EPHEMERIS

1927, U.T.	$\alpha(1927.0)$			$\delta(1927.0)$			$\log p$	Br.
Apr. 13.0	14 ^h	57 ^m	8 ^s	+ 4°	41'0"		0.442	1.21
17.0		53	38		6	12.5	0.440	
21.0		49	57		7	42.9	0.440	
25.0		46	10		9	11.4	0.440	
29.0		42	17		10	37.2	0.441	
May 3.0		38	22		11	59.9	0.444	
7.0		34	28		13	18.6	0.447	1.17
11.0		30	36		14	33.1	0.451	
15.0		26	51		15	42.9	0.456	
19.0		23	14		16	47.8	0.461	
23.0		19	47		17	47.7	0.468	
27.0		16	33		18	42.5	0.475	
31.0	14	13	31	+19	32.3		0.482	0.98

The unit of brightness is that of March 13.

The outstanding features of the orbit are: the perpendicularity to the ecliptic, the large perihelion distance of 3.7, and the proximity of the perihelion to the ecliptic.

BERKELEY ASTRONOMICAL DEPARTMENT,
April 16, 1927.

PRELIMINARY ELEMENTS OF OBJECT COMAS SOLÀ (1927 AA)

BY

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Object Comas Solà (1927 AA) was discovered by Comas Solà at Barcelona January 10th. The magnitude for January 22d was 12.8. The retrograde motion of the body was very rapid. The discoverer suggested that the object was probably an asteroid.

On receipt, late in March, of *Bulletin de l'Observatoire de Nice, No. 25*, containing the following three photographic positions by Comas Solà:

1927, U.T.	$\alpha(1927.0)$			$\delta(1927.0)$		
(1) Jan. 22.87569	8 ^h	00 ^m	06 ^s .6	-0°	55'	56"
(2) Jan. 23.91528	7	58	34.9	-1	08	54
(3) Jan. 24.97986	7	57	02.7	-1	21	52

an attempt was made to derive a general orbit by direct solution. By inspection of the critical determinant:

$$\alpha'^3 \tan \delta - \alpha'' (\tan \delta)' + \alpha' (\tan \delta)'',$$

it was readily recognized that the precision of its numerical value depended exclusively on the accuracy of the accelerations and that the solution would become more or less indeterminate if the positions were not accurate to the nearest second of arc. The general equation resulted in the improbable geocentric distance of about five astronomical units at the middle date. As the geocentric motion indicated a large eccentricity of the orbit, and as the indeterminateness is reduced by a conditioned solution, a parabola was derived as a first approximation with the following residuals:

O-C	I	II
$\Delta\alpha$	+21".2	+25".0
$\Delta\delta$	+ 7.0	+ 7.4

Without computing the corresponding elements differential correction leading to a general orbit was undertaken to remove these residuals, with the unfavorable result:

O-C	I	II
$\Delta\alpha$	+7".8	+6".8
$\Delta\delta$	+0.6	+0.4

As the parabolic residuals should readily have disappeared by differential correction, an inconsistency in the observations was suspected and no further attempt was made to improve the orbit, particularly since in the meantime a longer arc had become available. The inconsistency of the observations is established by the orbit given below. The elements resemble those based on the longer arc and in case of need would have well served for ephemeris purposes. It is interesting to note that it was possible to derive an approximate orbit under the existing unfavorable circumstances.

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