The following positions of 1989 PB have been obtained by Bernd Koch, Solingen, German Federal Republic, as measured off photographs by a 20 cm Newtonian reflector. The observatory coordinates are Longitude 07°00'45" East, Latitude 51°05'28" North, Altitude 133 meters.

Planet	1989 UT	RA (1950.0)	Dec	Mag
1989 PB	08 22 22:02:00	$00^h25^m24.02^s$	+31°50'26.8"	11.5
1989 PB	08 22 22:07:00	00 25 27.31	+31 52 46.7	11.5
1989 PB	08 22 22:11:00	00 25 30.54	+31 54 51.1	11.5

The following positions of 349 Dembowska have been obtained by Mike Kretlow, Wiesbaden, German Federal Republic, as measured off photographs by a 12.7 cm refractor. The observatory coordinates are Longitude 08°15'36" East, Latitude 50°03'00" North, Altitude 100 meters.

Planet	1989 UT	RA (1950.0)	Dec
349	07 03 00:38:57	$10^h51^m47.2^s$	+17°31'48"
349	07 03 00:45:57	10 51 46.8	+17 31 49
349	07 03 01:00:57	10 51 46.1	+17 31 50
349	07 03 01:07:57	10 51 45.9	+17 31 54

PHOTOGRAPHIC POSITIONS OF MINOR PLANETS

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(Received: 1 May Revised: 10 May)

The following positions of minor planets have been made photographically using a 75 mm f/9.2 achromatic photographic objective on T MAX 400 Kodak films. The reported UT time is that of mid-exposure. The estimated precision for each measurement is ±1.5 arcsecond.

Photographs of 216 Kleopatra and 1917 Cuyo were made from longitude 13°12'12" E, latitude 41°57'27" N, altitude 1820±5 meters. Photographs of 521 Brixia were obtained from longitude 11°10'29" E, latitude 42°23'08" N, altitude 635±5 meters.

Planet	1989 UT	RA (1950.0)	Dec
216 Kleopatra	Jul 28.95000	$20^h\ 09^m\ 52.6^s$	+ 1° 36' 03"
216 Kleopatra	Jul 28.98263	20 09 51.0	+ 1 35 56
1917 Cuyo	Oct 6.84791	20 53 39.2	-12 13 30
1917 Cuyo	Oct 6.87152	20 53 32.2	-12 09 20
521 Brixia	Oct 21.87708	1 10 01.0	-13 07 45
521 Brixia	Oct 22.85556	1 09 14.8	-13 06 46

REPORT FROM THE RECORDER

Frederick Pilcher
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(Received: 20 July)

I am attending the Corporation for Research Amateur Astronomy Baja '91 Symposium at La Paz, Mexico, around the time of the solar eclipse July 11, 1991. Here I shall present a paper, "The Minor Planets Section of the Association of Lunar and Planetary Observers." I shall appreciate the support of any Minor Planets Section members who can also attend. Even if you cannot attend the Symposium, please contact me about any of your activities which you wish for me to include. I shall peruse the last 2 years' issues of the *Minor Planet Bulletin*, plus those to be published up to the time of the Symposium, for as complete a range of our undertakings as I can find.

Persons who have not yet reserved spaces should immediately contact:

Corporation for Research Amateur Astronomy
P. O. Box 16542
San Francisco, CA 94116 USA

LETTER TO THE EDITOR

Dear Editor,

I was a bit surprised to find in the current issue of *MPB* a short article by Floyd Hutson in which he reported residuals between his astrometric observations and positions predicted by my ephemeris program. My program is intended only for finding objects, not reducing astrometric observations, as it does not include topocentric or aberration of light corrections, among others, and some arithmetic is done in single precision. The O-C residuals he reported are, if anything, smaller than the errors I would have expected in my computations alone, so it is no surprise that the residuals are larger than his solution error estimates. Indeed, it is entirely possible that his observations, if measured against a higher precision ephemeris, might yield much smaller residuals.

Sincerely yours,

Alan Harris

OPPOSITIONS OF 944 HIDALGO — REVISED

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(Received: 30 July)

Harris (1990) gives a list of favorable oppositions of minor planet 944 Hidalgo between the years 1900 and 2050. We were rather surprised to read that for this purpose an unperturbed orbit was used, with the statement that the opposition dates "far from the current epoch may be off by a day or so". This "current epoch" itself is not mentioned in the article, and we fear that the author has been too optimistic. Indeed, our Table II shows that, of the 22 opposition dates given by Harris, only five are less than two days in error. For many others, the error amounts to several months, with the consequence that the corresponding data are completely meaningless.

Using the orbital elements from the *Ephemerides of Minor Planets* 1990, one finds that the present perihelion and aphelion distances of Hidalgo are 2.00 and 9.67 AU, respectively. The latter value is close to Saturn's mean distance to the Sun (9.55 AU). But due to the high inclination of its orbit (42°), Hidalgo cannot approach Saturn to less than 3.66 AU. However, it can approach Jupiter to 0.29 AU, this value being the least distance between the orbits (in 1990). Actually, Hidalgo passed 0.90 AU from the giant planet in October 1922, while in May 1993 there will be an approach to 1.80 AU.

Author Goffin calculated the motion of Hidalgo, from A.D. 1900 to 2050, by numerical integration. The first author then used these results to derive the data presented in this article.

Table I gives the dates and the values of the least distances of Hidalgo to the Sun, between the years 1900 and 2050. The second column shows that the actual period of revolution is not constant. During the 150 years considered here, the extreme values are 13.69 and 14.11 years. This evidently illustrates that using an unperturbed orbit for a time lapse of more than one century cannot but give results which are grossly inaccurate.

Table II lists the apparitions of Hidalgo from 1900 to 2050, in which it was or will be brighter than V magnitude 17.0. The date (first column) is that of the opposition with the Sun in ecliptical longitude, not in right ascension. The second column gives the least distance of Hidalgo to the Earth during that apparition; this distance may differ somewhat from the distance at the instant of the opposition.

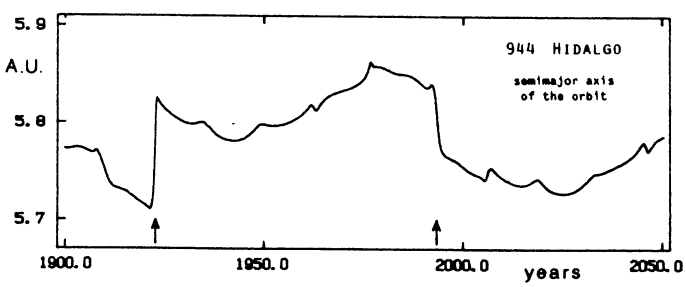

Table I : Perihelia of 944 Hidalgo

Date of perihelion	Difference (days)	Perihelion distance (AU)
1907 Jun 29		2.0128
	5002	
1921 Mar 9		1.9834
	5109	
1935 Mar 5		1.9970
	5086	
1949 Feb 5		1.9949
	5102	
1963 Jan 25		1.9989
	5138	
1977 Feb 18		2.0137
	5155	
1991 Apr 1		1.9997
	5044	
2005 Jan 21		1.9509
	5026	
2018 Oct 26		1.9475
	5014	
2032 Jul 18		1.9474
	5046	
2046 May 12		1.9615

Table II : Favorable oppositions of Hidalgo

Date of opposition	Distance (AU)	Visual magnitude	Declination	Phase angle
			°	°
1906 sep 21	2.233	15.6	-27	8.7
1908 Mar 10	2.182	15.6	+38	11.2
1920 Oct 14	1.393	13.6	+ 7	0.5
1922 Mar 27	2.849	16.4	+14	4.7
1934 Oct 17	1.377	13.6	+12	1.2
1936 Mar 27	2.880	16.4	+13	4.3
1948 Oct 25	1.251	13.5	+29	7.4
1950 Mar 30	3.054	16.6	+ 9	3.4
1962 Oct 30	1.226	13.6	+37	10.3
1964 Mar 31	3.122	16.6	+ 8	3.1
1976 Oct 21	1.316	13.6	+21	4.4
1978 Mar 28	2.975	16.5	+12	4.0
1990 Oct 9	1.550	14.1	- 1	3.1
1992 Mar 24	2.717	16.2	+18	5.5
2004 Oct 29	1.171	13.4	+36	10.1
2006 Apr 1	3.147	16.7	+ 6	2.8
2017 Aug 31	3.197	16.9	-46	9.4
2019 Jan 15	1.448	14.3	+80	(*)
2031 Sep 15	2.425	15.9	-34	9.5
2033 Mar 7	2.042	15.4	+41	12.3
2045 Sep 27	1.868	15.0	-19	7.6
2047 Mar 19	2.453	15.9	+25	7.5

(*) No minimum near that opposition. At the date of opposition, the phase angle will be 25°.7.

The visual magnitude is that of greatest brilliancy. The declination (equinox of date) is for the time of the opposition. In the last column, the minimum value of the phase angle is given.

It appears from Table II that the opposition of 2004