+ 7 35 28·4	,, 0^h28^m, + 7°: 31, 33, 38
622	13·5	May 24·87091	16 36 27·34	— 9 6 23·0	San Fern. 16^h36^m, — 9°: 99, 110, 116
658	13·4	Sept. 28·90677	1 0 26·65	+ 7 22 10·0	Toulouse 1^h 0^m, + 7°: 22, 26, 28
	13·4	Oct. 1·96749	0 58 1·72	+ 7 9 7·7	,, 1^h 0^m, + 7°: 6, 10, 59
	13·5	,, 16·78838	0 45 57·63	+ 6 1 54·0	,, 0^h44^m, + 5°: 40; 0^h44^m, + 7°: 66, 76
	13·5	,, 18·85563	0 44 20·36	+ 5 52 35·8	,, 0^h44^m, + 5°: 17, 22, 28
	13·4	,, 27·83002	0 37 52·86	+ 5 15 9·2	,, 0^h36^m, + 5°: 74, 84, 85
	13·6	,, 30·75413	0 36 2·91	+ 5 4 22·6	,, 0^h36^m, + 5°: 47, 58, 148
708	13·7	Sept. 28·90677	0 58 59·14	+ 8 0 42·4	Toulouse 1^h 0^m, + 9°: 63, 66, 67
	13·5	Oct. 1·96749	0 56 23·21	+ 7 48 19·0	,, 1^h 0^m, + 7°: 1, 3, 4
	14·0	,, 16·78838	0 43 33·88	+ 6 43 42·8	,, 0^h44^m, + 7°: 55, 58, 64
	13·8	,, 18·85563	0 41 50·60	+ 6 34 41·4	,, 0^h44^m, + 7°: 46, 50, 55
	13·6	,, 27·83002	0 34 57·12	+ 5 57 47·5	,, 0^h36^m, + 5°: 35, 36, 48
	13·9	,, 30·75413	0 32 58·45	+ 5 46 59·4	,, 0^h36^m, + 5°: 6, 8, 21
758	12·8	May 5·00784	16 48 37·90	— 17 27 20·3	Hyd. 16^h52^m, — 17°: 46464, 46487, 46488
	12·0	,, 24·87091	16 35 7·74	— 17 7 0·6	,, 16^h36^m, — 17°: 46092, 46095, 46103
	13·0	June 25·77383	16 11 47·52	— 16 48 11·8	,, 16^h12^m, — 17°: 45025, 45037, 45057
785	10·5	May 5·00784	16 35 51·15	— 16 4 2·2	Tacubaya 16^h32^m, — 16°: 79, 88, 90
	10·5	,, 24·82728	16 17 3·76	— 17 56 16·0	Hyd. 16^h16^m, — 18°: 44176, 44177, 44193
	12·0	June 21·72806	15 50 48·72	— 20 39 5·6	,, 15^h48^m, — 21°: 63132, 63143, 63144
806	14·0	Sept. 28·99646	1 54 30·16	+ 2 54 32·0	Algiers 1^h56^m, + 3°: 131, 132, 140
	13·8	Oct. 18·81096	1 39 14·60	+ 2 18 5·2	,, 1^h40^m, + 3°: 111, 114, 117
	13·8	,, 27·92143	1 31 39·41	+ 2 6 6·6	,, 1^h28^m, + 2°: 48, 56, 112
	13·9	,, 30·84260	1 29 17·46	+ 2 3 34·4	,, 1^h28^m, + 2°: 37, 94, 105
811	13·8	Sept. 28·90677	0 53 24·51	+ 1 12 7·6	Algiers 0^h52^m, + 1°: 31, 39, 40
	13·8	Oct. 1·96749	0 51 3·56	+ 0 55 0·2	,, 0^h52^m, + 1°: 64, 74, 75

Planet	Magn.	Date U.T.	α_{1900}	δ_{1900}	Comparison stars
	m	1935	h m s	° ′ ″	
896	12·5	May 24·82728	16 27 37·04	— 24 16 14·8	Cordoba 16^h24^m, — 24°: 612, 619, 633
	12·5	„ 29·83994	16 23 0·62	— 23 26 29·0	Hyd. 16^h20^m, — 23°: 62689, 62706, 62710
	13·8	June 21·72806	16 5 17·55	— 19 59 3·0	„ 16^h 8^m, — 20°: 51862, 51863, 51864
1032	13·5	May 5·05121	16 37 2·79	— 17 57 3·5	Hyd. 16^h40^m, — 18°: 44665, 44666, 44675
	12·8	„ 24·82728	16 22 5·53	— 18 25 12·0	„ 16^h24^m, — 18°: 44381, 44389, 44395
	13·8	June 21·72806	15 59 24·68	— 19 13 54·2	„ 15^h56^m, — 19°: 43695, 43697, 43711
1133	14·2	May 24·82728	16 32 43·28	— 23 27 2·6	Hyd. 16^h36^m, — 23°: 63093, 63094, 63112
	14·0	„ 29·83994	16 26 47·34	— 23 28 52·9	„ 16^h28^m, — 23°: 62869, 62876, 62877
	13·7	June 21·72806	16 11 17·20	— 23 20 38·8	„ 16^h12^m, — 23°: 62467, 62471, 62490
1154	14·0	May 26·97625	17 16 20·59	— 21 59 27·8	Hyd. 17^h20^m, — 22°: 57182, 57195, 57220
1174	14·0	Sept. 28·86280	0 32 42·34	+ 5 31 48·5	Toulouse 0^h36^m, + 5°: 1, 8, 10
	13·9	Oct. 1·87538	0 30 1·13	+ 5 27 30·2	„ 0^h28^m, + 5°: 52, 53, 62
	13·8	„ 15·81915	0 18 0·45	+ 5 6 3·8	„ 0^h20^m, + 5°: 7, 13, 48
	14·1	„ 18·89684	0 15 36·91	+ 5 1 48·8	„ 0^h12^m, + 5°: 82, 146, 152
	14·2	„ 27·83002	0 9 36·27	+ 4 52 26·0	„ 0^h12^m, + 5°: 23, 91, 95
		„ 30·75413	0 7 59·52	+ 4 51 38·8	Algiers 0^h 8^m, + 4°: 36, 38, 42
1183	14·2	Oct. 16·78838	1 0 28·98	+ 6 46 49·6	Toulouse 1^h0^m, + 7°: 75, 78, 81
	14·2	„ 18·85563	0 58 31·60	+ 6 36 55·6	„ 1^h0^m, + 7°: 61, 63, 69
1186	12·7	Sept. 28·95231	1 43 20·08	+ 3 3 40·1	Algiers 1^h40^m, + 3°: 75, 158, 166
	13·5	Oct. 2·88045	1 40 18·68	+ 2 57 0·8	„ 1^h40^m, + 3°: 47, 54, 131
	11·5	„ 18·81096	1 26 33·40	+ 2 32 17·2	„ 1^h24^m, + 3°: 187, 198, 199
	13·0	„ 27·92143	1 18 38·65	+ 2 24 19·3	„ 1^h20^m, + 2°: 23, 26, 31
	13·0	„ 30·82079	1 16 16·81	+ 2 23 17·3	„ 1^h20^m, + 2°: 1, 6, 7
1199	14·0	May 24·82728	16 33 2·62	— 19 22 51·8	Hyd. 16^h36^m, — 19°: 44485, 44495, 44502
	13·8	„ 29·83994	16 28 54·67	— 19 0 31·1	„ 16^h28^m, — 19°: 44294, 44295, 44324
1232	13·8	„ 25·89899	15 39 40·14	— 25 55 23·8	Cordoba 15^h36^m, — 26°: 952, 966, 990
1271	14·0	June 25·77383	16 37 7·90	— 14 49 46·3	Tacubaya 16^h36^m, — 15°: 146, 158, 181
1283?	14·0	May 24·87091	16 31 41·96	— 9 24 12·4	San Fern. 16^h28^m, — 9°: 92, 99, 103
1356	14·0	May 5·05121	16 29 30·58	— 19 59 51·2	Hyd. 16^h32^m, — 20°: 52495, 52498, 52510
	13·5	„ 24·82728	16 14 2·77	— 20 1 43·5	„ 16^h16^m, — 20°: 52030, 52038, 52041
	14·0	„ 25·89899	16 13 7·04	— 20 1 42·6	„ 16^h16^m, — 20°: 52031, 52041, 52045
	13·9	„ 30·95564	16 8 43·68	— 20 1 17·0	„ 16^h 8^m, — 20°: 51870, 51871, 51880
	14·0	June 21·72806	15 51 53·05	— 20 1 42·0	„ 15^h52^m, — 20°: 51318, 51337, 51357
	14·2	July 4·70910	15 45 24·36	— 20 8 37·3	„ 15^h44^m, — 20°: 51041, 51071, 51091
1934 IM	14·0	Sept. 30·90287	23 34 11·76	— 19 38 55·6	Hyd. 23^h36^m, — 20°: 83820, 83834, 83846
?	14·1	Oct. 16·78838	1 13 29·06	+ 6 39 9·7	Toulouse 1^h16^m, + 7°: 50, 51, 55

The comparison of the position of 1934 IM with the ephemeris in *B.A.N.* No. 272, p. 290 gave the following values of O—C: — $1^m·9$, — 26′.

The minor planets 831 and 1095 have been looked for in vain on these series of plates by Dr. VAN GENT.

From the positions of 1174, 1186 and 1356, originally supposed to be new planets, the following elements have been computed:

	1174:	1186:	
g	m 10·6	m 9·2	
M_0	° 13·33398	° 32·16653 on Oct. 1, 1935 U.T.	
ω	350·33501	295·59086	1925·0
Ω	1·55389	43·42290	1925·0
i	10·14888	10·78849	1925·0
φ	6·42011	5·83801	
μ	″ 674·922	″ 675·325	
a	3·023 4481	3·022 2488	

The residuals for the positions mentioned above are as follows:

1174:

s	″
·00	·0
+ ·08	— ·9
·00	·0
— ·02	+ ·5
·00	+ ·1
— ·06	—1·1

1186:

s	″
·00	·0
— ·13	+ ·4
·00	·0
+ ·07	+2·6
·00	— ·1

The elements of 1356 gave too large residuals for the positions which were not used for the computation; probably the positions do not belong to the same planet.

The orbit computations of the following new minor planets were made by the method GAUSS-ENCKE as modified for the use of calculating machines by VEITHEN–MERTON.

The elements are:

Provisional designation	g	M_0	ω	Ω	i	φ	μ	a
	m	°	°	°	°	°	″	
1935 LA	10·8	327·94482	233·06987	70·32990	11·95574	15·32009	755·983	2·803 2593
1935 MI	10·0	244·70126	260·66750	114·75603	6·96143	6·06659	781·683	2·741 4785
1935 SM	12·2	339·86899	199·39973	199·92780	4·55243	9·58424	981·000	2·356 2818
1935 SP_1	11·6	40·14920	301·78076	0·15996	22·69221	14·72597	954·878	2·399 0473
1935 SQ_1	10·8	356·03074	324·87884	50·10488	1·68747	10·39676	646·606	3·111 0809
1935 SR_1	10·0	64·54473	286·82369	9·62174	0·66024	8·33560	625·882	3·179 3896
1935 SS_1	10·4	244·50252	318·25824	175·12208	2·05508	1·02725	731·517	2·865 4298
1935 ST_1	11·6	29·28652	241·75205	95·47882	2·63710	7·82979	812·301	2·672 1469
1935 SU_1	11·4	20·59957	313·36662	34·57144	9·50761	9·84649	758·804	2·796 3052
1935 SV_1	11·0	3·04784	230·20521	146·71165	2·20039	11·29478	650·133	3·099 7786

M_0 for 1935 LA and 1935 MI on June 1, 1935 U.T.; for the others on Oct. 1, 1935.
Mean equinox and ecliptic of 1925·0.

The positions and their comparison with the ephemeris, computed with the aid of these elements are as follows:

1935 LA:

Date U.T.	α_{1925}	δ_{1925}	magn.	O—C in α	O—C in δ	Comparison stars
1935	h m s	° ′ ″	m	s	″	
May 5·09441	16 55 8·50	−19 34 16·7	13·5	·00	·0	Hyd. 16^h56^m, −20°: 53323, 53335, 53336
,, 24·82728	16 40 33·00	−21 7 19·0	13·0	−·15	·0	,, 16^h36^m, −21°: 64555, 64557, 64581
,, 29·83994	16 35 34·32	−21 32 16·4	12·8	+·07	−1·8	,, 16^h36^m, −21°: 64572, 64578, 64588
,, 30·99927	16 34 22·31	−21 38 1·4		·00	·0	,, 16^h32^m, −22°: 55427, 55431, 55441
June 24·70731	16 10 22·28	−23 38 36·8		−·44	−·2	,, 16^h12^m, −23°: 62494, 62497, 62508
July 4·70910	16 4 6·48	−24 25 59·2	13·5	·00	·0	Cordoba 16^h0^m, −24°: 861, 887, 900

1935 MI:

Date U.T.	α_{1925}	δ_{1925}	magn.	O—C in α	O—C in δ	Comparison stars
1935	h m s	° ′ ″	m	s	″	
May 24·87091	16 45 46·97	−14 36 4·5	14·0	·00	·0	Tacubaya 16^h44^m, −15°: 33, 36, 43
June 3·84706	16 36 49·26	−14 30 33·9	14·1	·00	·0	,, 16^h36^m, −15°: 94, 102, 121
,, 25·77383	16 18 31·85	−14 39 6·5	13·9	·00	·0	,, 16^h20^m, −15°: 37, 46, 73

1935 SM:

Date U.T.	α_{1925}	δ_{1925}	magn.	O—C in α	O—C in δ	Comparison stars
1935	h m s	° ′ ″	m	s	″	
Sept. 28·90677	0 56 24·63	+7 40 14·3	14·0	·00	·0	Toulouse 0^h52^m, +7°: 50, 61, 62
Oct. 1·96749	0 54 5·59	+7 14 42·1	13·8	+·40	−1·1	,, 0^h52^m, +7°: 43, 44, 47
,, 16·78838	0 42 26·24	+5 3 59·4	13·9	+·02	+·1	,, 0^h44^m, +5°: 3, 59, 67
,, 18·85563	0 40 55·24	+4 46 11·8	13·2	−·10	−1·8	,, 0^h36^m, +5°: 195, 196, 200
,, 27·83002	0 35 16·31	+3 35 29·1	13·5	−·07	−3·0	Algiers 0^h36^m, +3°: 26, 31, 36
,, 30·75413	0 33 51·01	+3 15 35·6	13·9	·00	·0	,, 0^h36^m, +3°: 2, 12, 125

1935 SP_1:

Date U.T.	α_{1925}	δ_{1925}	magn.	O—C in α	O—C in δ	Comparison stars
1935	h m s	° ′ ″	m	s	″	
Sept. 28·86280	0 12 35·63	+5 38 27·0	13·0	+·01	+·1	Toulouse 0^h12^m, +5°: 26, 39, 43
Oct. 1·87538	0 7 57·33	+6 1 6·6	13·2	−·07	−2·5	,, 0^h4^m, +5°: 74, 82, 83
,, 15·77898	23 49 8·87	+7 33 33·2	13·5	·00	+·1	,, 23^h48^m, +7°: 3, 9, 11
,, 27·78457	23 38 9·53	+8 41 45·7	13·8	+·01	+·1	,, 23^h40^m, +9°: 59, 60, 63

1935 SQ_1:

Date U.T.	α_{1925}	δ_{1925}	magn.	O—C in α	O—C in δ	Comparison stars
1935	h m s	° ′ ″	m	s	″	
Sept. 28·90677	0 43 59·93	+ 2 44 18·0	13·8	— ·02	·0	Algiers 0^h44^m, + 3°: 108, 109, 120
Oct. 1·96749	0 41 41·07	+ 2 31 18·1	13·8	— ·03	— ·1	,, 0^h40^m, + 2°: 29, 31, 44
,, 15·81915	0 31 21·23	+ 1 35 25·6	13·8	·00	·0	,, 0^h28^m, + 1°: 63, 68, 70
,, 18·89684	0 29 15·19	+ 1 24 41·6	13·8	— ·05	+ ·1	,, 0^h28^m, + 1°: 46, 47, 51
,, 27·83002	0 23 59·35	+ 0 59 25·5	14·0	·00	·0	,, 0^h20^m, + 1°: 104, 111, 112
,, 30·75413	0 22 36·12	+ 0 53 26·9		+ ·30	+ 1·3	,, 0^h20^m, + 1°: 93, 96, 98

1935 SR_1:

Date U.T.	α_{1925}	δ_{1925}	magn.	O—C in α	O—C in δ	Comparison stars
1935	h m s	° ′ ″		s	″	
Sept. 28·95231	1 22 39·30	+ 8 49 51·7		·00	·0	Toulouse 1^h24^m, + 9°: 35, 36, 43
Oct. 2·88045	1 19 50·76	+ 8 33 57·9	m	+ ·17	+ 1·6	,, 1^h16^m, + 9°: 73, 79, 87
,, 16·78838	1 9 18·47	+ 7 33 6·7	14·0	·00	+ ·1	,, $1^h\ 8^m$, + 7°: 19, 25, 30
,, 18·85563	1 7 45·06	+ 7 23 58·8	14·2	·00	— ·9	,, $1^h\ 8^m$, + 7°: 9, 11, 14
,, 27·87451	1 1 19·52	+ 6 46 1·9	14·0	— ·18	— 1·3	,, $1^h\ 0^m$, + 7°: 72, 78, 79
,, 30·79897	0 59 26·14	+ 6 34 47·0		— ·01	·0	,, $1^h\ 0^m$, + 7°: 50, 61, 62

1935 SS_1:

Date U.T.	α_{1925}	δ_{1925}	magn.	O—C in α	O—C in δ	Comparison stars
1935	h m s	° ′ ″		s	″	
Sept. 28·95231	1 20 22·49	+ 7 18 19·0		·00	·0	Toulouse 1^h16^m, + 7°: 41, 44, 94
Oct. 2·88045	1 17 30·55	+ 6 57 58·5	m	+ ·21	— 2·3	,, 1^h16^m, + 7°: 65, 72, 73
,, 16·78838	1 6 38·43	+ 5 42 20·8	14·2	·00	·0	,, $1^h\ 8^m$, + 5°: 1, 6, 7
,, 18·85563	1 5 1·52	+ 5 31 12·4	14·2	+ ·02	— ·3	,, $1^h\ 0^m$, + 5°: 38, 43, 44
,, 27·87451	0 58 21·14	+ 4 45 22·4		+ ·03	+ ·2	Algiers 0^h56^m, + 4°: 72, 76, 84
,, 30·79897	0 56 23·22	+ 4 31 55·2	14·1	·00	·0	,, 0^h56^m, + 4°: 37, 49, 50

1935 ST_1:

Date U.T.	α_{1925}	δ_{1925}	magn.	O—C in α	O—C in δ	Comparison stars
1935	h m s	° ′ ″		s	″	
Sept. 28·95231	1 28 31·81	+ 4 31 30·5		·00	·0	Algiers 1^h28^m, + 4°: 41, 52, 56
Oct. 2·88045	1 25 29·95	+ 4 12 20·2	m	+ ·28	+ 1·5	,, 1^h28^m, + 4°: 2, 115, 124
,, 16·78838	1 13 44·53	+ 3 4 44·8	14·0	·00	·0	,, 1^h16^m, + 3°: 2, 88, 94
,, 18·85563	1 11 59·21	+ 2 55 28·1	14·2	— ·02	— 3·3	,, $1^h\ 8^m$, + 3°: 80, 151, 164
,, 27·87451	1 4 48·39	+ 2 20 32·4		+ ·01	+ ·3	,, $1^h\ 4^m$, + 2°: 30, 33, 36
,, 30·79897	1 2 43·95	+ 2 11 30·1	14·2	·00	·0	,, $1^h\ 4^m$, + 2°: 10, 19, 86

1935 SU_1:

Date U.T.	α_{1925}	δ_{1925}	magn.	O—C in α	O—C in δ	Comparison stars
1935	h m s	° ′ ″	m	s	″	
Sept. 28·95231	1 41 12·63	+ 5 11 7·2	14·0	— ·01	— ·1	Toulouse 1^h40^m, + 5°: 28, 29, 37
Oct. 2·88045	1 37 55·90	+ 5 9 1·1	14·0	— ·18	+ 3·4	,, 1^h40^m, + 5°: 12, 13, 63
,, 18·81096	1 22 56·33	+ 4 59 26·7	13·9	·00	·0	Algiers 1^h20^m, + 4°: 84, 88, 91
,, 27·87451	1 14 31·63	+ 4 58 17·6		+ ·29	+ 2·3	,, 1^h12^m, + 4°: 67, 72, 79
,, 30·79897	1 12 1·85	+ 4 59 14·7	13·9	·00	·0	,, 1^h12^m, + 4°: 36, 39, 47

1935 SV_1:

Date U.T.	α_{1925}	δ_{1925}	magn.	O—C in α	O—C in δ	Comparison stars
1935	h m s	° ′ ″		s	″	
Sept. 28·99646	2 0 41·61	+ 9 15 13·0	m	— ·01	— ·1	Toulouse 1^h56^m, + 9°: 41, 49, 90
Oct. 18·81096	1 47 35·11	+ 7 43 36·9	13·7	— ·02	+ ·1	,, 1^h48^m, + 7°: 16, 24, 25
,, 27·92143	1 40 39·87	+ 7 0 18·0	13·8	— ·18	— 1·1	,, 1^h40^m, + 7°: 19, 75, 83
,, 30·84260	1 38 32·07	+ 6 47 29·0	14·0	·00	·0	,, 1^h40^m, + 7°: 66, 70, 74

For the next opposition the ephemerides of the planets mentioned above are:

1935 LA:

Date U.T.	α_{1925}		δ_{1925}	
1936	h m	m	° ′	′
Oct. 31	3 48·9	−7·6	+13 50	−1
Nov. 8	3 41·3	8·2	13 49	+0
,, 16	3 33·1	8·0	13 49	+2
,, 24	3 25·1	7·5	13 51	+4
Dec. 2	3 17·6	−6·4	13 55	+9
,, 10	3 11·2		+14 4	

Oppos. Nov. 17 Mag. $14^m·4$

1935 MI:

Date U.T.	α_{1925}		δ_{1925}	
1936	h m	m	° ′	′
Sept. 13	0 35·0	−5·7	−7 34	−57
,, 21	0 29·3	6·3	8 31	52
,, 29	0 23·0	6·2	9 23	42
Oct. 7	0 16·8	5·7	10 5	30
,, 15	0 11·1	−4·7	10 35	−17
,, 23	0 6·4		−10 52	

Oppos. Sept. 29 Mag. $12^m·8$

1935 SM:

Date U.T.	α_{1925}		δ_{1925}	
1937	h m	m	° ′	′
Feb. 28	12 9·4	−6·4	−4 20	+50
March 8	12 3·0	7·1	3 30	58
,, 16	11 55·9	7·2	2 32	61
,, 24	11 48·7	6·9	1 31	60
April 1	11 41·8	−6·0	−0 31	+55
,, 9	11 35·8		+0 24	

Oppos. March 19 Mag. $15^m·4$

1935 SP_1:

Date U.T.	α_{1925}		δ_{1925}	
1937	h m	m	° ′	′
Jan. 3	8 37·3	−11·4	+50 11	+33
,, 11	8 25·9	12·4	50 44	+14
,, 19	8 13·5	12·5	50 58	−6
,, 27	8 1·0	11·6	50 52	−27
Feb. 4	7 49·4	−9·9	50 25	−44
,, 12	7 39·5		+49 41	

Oppos. Jan. 20 Mag. $15^m·7$

1935 SQ_1:

Date U.T.	α_{1925}		δ_{1925}	
1936/37	h m	m	° ′	′
Dec. 26	8 16·6	−5·9	+21 56	+22
Jan. 3	8 10·7	6·8	22 18	23
,, 11	8 3·9	7·2	22 41	22
,, 19	7 56·7	7·1	23 3	19
,, 27	7 49·6	−6·6	23 22	+16
Feb. 4	7 43·0		+23 38	

Oppos. Jan. 17 Mag. $14^m·9$

1935 SR_1:

Date U.T.	α_{1925}		δ_{1925}	
1936/37	h m	m	° ′	′
Dec. 2	6 3·1	−6·4	+24 19	+1
,, 10	5 56·7	6·9	24 20	−1
,, 18	5 49·8	6·9	24 19	−2
,, 26	5 42·9	6·6	24 17	−4
Jan. 3	5 36·3	−5·8	24 13	−4
,, 11	5 30·5		+24 9	

Oppos. Dec. 19 Mag. $14^m·8$

1935 SS_1:

Date U.T.	α_{1925}		δ_{1925}	
1936/37	h m	m	° ′	′
Dec. 26	7 52·5	−6·4	+18 4	+17
Jan. 3	7 46·1	7·2	18 21	18
,, 11	7 38·9	7·4	18 39	20
,, 19	7 31·5	7·0	18 59	20
,, 27	7 24·5	−6·2	19 19	+18
Feb. 4	7 18·3		+19 37	

Oppos. Jan. 13 Mag. $14^m·0$

1935 ST_1:

Date U.T.	α_{1925}		δ_{1925}	
1937	h m	m	° ′	′
Jan. 3	8 48·5	−6·3	+19 31	+31
,, 11	8 42·2	7·3	20 2	34
,, 19	8 34·9	7·6	20 36	32
,, 27	8 27·3	7·5	21 8	30
Feb. 4	8 19·8	−6·9	21 38	+25
,, 12	8 12·9		+22 3	

Oppos. Jan. 25 Mag. $15^m·5$

1935 SU_1:

Date U.T.	α_{1925}		δ_{1925}	
1937	h m	m	° ′	′
Jan. 11	8 58·8	−7·4	+31 24	+38
,, 19	8 51·4	8·1	32 2	30
,, 27	8 43·3	8·1	32 32	22
Feb. 4	8 35·2	7·6	32 54	+10
,, 12	8 27·6	−6·7	33 4	0
,, 20	8 20·9		+33 4	

Oppos. Jan. 28 Mag. $15^m·6$

1935 SV_1:

Date U.T.	α_{1925}		δ_{1925}	
1937	h m	m	° ′	′
Jan. 11	9 3·1	−6·0	+15 43	+29
,, 19	8 57·1	6·5	16 12	31
,, 27	8 50·6	6·7	16 43	30
Feb. 4	8 43·9	6·4	17 13	30
,, 12	8 37·5	−5·7	17 43	+25
,, 20	8 31·8		+18 8	

Oppos. Jan. 30 Mag. $15^m·3$

Moreover the following positions of new minor planets have been measured:

Planet	Magn.	Date U.T.	α_{1925}	δ_{1925}	Comparison stars
	m	1935	h m s	° ′ ″	
1935 IF	14·0	May 5·05121	16 18 28·93	−21 7 52·7	Hyd. 16h16m, −22°: 55167, 55182, 55197
		,, 24·73222	16 2 38·64	−20 25 42·0	,, 16h 0m, −20°: 51661, 51685, 51686
	14·0	,, 25·89899	16 1 42·95	−20 20 43·8	,, 16h 0m, −20°: 51638, 51660, 51683
	13·9	,, 30·95564	15 57 10·96	−20 7 8·0	,, 15h52m, −20°: 51324, 51373, 51374
		June 4·98492	15 52 50·35	−19 53 47·0	,, 15h52m, −20°: 51272, 51301, 51302
1935 IG	14·2	May 5·05121	16 25 53·30	−19 38 29·1	Hyd. 16h24m, −20°: 52172, 52182, 52188
1935 KF	14·2	May 24·82728	16 41 37·15	−19 0 8·3	Hyd. 16h44m, −19°: 44641, 44667, 44676
	14·0	,, 29·83994	16 37 33·12	−18 54 20·1	,, 16h36m, −19°: 44454, 44475, 44478
1935 SA_2	14·0	Sept. 28·95231	1 13 44·39	+7 35 34·3	Toulouse 1h16m, +7°: 3, 4, 9
	14·0	Oct. 1·96749	1 10 52·02	+7 35 37·6	,, 1h 8m, +7°: 23, 29, 30
	13·9	,, 16·78838	0 55 24·04	+7 28 27·9	,, 0h52m, +7°: 48, 55, 58
	13·9	,, 18·85563	0 53 15·96	+7 27 11·0	,, 0h52m, +7°: 23, 31, 36
	14·0	,, 27·87451	0 44 49·69	+7 23 43·4	,, 0h44m, +7°: 14, 15, 18
1935 SC	14·2	Oct. 15·81915	0 25 32·63	+8 13 4·7	Toulouse 0h20m, +9°: 82; 0h28m, +9°: 51, 53
	14·1	,, 18·89684	0 22 59·11	+8 8 1·7	,, 0h20m, +7°: 32, 36, 38
1935 SE		Sept. 28·99646	2 0 35·46	+3 17 55·8	Algiers 1h56m, +3°: 88, 90, 97
	13·8	Oct. 18·81096	1 47 0·41	+1 43 49·2	,, 1h48m, +1°: 11, 13, 20
	13·9	,, 27·92143	1 40 8·73	+1 6 33·0	,, 1h40m, +1°: 23, 35, 86
	13·8	,, 30·84260	1 38 0·99	+0 56 19·5	,, 1h40m, +1°: 67, 75, 77
		Nov. 28·85137	1 22 51·12	+0 16 46·8	,, 1h20m, 0°: 28, 40, 41
1935 SS		Sept. 28·99646	1 58 16·83	+1 56 43·0	Algiers 2h 0m, +2°: 81, 82, 91
	13·9	Oct. 18·81096	1 42 16·89	+1 14 33·2	,, 1h40m, +1°: 43, 45, 47
	13·9	,, 27·92143	1 34 23·06	+1 2 44·9	,, 1h32m, +1°: 42, 82, 88
	14·1	,, 30·84260	1 31 57·37	+1 0 45·4	,, 1h32m, +1°: 29, 70, 76
		Nov. 28·85137	1 15 2·09	+1 37 52·5	,, 1h12m, +2°: 123, 124, 125
1935 SW_1	14·0	Sept. 28·86280	0 9 39·04	+9 43 48·5	Toulouse 0h12m, +9°: 1, 5, 10
	14·2	Oct. 1·87538	0 7 12·81	+9 21 4·5	,, 0h 4m, +9°: 45, 51, 54
1935 SX_1	14·0	Sept. 28·86280	0 18 0·44	+9 20 40·9	Toulouse 0h20m, +9°: 2, 42, 46
	14·0	Oct. 1·87538	0 15 5·60	+8 57 37·7	,, 0h12m, +9°: 97, 99, 101
		,, 15·81915	0 3 3·40	+7 8 59·9	,, 0h 4m, +7°: 12, 16, 74
1935 SY_1	12·8	Sept. 28·86280	0 21 18·72	+3 25 27·5	Algiers 0h20m, +3°: 33, 40, 102
	13·8	Oct. 1·87538	0 18 55·27	+3 13 30·5	,, 0h20m, +3°: 12, 21, 82
	13·8	,, 15·81915	0 8 30·18	+2 20 31·2	,, 0h 8m, +2°: 37, 47, 118
	13·6	,, 18·89684	0 6 28·85	+2 10 11·3	,, 0h 8m, +2°: 17, 21, 94
		,, 27·78457	0 1 30·34	+1 44 58·3	,, 0h 0m, +2°: 127, 129, 137
1935 SZ_1	13·2	Sept. 28·95231	1 51 7·44	+7 12 2·7	Toulouse 1h48m, +7°: 44, 52, 118
	13·8	Oct. 2·88045	1 48 39·18	+6 44 10·0	,, 1h48m, +7°: 94, 98, 102
	13·8	,, 18·81096	1 36 36·99	+4 44 38·2	Algiers 1h36m, +4°: 56, 60, 65
	13·5	,, 27·92143	1 29 23·32	+3 39 59·8	,, 1h28m, +4°: 150, 154, 162
	13·8	,, 30·84260	1 27 12·90	+3 21 6·2	,, 1h24m, +3°: 73, 82, 186
		Nov. 28·85137	1 13 56·84	+1 34 42·0	,, 1h16m, +1°: 2, 4, 10
1935 TG	14·2	Sept. 28·90677	1 1 52·90	+5 47 19·8	Toulouse 1h 0m, +5°: 27, 28, 36
	14·2	Oct. 1·96749	0 59 19·77	+5 27 32·2	,, 1h 0m, +5°: 4, 10, 12
	14·0	,, 16·78838	0 46 32·25	+3 51 26·4	Algiers 0h48m, +4°: 105, 117, 131
	14·0	,, 18·85563	0 44 54·74	+3 39 15·3	,, 0h44m, +3°: 32, 39, 44
1935 UG	13·8	Oct. 16·78838	0 48 50·75	+10 23 59·3	Bordeaux 0h44m, +11°: 200, 209, 216
	13·5	,, 18·85563	0 46 48·35	+10 17 7·1	,, 0h44m, +11°: 180, 187, 194
1935 UM	13·9	Oct. 27·78457	23 57 54·44	+1 42 54·4	Algiers 0h0m, +2°: 84, 86, 95
1935 UN	13·8	Oct. 16·78838	0 57 33·42	+9 2 9·5	Toulouse 1h 0m, +9°: 1, 51, 55
	13·7	,, 18·85563	0 55 40·50	+8 48 12·7	,, 0h52m, +9°: 68, 69, 72
		,, 27·87451	0 48 10·24	+7 49 10·9	,, 0h44m, +7°: 37, 40, 44
	14·0	,, 30·79897	0 46 6·80	+7 31 34·4	,, 0h44m, +7°: 24, 25, 30
1935 UP		Oct. 18·81096	1 40 53·82	+5 38 59·8	Toulouse 1h40m, +5°: 26, 31, 34
	14·0	,, 27·92143	1 33 0·29	+4 18 11·0	Algiers 1h28m, +4°: 102, 111, 200
	14·1	,, 30·84260	1 30 36·14	+3 54 25·7	,, 1h28m, +4°: 166, 171, 172