KG
11366
197

1923phae.proj.1199w

Ida E. Woods
Book 21.
Discussion, measures, etc. of
~~Aeon~~ Nebulae & Asteroids.

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KG 11366.197

Asteroids Precision of measurement.
Announced by Prof Bailey in H.B. 776
Barnis 17 14.5 -37 11 etc.
date July 1922 G.M.T. 18.49

Asteroids — Announce 1925 Positin

Asteroids. Estimates of Magnitude — Method.

Use a standard sequence on an MC Plate of about equal exposure.

Compare trail, estimated as a single star, with sequence, to get approximate magn. Est. 11.5, 12.0, 12.5 (even nos. in.5)
(Asteroid has 30^m ± exposure and is moving, so total light must be used to ~~corresponding~~ ~~each~~ star of same magn. must equal)

On one plate, MC 15606, p. 22, showing Minerva, I found a standard sequence included in region, 47 K. Have marked this sequence on 15606 and compared all other asteroids with this.

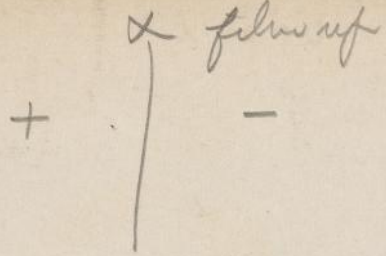
Magns. 47 K. Bk. 7, f. 50.

No. 1	7.11	7.12
2	7.30	7.32
3	10.01	10.22
4	10.59	10.81
5	10.70	10.93
6	11.33	11.57
7	11.72	11.96
8	12.31	12.55
9	12.84	13.09
10	13.16	13.42
11	13.60	13.86
12	13.90	14.15
13	14.62	14.87
14	14.66	14.91

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1923phae.proj.1190w



Harvard College Observatory

Ida E. Woods Book No. 21

Examination of plates, discussing (especially) measures of position

Interesting Objects found by I.E.W.

New Nebulae

Asteroids.

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March 31, 1923. Asteroid. $13^h 28.^m0$ $+21^\circ 3'$ (1917)

Found Bks. 20, p. 146 exam. MC plates.
" February 27, 1923.
Seen on MC 12790 only, = April 14, 1917.

H.B. 787 * Iden. as Asteroid (729) [1912 O D] 12.4
(Tab. Asteroids 1917) p. 46.

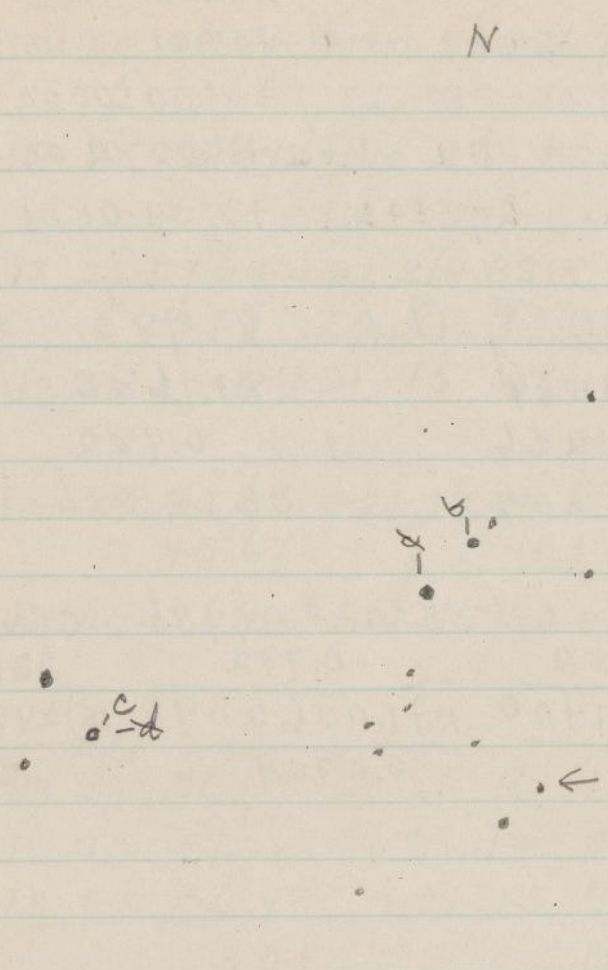
See Bks. 20, p 146, list of plates exam. for a
var. star of this pos. N.S.
also, discussion of motion.

May 17 Est. of Magn.
Using Seq. of 47K (MC 4124) on 15606 which
is 30^m Eff.
Compared MC 12790 (24^m) trail of (729)
with 15606 magns.
Trail = 9 2nd or faintest
9 Bk. 7, p 50 = (12.84) Corr = 13.09

Asteroid = 13.0, about

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1923phael.proj.1193M



	DM.	(1855)		Mag.	Gsell.	(1875)	
		h				h m s	
a	+20° 2838	13 22 47.5	+20° 56'.6	9.0	4801	13 23 46.81	+20° 50' 36".7
b	+21 2544	13 24 59.8	+21 42.7	9.0	4810	13 25 57.63	+21 36 38.8
e	+21 2547	13 27 45.0	+21 23.3	7.5	4818	13 28 42.65	+21 17 14.1

Several Gsell. stars but these seem to be best for distribution.

Orient by: +22 2587 13 23 22.0 +22 14.8 9.2
+22 2588 13 23 22.3 +22 54.4 9.3

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1923phae.proj.1199w

8

Measures of position with glass plate.

	x	y	x	y	Mean x	Res.	Mean y	Res.
MC 12790 Ast.	+14.01	-11.54	+14.01	-11.54	+14.01	00 00	-11.54	00 00
a	-4.50	-27.18	-4.50	-27.17	-4.50	0000	-27.18	0001
b	+14.03	+1.12	+14.02	+1.12	+14.02	01 00	+1.12	0000
c	+37.60	-10.50	+37.58	-10.50	+37.59	01 01	-10.50	0000

Mean x - Ast.	Mean y - Ast.	= X x 98".2	y x 98".2	
-18.51	-15.64	1817.682	1535.848 =	25
+0.02	+12.66	0.982	1243.212 =	20
+23.58	+1.04	2315.556	102.128 =	1

a sec. δ = 1.0700

15) 1944.919740 0

129.661

b sec. δ = 1.0756

15) 1.056 2392

0.0704

c sec δ = 1.0732

15) 2485.054992

165.6870

mid

MC 12790 April 14, 1917. 13 49 10 to 14 13 35 14 01 22.136 + 582 = .718

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1923phaeproj..119gw

a 13 23 46.81 +20 50 36.7
2 9.66 25 35.8
13 25 56.47 +21 16 12.5

b 13 25 57.63 +21 36 38.8
0.07 20 43.2
13 25 57.56 +21 15 55.6

= 25 35.8
= 20 43.2
= 1 42.1

c 13 28 42.65 +21 17 14.1
2 45.67 1 42.1
13 25 56.98 +21 15 32.0

Firm a	13 25 56.47	+21 16 12.5	−0.53	+19.1
" b	13 25 57.56	+21 15 55.6	+0.56	+ 2.2
" c	13 25 56.98	+21 15 32.0	−0.02	− 21.4
	3.01	160.1	+0.56	+21.3
			−0.55	−21.4
Mean 1875	13 25 57.00	+21 15 53.4		

Gesell. Prec.

α +2.88 × 25 = 72.00 ✓
δ −18.66 × 25 = 466.50 ✓

13 25 57.00 +21 15 53.4
+1 12.00 − 7 46.5
(1900) 13 27 9.00 +21 8 6.9
Prec. 17 yrs. 48.96 − 5 17.2
Apr. 14, 1917 13 27 57.96 21 2 49.7

from Eph. Apr. 13, 1917 = 13 27.9 +20 56 = 1912 0 D

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1923phae.proj.1199w

New Var.

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1923phae.proj.119SW

~~Look up +10°2936~~ Does not appear on B 35564

Transferred to Bk. 19, p. 131.

DM.		1855		Mag.	Gesell.		1875		
a	+9° 3120	15 48	24.4	+9 39.9	7.9	7127	15 49	20.92	+9 35 31.0
b	+9 3121	15 49	9.9	+9 55.0	9.3	7132	15 50	6.14	+9 51 29.8
c	+9 3122	15 50	20.8	+9 33.2	8.9	7139	15 51	18.39	+9 19 27.0

For circulation:

+8	3112	15 50	11.4	+8	12.8	9.0
+8	3113	15 50	11.8	+8	47.5	9.5
+8	3120	15 52	37.4	+8	26.2	9.5
+10	2936	15 52	37.8	+10	59.1	9.4

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1923phae.proj.1199w

Asteroid. April – 1923

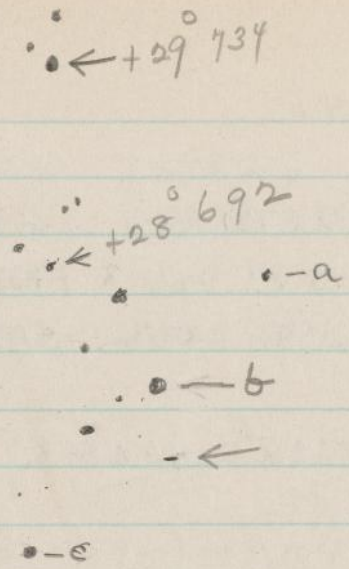
→ Found Bk. 20, f. 115 exam. MC plates.
" January 3, 1923.
" on MC 19241 only = November 13, 1922.

H.B. 787 * Identifies as Medea (212) 11.5
(Table Asteroids (1922)

May 17 Est. of Magn.
Using 47K Seq. (MC. 4124) as marked
on MC 15606 (which is 30m eff.)
Comparing trail on 19241 with Magns.
on 15606 = Star 5
Bk. 7, f. 50 5 = (10.70) Corr. = 10.93
Medea = 11.0

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1923phae.proj.119SW



from MC 19241

Marbeduin I 21872

	Dm.	1855		Magn.	Gsell.	1875.		
~~a = +27 689~~	~~4 34 50.1~~	~~+27 58.8~~		~~9.5~~	2154	4 36 55.53	+28 41 18.3	
b = + 28 687	4 36 45.8	+28 24.6		7.0	2157	4 38 0.27	+28 25 43.4	
c = + 27 695	4 37 51.8	+27 57.4		9.0	2167	4 39 6.71	+27 59 45.1	

Orient by:

	h	m	1855		Magn.
+29° 734	4	37	31.4	+29° 2.3	9.2
+28 692	4	37	31.2	+28 40.1	9.0

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1923phae.proj.1199w

Meas. with glass plate

MC 19241

		x	y	x	y	Mean x	Mean y		
N up	a	+19.00	+22.78	+19.00	+22.80	+19.00	+22.79	00 00	01 01
film up	b	+10.48	+13.17	+10.48	+13.18	+10.48	+13.18	00 00	01 00
	c	+1.72	−2.88	+1.72	−2.90	+1.72	−2.89	00 00	01 01
						δ =	+8.28	01 01	00 00
Asteroid		+11.48	+8.28	+11.48	+8.28	11.47	11.44	mean =	11.46

Mean Position

Meas. of Asteroid ends
11.33 to 11.54 = about 0.21 length of α
change in δ very slight, possibly 0.02
This makes mean pos. about 11.44 α

fm a	4 37	51.73	+28 17	33.4	− 1.29	−11.0 −12.5
" b	4 37	52.90	+28 17	42.2	− 0.12	−2.2 −3.7
" c	4 37	54.42	+28 18	2.0	+ 1.40	+17.6 +16.1
		9.05		137.6		
Mean (1875)	4 37	53.02	+28 17	44.4 45.9		
position	1	33.66	+ 2	55.8		
(1900)	4 39	26.68	+28 20	41.7		
	1	22.42	2	34.7		
Nov. 13, 1922	4h 40m	49.10	+28°	23′ 16.4		

Z.C. Prec.

	s	
	~~2.3981~~	(Using
	3.7464	3.7464
	25	22
	93.6600	82.4208
	7.0327	7.0327
	25	22
	175.8175	154.71

Position of Medea, Nov. 21 1922 4h 38m.8 +28° 19′
motion decreasing in δ.

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1923phae.proj.119cm

	Mean x - Ast.	Mean y - Ast.	x × 98.″2	y × 98.″2
01	+7.53	+14.51	739.446	1424.″882 = 23′ 44.″88
00	-0.99	+4.90	97.218	481.180 = 8′ 1.18
01	-9.75	-11.17	957.450	1096.894 = 18′ 16.89
00				

a sec d = 1.1401

739.446

15) 843.042 3846

56.203

b sec d = 1.1371

97.218

15) 110.546 5878

7.37

c sec d = 1.1326

957.450

15) 10844.078 700

72.29

4 36 55.53 +28 41 18.3

56.20 23 44.9

4 37 51.73 +28 17 33.4

4 38 0.27 +28 25 43.4

7.37 8 1.2

4 37 52.90 +28 17 42.2

4 39 6.71 +27 59 45.1

72.29 18 16.9

4 37 54.42 +28 18 2.0

ing same values for d Prec.)

4

08

327

23

54. 7194

MC 19241 Nov. 13, 1922. 5h 28m & 5h 58m Mid 5h 43m .238+.552= .790

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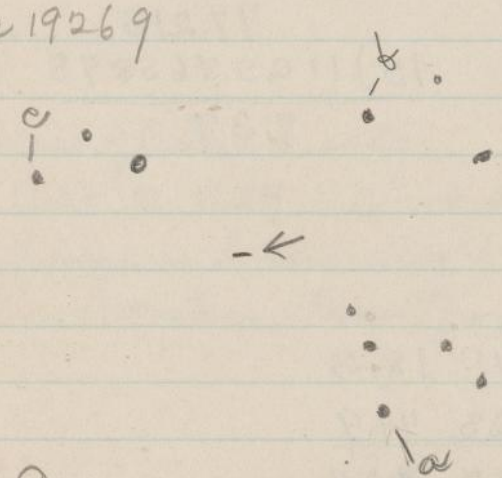
16 May 17 Est. of Magn. Using Seq. 47K (MC 4124) as marked on 15606 which is 30m Eff. Trail compared on 19269 with magns. on 15606 = 5 to 6.

Asteroid Bk. 7 p. 50 5 = (10.70) Corr 10.93
6 = (11.33) Corr 11.57
Media - about 11.0

Found Bk. 20, p. 121
" January 11, 1923
" only on MC 19269 = November 19, 1922.

H.B. 787 * Identifies as Medea (212)

glass of MC 19269



Idm. on
F 21872

	Dm.	1855		Magn.	Gesell.	1875	
a	a +27° 679	4h 30m 31.1	+27° 43.8	8.8	2132	4h 31m 45.75s	+
b	b +28 677	4 30 34.4	+28 29.8	8.1	2134	4 31 49.49	+
c	c +28 683	4 33 9.9	+28 18.5	8.8	2147	4 34 24.28	+

Orient by +28 676 4 30 26.7 +28 11.2 9.3
+29 727 4 30 27.0 +28 34.6 9.5

Mean of Asteroid trail read.

Prec. from L.C. tables

$\alpha = 3.7367$ $\delta = 7.4383$

25 25 yrs.

93.418 185.9575

for 22 yr. 82.147 for 22 yr. = 163.6426

MC 19269 = Nov. 19, 1922. 5 56 to 6 26 6h 11m .2 57 +.536 = .793 .751

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1923phae.proj.1199

Measures with glass plate

N. up film up MC 19269 Meas April 27, 1923

					Mean x			Mean y		
a	+10.00	-37.42	+10.02	-37.30	+10.01	01	01	-37.36	06	06
b	+10.85	-9.68	+10.78	-9.72	+10.82	03	04	-9.70	02	02
c	+31.38	-16.05	+31.40	-16.10	+31.39	01	01	-16.08	03	02

Asteroid +19.40 −23.38 +19.46 −23.45 +19.43 03 03 −23.42 04 03

x - Asteroid	y - Asteroid	x × 98.2	y × 98.2
-9.42	-13.94	925.044	1368".908 = 22' 48".91
-8.61	+13.72	845.502	1347.304 = 22 27.30
+11.96	+7.34	1174.472	720.788 = 12 0.79

4 31 45.75 +27 46 16.1
69.71 22 48.9
4 32 55.46 +28 9 5.0

4 31 49.49 +28 31 58.9
64.16 22 27.3
4 32 53.65 +28 9 31.6

+27° 46' 16.1
+28 31 58.9
+28 21 26.5

4 34 24.28 +28 21 26.5
88.98 12 0.8
4 32 55.30 +28 9 25.7

sec. δ = 1.1303

925.044 | 1045.577.2332 = 69.705+

1.1383

845.502 | 962.4349266 = 64.162

1.1364

11.74.472 | 1334.6699808 = 88.98

4 32 55.46 +28 9 5.0 +0.66 −15.8
32 53.65 +28 9 31.6 −1.15 +10.8
32 55.30 +28 9 25.7 +0.50 +4.9
14.41 62.3 +1.16 +15.7
−1.15 −15.8

Mean Pos. 1875
4 32 54.80 +28 9 20.8
1 33.42 +3 6.0

1900
4 34 28.22 +28 12 26.8
1 22.15 +2 43.6

Nov. 19, 1922 ✕ 4 35 50.37 +28 15 10.4

Pos. Nov. 21, see p. 14

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Monday, April 30, 1923.

Medea.

Examined Ac Plates of nearby dates to see if Medea was on other plates.

Ep. Ac 24932, October 21, 1922
24934 " 22, "
24972 November 12, "
24986 " 20, "
25035 Dec. 15, "
25067 Jan. 12, 1923

→ Nothing found.

The required region would be near edge in most cases.

I took approx. pos. from ephemeris and examined only that section of each plate.

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1923phae.proj.1193w

Tuesday, May 1, 1923.

Medea.

Exam. Marseilles Eph. (Circulaires) for Medea, 1922. (after Nov. 10)

Three ~~Two~~ positions:

Circ. No. 256	Nov. 20	$4^h\ 35^m\ 14^s$	$+28^\circ\ 14'.4$
255	24	4 31.6	+28 7
257	30	4 26.9	+27 53

Entered on plotted curve in pencil.

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20 May 17 Est. of Magn. Using 47K Seq. (MC 4124) as marked on MC 15606 (this is 30m Eph.)

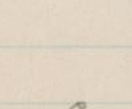
Asteroid Comparing trail on 15571 with Magns on 15606 = Star 5-6:

Bks. 7, p. 50, 5 = 10.70 Corr = 10.93
6 = 11.33 = 11.57

Klyt. = about 11.0

Found December 7, 1922
" Bk. 20, p. 100.
" only on MC 15571 = December 21, 1918.

H.B. 787 * Identified as Klytaemnestra (179)
Eph. 1918, p. 81



Iden. on		1855			Magn.	Gesell.		1875			
I 19978		h m s	° ′				h m s	° ′		
a	+20 647	3 42 34.9	+20 30.7	8.9		1224	3 43 43.84	+20 33		50
b	+21 549	3 45 24.0	+21 9.5	8.8		1240	3 46 33.45	+21 11		57
c	+20 660	3 46 30.3	+20 27.1	8.9		1247	3 47 40.27	+20 30		41
Orient by:	+21° 642	h m s 3 43 46.9	+21° 44.5	9.5						
	+20 650	3 43 47.2	+20 32.9	9.5						

Asteroid — very small trail. Attempt made to read ~~take~~ mean of position.

Prec. from ZC tables

α 3.4908 × 25 yrs. = 87.″27 00 δ = 11.1189 × 25 = 277.97 25)
3.4908 × 18 = 62.8344 × 18 = 200.1402

		Eph. Mid.					
MC 15571	Dec. 21, 1918	3 38 20	h	4 19 20	3 59	.166 + .448 =	.614

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MC 15571 Meas. wills glass plate (m.m.)

glass plate		x m.m.	y m.m.	x	y	Mean x	Mean y				
	a	+ 30.18	−10.00	+30.12	−10.06	+30.15	−10.03	03	03	03	03
MC plate has fiducial up, N up	b	+ 6.72	+13.22	+6.72	+13.30	+6.72	+13.26	00	00	04	04
	c	~~+16.0~~ −3.40	−11.40	−3.42	−11.35	−3.41	−11.38	01	01	02	03
	Asteroid	+16.92	−7.97	+16.95	−7.98	+16.94	−7.98	02	01	01	00

Mean x − Asteroid m.m.	Mean y − Ast. m.m.	x × 98.2	y × 98.2	
+13.21	~~−16.03~~ −2.05	+1297.″222	−201.″310	= 3′ 21.″31
−10.22	+21.24	−1003.604	+2085.768	= 34 45.77
−20.35	−3.40	~~−1016.370~~ 1998.	−333.880	= 5 33.88

3	43	43.84	+20	33 50.5
	1	32.37		3 21.3
3	45	16.21	+20	37 11.8

1.0681
1297.222
15) 1385.562818 2
92.371

50.″5
57.6
41.7

3	46	33.45	+21	11 57.6
	1	11.76		34 45.8
3	45	21.69	+20	37 11.8

1.0726
1003.604
15) 1076.465.6504
71.76

1803

3	47	40.27 8	+20	30 41.7
	½	29.36		5 33.9
	+	~~12.34~~ 17.99		
3	45	~~1091~~ 18.03	+20	36 15.6

1.0677
19 2098
~~1016.370~~
15) ~~1085.178 2490~~
21 34.26
~~72.34~~
15) ~~2240 429.6490~~
149.36
142.28

142.24

from a	3	45 16.21	+20	37 11.8
" b	3	45 21.69	+20	37 11.8
" c	3	45 10.91	+20	36 15.6
Mean Pos.	3	45 18.64	+20	3653.1
~~Dec 21~~, 1875 =		1 27.27		+ 4 38.0
1900 =	3	46 46.91	+20	41 31.1
		1 2.83		3 20.1
Dec. 21, 1918 =	3	47 48.74	+20	44 51.1

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1923phae.proj.1199W

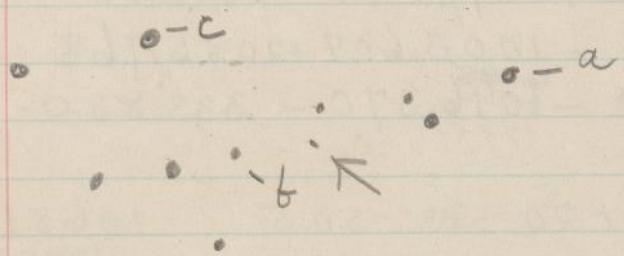
22 May 17 Est. of Magn. Masked Seg. of 47K from MC 4124 on 15606
Comp. trail of Minerva with Seg. = 8 to 9
Bb. 7 p. 50 Magn. 8 = (12.31) Corr. 12.55
Magn. 9 = (12.84) Corr. = 13.09

Asteroid

Asteroid 12.5 (about)

Found January 1, 1923.
" Bb. 26, p. 114
" only on MC 15606 = December 30, 1918.

H.B. 787 ✱ Identifies as Minerva (93)
Eph. 1918, p. 81



Motion distinctly shows great increase in δ S
— much slant to image.

Iden. on I 21868		(1855)		Magn.	Gesell.		(1875)		
a	+28° 508	3h 5m 54.2s	+28° 7.0	9.0	1606	3 7	6.05	+28 11	36.9
b	+27 487	3 8 0.7	+27 58.6	9.5	1617	3 9	10.57	+28 2	20.0
c	+28 511	3 8 21.3	+28 13.6	8.2	1621	3 9	31.80	+28 17	46.3
Orient by	+27° 495	3 12 40.7	+27 15.9						
	+27 496	3 12 41.1	+27 52.4						

		yrs.	
ZC. Prec. α =	3.5948	× 25	= 89.8700
	3.5948	× 18	= 64.7064
δ =	13.″6428	× 25	= 341.″0700
	"	× 18	= 245.″5704

Plate	Date	Eff.	Mid. Eff.	G.M.T.
MC 15606	Dec. 30, 1918	3 17 to 3 47	3 32	.424 + .147 = .571

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1923phae.proj.1190w

Provisional Index, Bk. 21.

Arrange alphabetically when book is completed

Page			
6	1912 OD	58	1912 NW
12	Medea	60	?
16	"	74	
20	Klytaemnestra	66	?
22	Minerva	68	?
24	Suleika	70	?
26	Juno	72	Rufetta-Carola
28	Berolina	76	Deiteina
30	Eos	78	Athemantis
32	Montague	80	Emita
34	Iphigenia	82	Aurora
36	Sophrosyne	84	Thetis
38	~~Carmen~~ Charybdis	86	Lydia
40	Zelia	88	Gordonia
42	Hecuba	90	Bernardina
44	Menis	92	Aurelia
46	Georgia	94	1912 DB
48	Roberta	96	?
50	"	98	?
52	?	100	?
54	Papagena		
56	"		

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1923phae.proj.1190w

Nov. 1, 1916 Why not on Nic 11478

Zelia 11.0	Oct 27	2	9.4	+ 20	0	
	Nov. 1	2	5.1	+19	46 (1916)	2 1.6 +19 28 (1855
	Nov. 4	2	0.9	+19	32	

~~Agdaja~~ 11.0	~~Oct. 27~~	~~2~~	~~11.4~~	~~+17~~	~~36~~	
	~~Nov. 1~~	~~2~~	~~7.8~~	~~+17~~	~~23 (1916)~~	~~2 4.3 +17 5 (1855~~
	Nov. 4	2	4.2	+17	10	

Guerra 12.8	Oct. 27	1	56.8	+19	56	
	Nov. 1	1	53.3	+19	45 (1916)	1 49.8 +19 27 (1855
	Nov. 4	1	49.7	+19	33	

Appox. Prec. 3.3 17.2

63 yrs	63
99	516
198	1032
207.9	1083.6
3m.5	18'

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1923phae.proj.1190w

9 43 + 53
4 28
8 14
7 57
4)33 142
8 202
60
50

1
2

6 120
125
7 161
8 131 ✓
9 133
10 137
11 143
12 146

I 28374
7 + 8 set of 5's

6 = 11.7
7 = 3.1
8 = 3.4
9 = 3.7
10 = 4.2
11 = 4.6
12 = 4.9

6 = 11.7
176 7
129 8
132 9
137 10
141
144

S' 12 = 14.81

3 = rm = 11.7

13.2

8 = h' 13.07

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Unannounced Asteroids.

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1923phae.proj.1199w

Unannounced

1923

(1875) 23 13 51.69 +8 1 10.1
(1900) 23 15 7.55 +8 9 21.3
(1923) 23 16 17.35 +8 16 53.2
(1925) 23 16 23.41 +8 17 32.5

(1875) 3 20 25.88 +32 5 39.5
(1900) 3 21 58.77 +32 11 1.6
(1923) 3 23 20.51 +32 15 44.0
(1925) 3 23 31.66 +32 16 22.5

(1875) 1 52 56.55 +28 9 1.9
(1900) 1 54 15.81 +28 16 23.7
(1923) 1 55 34.25 +28 23 10.2
(1925) 1 55 41.07 +28 23 45.5

(1875) 5 6 49.82 +16 22 50.2
(1900) 5 8 16.18/24 +16 24 45.5
(1923) 5 9 35.74/6 +16 26 31.6
(1925) 5 9 42.66/54 +16 26 40.8

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1923phae.proj.0090

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1923phae.proj.1199w

Unannounced Aster

Aurora 1923
On MC 20104
21:82

1875			
1900	23	5 55.49	−8 4 53.5
1923	23	7 7.17	−7 57 25.0
1925	23	7 13.41	−7 56 46.0

Thetis 1923
on MC 20081
21:84

1875			
1900	23	17 37.71	−12 12 40.6
1923	23	18 49.60	−12 5 7.2
1925	23	18 55.85	−12 4 27.8

Ceuta 1923
on MC 20268
21:80

1875	1	42 19.19	+3 26 9.2
1900	1	43 36.87	+3 33 41.4
1923	1	44 48.33	+3 40 37.4
1925	1	44 54.55	+3 41 13.6

Athamantis 1923
on MC 20237
21:78

1875	4	43 23.30	+21 20 22.1
1900	4	44 52.44	+21 23 6.6
1923	4	46 14.45	+21 25 37.9
1925	4	46 21.58	+21 25 51.1

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1923phae.proj.1190

Asteroids

1923

Diotima	1875	3	45	15.92	+18	6 42.4
Gu MC 20296	1900	3	46	41.82	+18	11 20.5
21:76	1923	3	48	0.85	+18	15 36.3
	1925	3	48	7.72	+18	15 58.6
Lydia	1875	4	46	6.95	+25	48 18.0
MC 19365	1900	4	47	39.08	+25	50 56.8
21:86	1922	4	49	0.15	+25	53 16.6
	1925	4	49	11.21	+25	53 35.6
Gordonia	75	4	32	54.37	+16	58 45.9
MC 19352	1900	4	34	20.66	+17	1 51.9
21:88	22	4	35	36.60	+17	4 35.6
	25	4	35	46.95	+17	4 57.9
Bernardina	75	4	41	24.33	+18	53 3.0
MC 19352	1900	4	42	51.89	+18	55 51.6
21:90	1922	4	44	8.95	+18	58 20.0
	25	4	44	19.45	+18	58 40.2
Aurelia	75	4	42	40.13	+19	49 7.2
MC 19352	1900	4	44	8.29	+19	51 53.2
21:92	22	4	45	25.87	+19	54 19.3
	25	4	45	36.45	+19	54 39.2

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1923phae.proj_110.cw

Asteroids

1923

Cu MC 20036 (1875) 3 28 30.62 +20 8 0.9

? (1900) 3 29 57.10 +20 13 8.7

Koronis? (1923) 3 31 16.66 +20 17 51.9

(1925) 3 31 23.58 +20 18 16.5

1922

Cu MC 19253 (1875)

Rona? (1900) 1 ~~50~~ 49 ~~48.69~~ 44.93 -15 48 19.2

(1922) 1 50 48.69 -15 41 47.6

(1925) 1 50 57.38 -15 40 54.2

Ruperto Carola

Cu 20086 (1875) 22 16 0.4 -19 35.3

1923 21:72 (1900) 22 17 22.4 -19 27.8

(1923) 22 18 37.9 -19 20.9

(1925) 22 18 44.4 -19 20.13

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1923phae.proj.119W

Is +28 525 summas a dbl. star?
3 16 33 +28 34.8 9.5
Is faint but companions nearly equal.

MC15606 Meas. with glass plate, m.m. squares.
In extreme mc plate film up, N up.
corner of plate,

	x	y	x	y	Mean x	Mean y
(S, prec.) a	−24.82	+0.30	−24.78	+0.30	−24.80 02	02 +0.30 00 00
b	−8.06	−5.48	−8.05	−5.42	−8.06 00	01 −5.45 03 03
*c	−5.28	+3.90	−5.25	+3.88	−5.26 02	01 +3.89 01 01
Asteroid	−13.24	−4.12	−13.28	−4.12	−13.26 02	02 −4.12 00 00

*c large image

	x-Ast.	y-Ast.	x × 98.2	y × 98.2
a	−11.54	+4.42	−1133."228	+434."044 = 7′ 14."04
b	+5.20	−1.33	+510.640	−130.606 = 2 10.61
c	+8.00	+8.01	+785.600	+786.582 = 13 6.58

3 7 6.05 +28 11 36.9
1 25.72 7 14.0
3 8 31.77 +28 4 22.9

1.1347
1133.228
15) 1285.8738116
85.72

3 9 10.57 +28 2 20.0
0 38.57 2 10.6
3 8 32.00 +28 4 30.6

1.1331
510.640
15) 578.606 1840
38.57

3 9 31.80 +28 17 46.3
0 59.48 13 6.6
3 8 32.32 +28 4 39.7

1.1357
785.600
15) 892.059200
59.48

from a	3 8 31.77	+28 4 22.9	
from b	3 8 32.00	+28 4 30.6	
" c	3 8 32.32	+28 4 39.7	
	09	3.2	
Mean Pos. (1875)	3 8 32.03	+28 4 31.1	Position December 30, 1918
	1 29.87	+ 5 41.1	3h 11 6.s61 +28 14 17.8
(1900)	3 10 1.90	+28 10 12.2	
	1 47.1	4 5.6	

Minerva — last pos. in Eph. =
Dec. 20 = 3h 15.s8 +28° 49′

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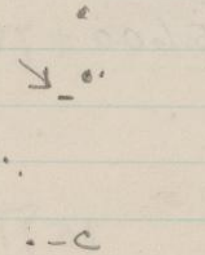
1923phae.proj.1199w

24 June 7 Est. of Magn: Seq. of 47K as mkd on MC 15606
Suliéka trail = 4 to 5 · 10.6 to 10.7 Corr. = 10.8 to 10.9
11.0 ✓

Near edge of plate

Asteroid.

Found January 12, 1923
" Bk. 20, p. 122
H.B. 789 " only on MC 11421 = October 27, 1916
* Identifies as ~~Kreusa~~ (563) Suliéka (9.6) See plot.



Idn. on I 12043						Gesell. (1875)				
a	+8	600	3 48 42.4	+8	5.2	8.9	1446	3 49 47.09	+8	8 46.2
b	+8	601	3 49 23.9	+8	30.4	9.1	1452	3 50 29.39	+8	33 30.1
c	+7	573	3 50 14.9	+7	54.8	9.0	1459	3 51 19.43	+7	58 21.7

Orient by: +8 617 3 53 52.2 +8 12.4 9.5
+9 528.3 53 52.6 +9 35.1 5.8

Prec. (2.C.) α = 3.2343 × 25 yrs. = 80.86
× 16 " = 51.75
δ = 10".6937 × 25 yrs. = 267".34
" × 16 yrs = 171.10

Plate	Date	Eff.	Mid. Eff.	
MC 11421	Oct. 27, 1916	4 12 20 to 4 52 20	4 hrs 32 m 20 s	.597 + .188 = .785

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1923phae.proj.1190w

2o +8° 60 2 Comm as Dbl ?
3 49 54.6 +8 5.9 9.5

Sulaika 1st run

	x	y	Mean x	Mean y
a	+17.27	-35.00	+17.26 01 01	-35.00 00 00
b	+10.70	+19.98	+10.71 01 01	-19.98 00 00
c	+3.38	-41.50	+3.39 01 01	-41.48 02 03
Asteroid	+5.28	-34.78	+5.29 01 01	-34.78 00 00

	x - Ast.	y - Ast.	x × 98.2	y × 98.2
a	+11.97	-0.22	1175.454	21.604
b	+5.42	+14.80	532.244	1453.360 = 24' 13.36"
c	-1.90	-6.70	186.580	657.940 = 10 57.94

a 3 49 47.09 +8 8 46.2
1 19.16 21.6
3 51 6.25 +8 9 7.8

1.0102
1175.454
15) 1187.443 6.308
79.163

b 3 50 29.39 +8 33 30.1
0 35.88 24 13.4
3 51 5.27 +8 9 16.7

1.0113
532.244
15) 538.258 3572
35.884

c 3 51 19.43 +7 58 21.7
12.56 10 57.9
3 51 6.87 +8 9 19.6

1.0097
186.580
15) 188.389 8260 | 12.559

from c	3 51 6.87 +8	9 19.6	+ .74 + 4.9
" b	3 51 5.27 +8	9 16.7	- .86 + 2.0
" a	3 51 6.25 +8	9 7.8	+ .12 - 6.9
	.39	44.1	
Mean Pos. 1875 =	3 51 6.13 +8	9 14.7	
	1 20.86	+ 4 27.3	
(1900)	3 52 26.99 +8	13 42.0	3h 53m 47.85 +8° 18' 9.3 (1925)
	51.75	2 51.1	
(1916)	3 53 18.74 +8	16 33.1	

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1923phae.proj.1199w

26 June 7. Est. g Magn.
Comp. Juewa trail with 47K on MC15606
= a little less than 5. = K 10.7 = Cor. K 10.9
11.0 V

Asteroid

Found January 12, 1923.
" Bk. 20, p. 122
H.B.789 " mly on MC 11478 = November 1, 1916
* Identified as Juewa (139) V

Eden on I 22072 (1855) Magn. Gesell. (1875)

	Dm.									
a	+21	267	1h 53m 30.5s	+21° 54.7'	8.3	609	1 54	37.91	+22	1 29.2
b	+21	268	1 53 39.7	+21 11.9	8.8	610	1 54	47.26	+21	17 47.8
c	+21	270	1 54 3.6	+21 25.0	7.5	612	1 55	9.96	+21	30 3.4

Orient by: +21 272 1 56 35.1 +21 3.1 9.5
273 1 56 35.1 +21 4.6 9.5
These have little diff. in dec. but are very near asteroid.

ZC. Prec. α 3.3246 x 25 = 83.1150
" x 16 = 53.1936
δ 17.5963 x 25 = 439.9078
" x 16 = 281.5408

11478 See p. 28.

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1923phae.proj.1199w

	x	y	Y	y	Mean x	Mean y
a	+5.60	+26.78	+5.60	+26.78	+5.60 00 00	+26.78 00 00
b	+4.17	+0.07	+4.15	+0.05	+4.16 01 01	+0.06 01 01
c	+1.00	+7.52	+1.00	+7.52	+1.00 00 00	+7.52 00 00
Asteroid	+5.30	+6.45	+5.30	+6.45	+5.30 00 00	+6.45 00 00

line c 8008 is very unstable

	x-Ast.	y-Ast.	x × 98.2	y × 98.2
a	+0.30	+20.33	29.460	1996.406 = 33 16.4
b	-1.14	-6.39	111.948	627.498 = 10 27.5
c	-4.30	+1.07	422.260	105.074 = 1 45.1

(1870) 1 54 37.91 +22 1 29.2
2.12 33 16.4
1 54 40.03 +21 28 12.8

1.0787
29.460
15) 31.77 85.020
2.119

(1875) 1 54 47.26 +21 17 48.8
8.01 10 27.5
1 54 39.25 +21 28 15.3

1.0733
111.948
15) 120.153 7884
8.010

(1875) 1 55 9.96 +21 30 3.4
30.26 1 45.1

1.0748
422.260
15) 453.8 450480
30.256

from c	1 54 39.70	+21 28 18.3	+0.04 +2.8
" b	1 54 39.25	+21 28 15.3	-0.41 -0.2
" a	1 54 40.03	+21 28 12.8	+0.37 -2.7
	1.98		16.4
Mean 1875	1 54 39.66	+21 28 15.5	
	1 23.12	+ 7 19.9	
(1900)	1 56 2.78	+21 35 35.4	1h 57m 25.90 +21° 42' 55.3" (1925)
	53.19	+ 4 41.5	
(1916)	1 56 55.97	+21 40 16.9	

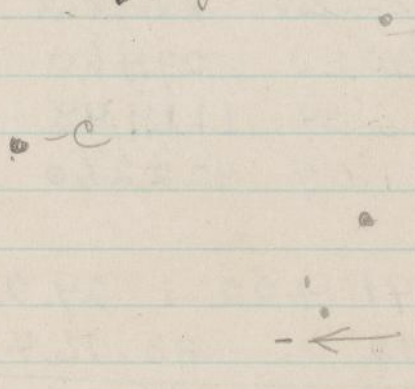
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1923phae.proj.1199w

28 June 7. Est. of Magn. Trail of Berolina comp. with 47 K. about = 6. = 11.3 Corr. = 11.5 ✓

Asteroid

Found January 12, 1923.
Bk. 20, p. 122.
" only on MC 11478 = November 1, 1916.
H.B. 789
* Identified as ~~Aglaja~~ (422) Berolina (this is 12.3)



Widely scattered but these are the only Gesell. stars.

	Diff. in I 24756 (1855)				Mag.	Gesell. (1875)				
	Dm.									
a	+18	277	2 2	36.1	+18 49.0	6.0	611	2 3	42.01	+18 54 34.9
b	+17	327	2 4	36.5	+17 20.2	9.0	617	2 5	42.12	+17 26 0.8
c	+18	284	2 6	39.6	+18 23.9	8.5	624	2 7	45.66	+18 28 30.6

Orient by: +18 286 2 7 18.3 +18 43.6 9.5
+18 287 2 7 19.0 +18 9.9 8.8

2C. Prec. $\alpha = 3^{s}.2972 \times 25 = 82.4300$
$\times 16 = 52.7552$
$\delta = 17.1625 \times 25 = 429.0625$
$\times 16 = 274.6000$

Plate	Date	Eph.	Mid. Eph.
MC 11478	Nov. 1, 1916	1 16 40 +2h 23m 40s	1 50 10 .584+.076=.660

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1923phae.proj..119W

Meas. with glass plate, m.m.

	x	y	x	y	Mean x		Mean y	
a	+11.18	+8.80	+11.20	+8.78	+11.19	01 01	+8.79	01 01
b	−6.22	−45.48	−6.22	−45.45	−6.22	00 00	−45.46	02 01
c	−24.10	−7.10	−24.12	−7.15	−24.11	01 01	−7.12	02 03
Mean Asteroid	+3.35	−23.82	+3.32	−23.82	+3.34	01 02	−23.82	00 00

x-Ast.	y-Ast.	x × 98.2	y × 98.2
+7.85	+32.61	770.870	3202.302 = 53′ 22.″3
−9.56	−21.64	938.792	2125.048 = 35 25.0
−27.45	+16.70	2695.590	1639.940 = 27 19.9

2 3 42.01 +18 54 34.9
5433 53 22.3
2 4 36.34 +18 1 12.6

sec δ = 1.0571
770.870
15)814.886.677 0
54.3258

2 5 42.12 +17 26 0.8
65.60 35 25.0
2 4 36.52 +18 1 25.8

1.0482
938.792
15)984.041 7.744
65.603

2 7 45.66 +18 28 30.6
3 9.46 27 19.9
from c 2 4 36.20 +18 1 10.7 δ −0.15 −5.7
from b 2 4 86.52 +18 1 25.8 +0.17 +9.4
" a 2 4 36.34 +18 1 12.6 −0.01 −3.8
106 49.1

1.0543(+)
2695.590
15)2841.960 5.370
189.464

Mean Pos. 1875. 2 4 36.35 +18 1 16.4
1 22.43 +7 9.1
(1900) 2 5 58.78 +18 8 25.5
52.76 +3 34.6
(1916) 2 6 51.54 +18 12 0.1

Mean Pos (2h 7m 20.s88
1925 (+18° 15′ 34.″5
2h 7m 21.s21 +18 15 34.6
(1925)

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1923phae.proj.1199w

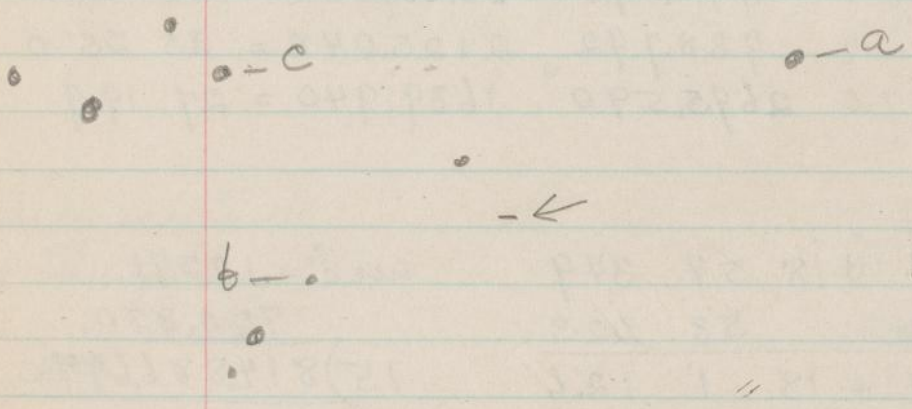
30 June 7 Est. of Mag. Comp. trail Eos with 47K = 4 to 5 10.6 to 10.7

Corr. = 10.8 to 10.9 11.0 V

Asteroid

Found November 15, 1922.
" Bk. 20, p. 74.
H.B. 789 " only on MC 17938 = September 24, 1921
Identified as Eos. (221)

glass up.



Eph. on B 22139. (1855) Gesell. h (1900)

	D.M.											
a	-12°	6542	23h	35m	18.5	-12°	8.1	8250	23h	37m	38.11	-11° 52′ 59.4″
b	-12	6558	23	39	24.4	-12	33.4	8264	23	41	44.53	-12 18 25.6
c	-12	6562	23	40	9.3	-12	14.3	8267	23	42	28.12	-11 59 32.0

Orient by: c

and	-12	6561	23	40	9.1	-12	29.8	9.5				

Prec. 1.C.

$\alpha = 3.0969 \times 25$ yrs. $= 77^{s}.4225$
" $\times$ ~~22~~ 21 " $= 65^{s}.0349$
$\delta = 19.9806 \times 25$ " $= 499''.5106$
" $\times$ 21 " $= 419.5926$

N. 13.
Year of Gesell: plus. is 1900.

Plate	Date	Eph.	Eph. Mid Eof.	G.M.T.
MC 17938	Sept. 24, 1921	$23^{h}47^{m}$ to $0^{h}19^{m}$	32 0 03	.688 + .002 = .690

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1923phaee.proj.1199w

23 40 21.86 −12 12 38.1
1 17.42 + 8 19.5
23 41 39.28 −12 4 18.6 (1925)

	Meas. with glass plate				Mean x	Mean y
a	+33.57	+16.90	+33.58	+16.90	+33.58	+16.90
b	−3.35	+1.22	−3.32	+1.22	−3.34	+1.22
c	−10.00	+12.72	−10.00	+12.72	−10.00	+12.72
Asteroid	+8.99	+4.80	+8.99	+4.78	+8.99	+4.79

Mean x − Ast.	Mean y − Ast.	Mean x − Ast.	Mean y − Ast.
+42.57	+12.11	+24.59	+12.11
+5.65	−3.57	−12.33	−3.57
−1.01	+7.93	−18.99	+7.93

x × 98.2	y × 98.2
2414.738	1189.202
1210.806	350.574
1864.818	778.726

23 37 38.11 −11 52 59.14
2 44.52 19 49.2
from a 23 40 22.63 −12 12 48.6

1.0220
2414.738
15)2467.862360
164.524

1189.202 = 19 49.2

23 41 44.53 −12 18 25.6
1 22.62 5 50.6
from b 23 40 21.91 −12 12 35.0

1.0235
1210.806
15)12392599410
82.617

350.574 = 5 50.6

23 42 28.12 −11 59 32.0
2 7.09 12 58.7
from c 23 40 21.03 −12 12 30.7
" b 23 40 21.91 −12 12 35.0
" a 23 40 22.63 −12 12 48.6
2.57 24.3

1.0223
1864.818
15)19064034414
127.094

778.726 = 12′ 58.″7

−0.83 +7.4
+0.05 +3.1
+0.77 −10.5

Mean Pos.
(1875) 1900 23 40 21.86 −12 12 38.1
1 17.42 + 8 19.5
(1900) 23 41 39.28 −12 4 18.6
1 5.03 + 6 59.6
(1921) 23 42 44.31 −11 57 18.0

1875 23 39 44.4 −12 20 57.6
See abbr for 1925
1921 23 41 26.89 −12 5 38.5

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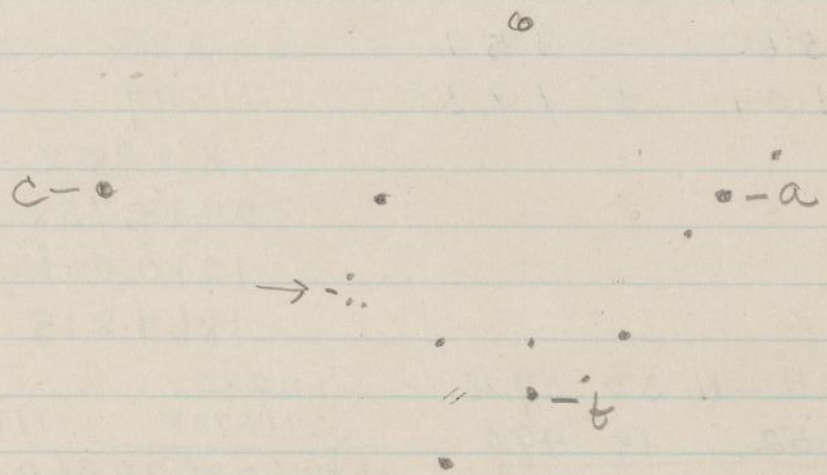
1923phae.proj.1199w

32 June 7 Est. of Magn. trail of Montague comp. with 47 K = about 8 = 12.3
Corr. 12.54 V

Asteroid

H.B. 789

Found November 30, 1922
" Bb. 20, p. 90
" only on MC 19093 = Sept. 29, 1922.
Identified as Montague (535) 1922, p. 53



Iden. I 26251 Mag. Guill 1875

	Dec.				Mag.				
a	+7°	446	2h 47m 34.5s	+7° 33.7	8.8	1080	2h 48m 38.41s	+7° 37' 40.2"	
b	+7	449	2 48 20.0	+7 19.8	9.0	1089	2 49 26.45	+7 24 58.2	
c	+7	456	2 50 13.5	+7 34.7	9.0	1107	2 51 15.80	+7 40 3.7	

Identify by: +7° 443. 2 46 39.9 +7 5.0 7.7
+7 444 2 46 40.5 +7 34.1 9.5

ZC Prec. α 3.s1984 × 25 yrs. = 79.s8850 (100)
" × 22 yrs = 70.s2988 (32)
δ 14."7771 × 25 " = 369."43
" × 22 " 325."0962

Plate	Date	Eph.	Eph. mid	
MC 19093	Sept. 29, 1922	2h 44m 30s to 3h 22m 30s	3h 8m 3h 3m 30s	.675+.127 .802

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1923phae.proj..1199w

	Meas. with glass plate x	y	x	y	Mean x	Mean y
a	+2.08	+13.92	+2.06	+13.92	+2.07	+13.92
b	−5.50	+6.32	−5.50	+6.30	−5.50	+6.31
c	−21.70	+16.03	−21.70	+16.02	−21.70	+16.02
Asteroid	−11.68	+12.03	−11.65	+12.02	−11.66	+12.02

	Mean x − Ast.	Mean y − Ast.	x × 98.2	y × 98.2
a	+13.73	+1.90	1348.286	186."580 = 3' 6.6
b	+6.16	−5.71	604.912	560.722 = 9 20.7
c	−10.04	+4.00	985.928	392.800 = 6' 328

2 48 38.41 +7 37 40.2
1 30.69 3 6.6
from a 2 50 9.10 +7 34 33.6

1.0089
1348.286
15) 1360.285.7454
90.685+

2 49 26.45 +7 24 58.2
40.67 9 20.7
from b 2 50 7.12 +7 34 28.9

1.0084
604.912
15) 609.9932608
40.666

2 51 15,80 +7 40 3.7
1 6.32 6 32.8
from c 2 50 9.48 +7 33 30.9
" b 2 50 7.12 +7 34 28.9
" a 2 50 9.10 +7 34 33.6

1.0090
985.928
15) 994.801 3520
66.320

+0.91	−40.2	−369
−1.45	+17.8	+11.1
+0.53	+22.5	+25.8

25.70 28 34

Mean Pos 1875 2 50 8.57 +7 34 11.1 7.8
1 19.88 + 6 9.4
(1900) 2 51 28.45 +7 40 20.5 17.2
1 10.30 + 5 25.1
(1922) 2 52 38.75 +7 45 45.6 42.3
.61

(1925) $2^h 52^m 48^s.19$ $+7^\circ 46' 26.''6$

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1923phae.proj.1199w

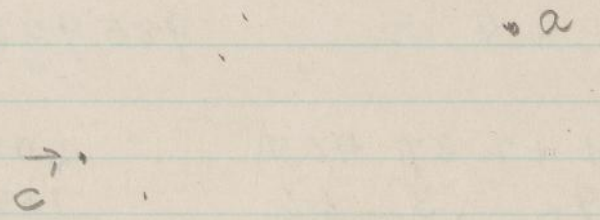
34 Aug. 31. Est. of Magn. Trail compared with reg. of Carte du Ci
Magn. = 11.8 Corr. ~~Est. 12.0~~ a little brighter than Star 6 + 6 = 12
Verified by Dr. S. Compared with MC 15606 Trail = 11.8

Asteroid

Found August 27, 1923
" BB. 24, p. 147
" on MC 19979, August 18, 1923

H.B. 792 Identifies as Sphigeia (112) Eph. 1923, p. 47





Iden. B 26520

	DM.	1855		Mag.	Gerell.	1900		
a	-3 5620	23	12 55.8	-3 42.5	8.9	8031	23 15 14.41	-3 27 48.8
b	-2 5943	23	14 36.7	-2 37.0	8.7	8039	23 16 55.96	-2 22 21.3
c	-4 5879	23	15 55.0	-4 0.4	8.3	8044	23 18 14.27	-3 45 48.5
Uranit by:		-3 5618	23	12 24.5	-3 9.0	9.5		
		-3 5619	23	12 24.9	-3 52.8	9.0		

Prec. α 3.0870 = 1 yr. 77.175 = 25 yr. 6.1740 = 2 yr.
δ 19.6999 = 1 yr. 49.250 = 25 yr. 39.3998 = 2 yr.
~~= 2 yr.~~

Plate	Date	Exp.	Eff.	Exp. Mid
MC 19979	Aug. 18, 1923	22h 47m + 23m 20	33	22h 4m .793 + .958 = .751

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1923phae.proj.1199w

Circ, 23h00m -2°.5, MC #108, Magns. Bk.35 f.28 (on same plate) 35
= 12.06. Trail = 11.9

Meas. m.m. plate, film up, n. up.

	x	y	x	y	Mean	
a	-5.30	-7.78	-5.28	-7.78	-5.29	-7.78
b	+10.50	+32.22	+10.52	+32.20	+10.51	+32.21
c	+22.05	-19.00	+22.04	-19.02	+22.04	-19.01
Asteroid	+9.52	-4.18	+9.52	-4.18	+9.52	-4.18

"b is a long distance from asteroid in Dec. but is nearest Gesell. star.

	Mean x - Asteroid	Mean y - Asteroid	x × 98.2	y × 98.2
a	-14.81	~~+9.6~~ -3.60	1454.342	353.520 = 5′53.5″
b	+0.99	+36.39	97.218	3573.498 = 59′33.5″
c	+12.52	-14.83	1229.464	1456.306 - 24′16.3″

23 15 14.41 −3 27 48.8
1 37.14 5 53.5
23 16 51.55 −3 21 55.3

1.0019
1454.342
15) 1457.105 2498
97.140

23 16 55.96 −2 22 21.3
6 6.49 59 33.5
23 16 49.47 −3 21 54.8

1.0009
97.218
15) 97.305 4962
6.487

23 18 14.27 −3 45 48.5
1 22.14 24 16.3
23 16 52.13 −3 21 32.2

1.0022
1229.464
15) 1232.168 8.208
82.145-

23 16 51.55	−3 21 55.3	+0.50	− 7.9″
23 16 49.47	−3 21 54.8	−1.58	− 7.4
23 16 52.13	−3 21 32.2	+1.08	+15.2
	3.15	1423	

Mean Pos.

1900 23 16 51.05 −3 21 47.4
1 17.18 +8 12.5
1925 23 18 8.23 −3 13 34.9
6.17 39.4
✱ 1923 23 18 2.06 −3 14 14.3

(1900) 23 16 51.05 −3 21 47.4
1 17.18 − 8 12.5
(1875) 23 15 33.87 −3 29 59.9

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1923phae.proj.1199w

aug. 31

36 ~~Corr. +12.2~~ Est. of Magn. MC 15606 ~~mostly 7~~ 8 = 12.30 Corr.

Verified by Dr. S.

Seg. of 138K is near region but is extreme Asteroid

Found August 28, 1923.

" Bk. 24, f. 50

" on MC 19048, September 25, 1922

~~H.B. 792~~ ✓ Identifies as Sophrosyne (134) Eph. 1922, f. 44

MC 19048 glass uf, N uf

. c

. a

. b

B 20749 (1855) Gsell. 1900

a	-15	6110	21	51	17.7	-15	12.2	8.2	8237	21	53	45.08	-14 59 15.3
b	-15	6111	21	51	25.1	-15	46.2	8.2	8240	21	53	52.19	-15 33 41.3
c	-14	6187	21	52	46.5	-14	51.3	7.5	8246	21	55	13.06	-14 38 38.1
Orient by:	-14	6180	21	51	37.1	-14	33.2	9.6					
	-15	6113	21	51	37.1	-15	35.2	9.8					

ZC. Prec. α 1 yr. = 3.2597 22 yr. = 71.7134 25 yr. = 81.49 ~~.00~~ .25

δ 1 yr. = 17.1026 22 yr. = 376.2592 25 yr. 427.5650

Plate	Date	Eff.		Eff. Mid.	
MC 19048	Sept. 25, 1922	$21^h\ 40^m\ 55^s$	to $22^h\ 10^m\ 55^s$	30^m	$21\ 56$ .689 + .911 = 1.600

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1923phae.proj.1193w

edge and many stars that are needed are off edge — Was considered not satisfactory.

Asteroid	+10.41	+3.98	+10.42	+3.98	+10.42	+3.98
a	+7.08	+5.28	+7.10	+5.28	+7.09	+5.28
b	+7.98	−15.77	+7.98	−15.78	+7.98	−15.78
c	+20.25	+17.74	+20.26	+17.76	+20.26	+17.75

	Mean x − Asteroid	Mean y − Ast.	x × 98.2	y × 98.2
a	−3.33	+1.30	327.006	127.660 = 2 7.7
b	−2.44	−19.76	239.608	1940.432 = 32 20.4
c	+9.84	+13.77	966.288	1352.214 = 22 32.2

21 53 45.08 − 14 59 15.3
22.57 2 7.7
21 54 7.65 − 15 1 23.0

1.0353
327.006
15) 338.549 3118
22.569

21 53 52.19 − 15 33 41.2
16.58 32 20.4
21 54 8.77 − 15 1 20.8

1.0380
239.608
15) 248.713 1040
16.58

21 55 13.06 − 14 38 38.1
1 6.58 22 32.2
21 54 6.48 − 15 1 10.3

1.0336
966.288
15) 998.755 2768
66.58

from a	21 54 7.65	−15 1 23.0	+0.02	−5.0	
b	21 54 8.77	−15 1 20.8	+1.14	−2.8	
c	21 54 6.48	−15 1 10.3	−1.15	+7.7	
	22.90		54.1		
Mean Pos. (1900)	21 54 7.63	−15 1 18.0		(1900) 21 54 7.63	−15 1 18.1
	1 11.71	6 16.3		1 21.49	7 7.6
* (1922)	21 55 19.34	−14 55 01.7		(1925) 21 55 29.12	−14 54 10.5

(1900) 21 54 7.63 − 15 1 18.0
1 21.49 7 7.6
(1875) 21 52 46.14 − 15 8 25.6

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1923phae.proj.1199w

38 Aug. 31 Est. of Magn. MC 15606 7-8 = 12.2 uncorr. Corr. = 12.4
Dr. S. = 12.7 ← * Use Mean 12.5

Asteroid
Found August 28, 1923.
" Bks. 24, f. 50
" on MC 19048, September 25, 1922.
Identifies as ~~Carmen (558)~~, 1922 Eph., f. 43 Chaldis (388)

H.B. 792

MC 19048 ·÷c

a÷b

Scale too great in this sketch.

B 20749 R.A. (1855) Dec. Magn. Gesell. 1900

a	-16	5961	21	44	37.8	-16	56.2	8.8	8200	21 47 5.54	-16 43 40.4
b	-16	5963	21	44	43.0	-16	28.7	9.0	8201	21 47 10.23	-16 16 30.3
c	-16	5972	21	47	48.9	-16	20.3	8.9	8217	21 50 15.83	-16 8 12.6
Orient by		-15	6099	21	48	49.4	-15	16.3	9.8		
		-16	5977	21	48	49.5	-16	51.8	9.4		

3.2857 ~~2908~~ 1575 2854
α 3.2802 = 1 yr. 82.2700 = 25 yr. 72.3976 = 22 yr.

I.C. Prec. δ 16.8452 = 1 yr. 387.4896 = 23 yr. 370.5944 = 22 yr.
421.1300 = 25 yr.
α 3.2858

MC
19048 see f. 36.

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1923phae.proj.1193w

Eastern Corner of MC 19048

Asteroid	+ 4.17	− 15.70	4.15	15.76	+ 4.16 − 15.73
a	+ 16.92	− 28.25	16.96	28.20	+ 16.94 − 28.22
b	+ 16.42	− 21.55	16.45	11.55	+ 16.44 − 11.55
c	− 10.96	− 6.28	10.96	6.28	− 10.96 − 6.28

	Mean x − Asteroid	Mean y − Ast.	x × 98.2	y × 98.2
a	+ 12.78	− 12.49	1254.996	1226.518 = 20 26.5
b	+ 12.28	+ 4.18	1205.896	410.476 = 6 50.5
c	− 15.12	+ 9.45	1484.784	927.990 = 15 28.0

a 21 47 5.54 −16 43 40.4
1 27.36 20 26.5
21 48 32.90 −16 23 13.9

1.0442
1254.996
15) 1310.466 9232
87.36

b 21 47 10.23 −16 16 30.3
1 23.75 6 50.5
21 48 33.98 −16 23 20.8

1.0417
1205.896
15) 1256.181 8632
83.75 −

c 21 50 15.83 −16 8 12.6
1 43.04 15 28.0
21 48 32.79 −16 23 40.6

1.0410 2
1484.784
15) 1545.660 1440
103.04

from a	21 48 32.90	−16 23 13.9	−0.32	+11.2
b	21 48 33.98	−16 23 20.8	+0.76	+4.3
c	21 48 32.79	−16 23 40.6	−0.43	−15.5
	0.67	75.3		
Mean Pos. (1900)	21 48 33.22	−16 23 25.1		
	1 12.40	6 10.6		
✳ (1922)	21 49 45.62	−16 17 14.5		

21 48 33.22 −16 22 25.1
1 22.16 7 1.1

(1925) 21 49 55.38 −16 15 24.0
16 ✓

(1900) 21 48 33.22 −16 23 25.1
1 22.24 7 1.1
(1875) 21 47 10.98 −16 30 26.2

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1923phae.proj.1199w

40 Est. of Magn. S. Ast. (brighter) about 11.0 Corr. M. about = Star 5 of MC 15606 = 10,93

Magn. confirmed by Dr. S.

2 Asteroids

Found Sept. 17 & 18, 1923

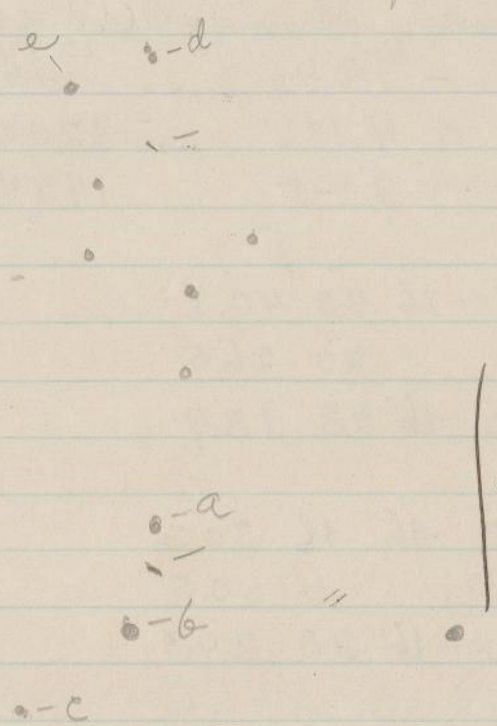
" Bk. 24, p. 59, 60

" on MC 26042, Sept. 14, 1923

Southern, Bright Asteroid = (169) Zelia (1923, Eph. p. 48)

Verified by Dr. S.

N.B. 792



1 yr 25y
S S
α 3.0814 77.035
Z.C. Prec. δ 19.9214 498.035

I ?

Dist.	(1855)		Gesell.		(1900)	
a	-3 5676	23 31 20.1	-3 34.1	9.4 8105	23 33 37.99	-3 19 8.7
b	-3 5677	23 31 22.5	-3 45.8	8.5 8106	23 33 41.07	-3 30 48.9
c	-3 5682	23 31 59.0	-3 56.7	9.0 8109	23 34 16.69	-3 41 40.6
d	-2 6005	23 31 30.3	-2 54.3	9.3 8107	23 33 49.26	-2 39 14.7
e	-2 6007	23 31 56.5	-2 57.6	8.9 8108	23 34 15.42	-2 42 30.8

d is double star on plate. Brighter component is measured. Undoubtedly Cat. Pos. includes both.

G.M.T. see p. 42

Quintuply: -3° 5687 23 33 20.0 $-3^{'}$ 16.4 10
-4 5931 23 33 20.1 -4 20.9 10

5931, 5930

-4 5930 $= -4^{\circ}$ 21.1 but 5931 is slightly S. of 5930, see
5931 $= -4$ 20.9 plate. Error in one of these. Pos. is

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1923phae.proj.1193w

MC 20042 Readings with glass m.m. plate.

Meas. Sept. 4, 24.

	x	y	x	y		
a	+1.60	+5.80	1.60	+5.80	+1.60	+5.80
b	+2.08	−1.40	2.08	−1.40	+2.08	−1.40
c	+7.51	−8.02	7.51	−8.02	+7.51	−8.02
Southern Asterisk	+1.42	+3.58	1.40	+3.58	+1.41	+3.58

mean x − Ast.	mean y − Ast.	x × 98.2	y × 98.2
+0.19	+2.22	18.658	218.004
+0.67	−4.98	65.794	489.036
+6.10	−11.60	599.020	1139.120 = 18.59.1

a 23 33 37.99 −3 19 8.7 reed 1.0017

1.25 3 38.0 18.658

23 33 36.74 −3 22 46.7 15)18.689718 6

1.246

25yr. 23yr.
s s
77.0350 70.8722
98.035 458.1926

b 23 33 41.07 −3 30 48.9 1.0019

4.39 8 9.0 65.794

23 33 36.68 −3 22 39.9 15)65.919008 6

4.39

c 23 34 16.69 −3 41 40.6 1.0021

40.02 18 59.1 599.020

23 33 36.67 −3 22 41.5 15)600.2779420

40.02

	h	m	s	°	′	″	s	″
from a	23	33	36.74	−3	22	46.7	+0.04	−4.0
b	23	33	36.68	−3	22	39.9	−0.02	+2.8
c	23	33	36.67	−3	22	41.5	−0.03	+1.2
			29			8.1		
Mean Pos. (1900)	23	33	36.70	−3	22	42.7		
			70.87		7	38.2		
(1923)	23	34	47.57	−3	15	4.5		
add +1900			77.04		8	18.0		
(1925)	23	34	53.74	−3	14	24.7		

used only for orientation, R.A. only.

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1923phae.proj.1190w

42

Magn Confirmed by D.S.

Est. g Magn. MC 15606, 8-9, nearer 9.
9 = 13.09 Dist. = 12.9 Corr. Magn.

See f. 40

Northern,
Faint Asteroid
(108) =
Hecuba ? Doubtful? D.S.
(1923 Eph., f. 48)

H.B. 792

Positions Comp. Stars f. 40

	1 yr.	25 yr.	23 yr.
	α 3.0800	77.00	70.84
ZC Prec.	δ 19.9229	498.0725	458.2267

MC	Date	Exposure	Eph. Mid.	G.M.T.
20042	Sept. 14, 1923	$23^h\ 31^m\ 00^s$ to $00^h\ 06^m\ 00^s$	$35^m\ 23^h 48^m$	.708

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MC20042

1922 y lines on glass plate very indistinct near edge. Reset nearer center to verify readings i slightly changed one reading.

Meas. Sept. 24.

a	see p. 41				+ 1.60 + 5.80
d	+ 3.51	30.28	3.51	30.25	+ 3.51 + 30.26
e	+ 7.53	28.82	7.55	28.20	+ 7.54 + 28.21
	+ 2.88	+ 28.00	2.80	24.00	+ 2.84 + 24.00

Northern Asteroid 1st y read corrected

	Mean x - Dist.	Mean y - Dist.	x x 98".2	y x 98".2
	mm	mm		
a	- 1.24	- 18.20	121.768	1787.240 = 29 47.2
d	+ 0.67	+ 6.26	65.794	614.732 = 10 14.7
e	+ 4.70	+ 4.21	461.540	413.422 = 6 53.4

a 23 33 37.99 -3 19 8.7
8.13 29 47.2
23 33 46.12 -2 49 21.5

sec δ 1.0017
121.768
15) 121.995 00 56
8.13

d 23 33 49.26 -2 39 14.7
4.37 9 10 14.7
23 33 44.89 -2 49 29.4

1.0011
65.794
15) 65.866 37 34
4.379

e 23 34 15.42 -2 42 30.8
30.80 6 53.4
23 33 44.62 -2 49 24.2

1.0011
461.540
15) 462.047 69 40
30.80

from a	23h	33m	46.s12	-2°	49'	21."5
d	23	33	44.89	-2	49	29.4
e	23	33	44.62	-2	49	24.2
		36	3'			15.1
Mean Pos. (1900)	23	33	45.21°	-2	49	25.0
			70.84		7	38.2
(1923)	23	34	56.05	-2	41	46.8
Diff 2 yr.			6.16			39.8
(1925)	23	35	2.21°	-2	41	7.0

from a	+ 0.s91	+ 3."5
d	- 0.32	- 4.4
e	- 0.59	+ 0.8

1923phae.proj..119dw

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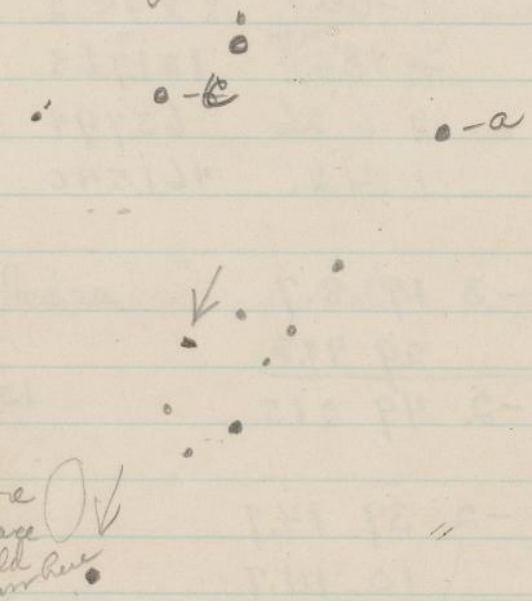
1923phae.proj.1199w

44 Ert. of Magn. Comparing 15606 Abnt = 7 Ash. = 12.0 Corr.

Meas. October 19. Asteroid

Themis (24) Found October 13, 1923.
" Bk. 24, p. 90
" only on MC 19274, November 21, 1922.

12.0 Confirmed
Dr. S.
Dec. 1
H13 795



Identification B 13685 (1855.8) b Gould. 1900

		h	m	s					h	m	s	°	′	″
a	-9 6035	22	34	35.9	-9	12′0	9.0	8090	22	36	57.24	-8	57	58.″9
b	-9 6037	22	35	23.4	-9	54.4	8.5	8095	22	37	44.93	-9	40	37.4
c	-9 6039	22	35	50.9	-9	10.5	8.9	8101	22	38	12.34	-8	56	31.5

For orientation: -9° 6029 22 33 0.4 -9 16.1
-9 6030 22 33 0.4 -9 42.0

2.C. Prec. α 1 yr. = 3.1487 22 yr. = 69.2714 25 yr. = 78.7175
δ 1 yr. = 18.7847 413.2634 469.6175

	Date	Exposure	Eff. Mid.	G.M.T.
MC 19274	Nov. 21, 1922.	22 23 to 23 11	48 m	22h 47m .480
J.D.	2423380.			

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1923phae.proj.1199w

MC 19274 Meas. with glass plate

	x	y			Mean x	Mean y
film up,	a	+0,50	+1,50	+0,48	+1,50	+0,49	+1.50
N up	b	+7,42	−24,72	+7,38	−24,70	+7,40	−24,71
	c	+11,88	+2,28	+11,88	+2,28	+11,88	+2,28
	Asteroid	+10,03	−9,34	+10,03	−9,34	+10,03	−9,34

	Mean x − Asteroid	Mean y − Asteroid	x × 98.2	y × 98.2.
a	− 9,54	+ 10,84	− 936.828	+ 1064.488
b	− 2.63	− 15.37	− 258.266	− 1509.334
c	+ 1,85	+ 11.62	+ 181.670	+ 1141.084

a = 17 44.9
b = 25 9.3
c = 19 1.1

a 22 36 57.24 −8 57 58.9 — 1.0124
1 3.23 17 44.9 — 936.828
22 38 0.47 −9 15 43.4 — 15) 948.44466 72 — 63.23

b 22 37 44.93 −9 40 37.4 — 1.0144
17.47 25 9.3 — 258,266
22 38 2.40 −9 15 28.1 — 15) 261.9850304 — 17.47

c 22 38 12.34 −8 56 31.5 — 1.0123
12.26 19 1.1 — 181.670
22 38 0.08 −9 15 32.6 — 15) 183.9045410 — 12.26

from a	22 38	0.47	−9 15	43.4	−0.51	−8.7
" b	22 38	2.40	−9 15	28.1	+1.42	+6.6
" c	22 38	0.08	−9 15	32.6	−0.90	+2.1
		2.95		10.41		
Mean Pos. 1900	22 38	0.98	−9 15	34.7	22 38. 0.98	−9 15 34.7
	1	9.27	6	53.3	1 18.72	7 49.6
✳ (1922)	22 39	10.25	−9 8	41.4	(1925) 22 39 19.70	−9 7 45.1

W/ho

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1923phae.proj.1199w

Est. of Magn. = Comparing 15606
Meas. October 19. abmt = 4 Ast. = 11.8 Corr.

~~Georgia?~~ Asteroid

(359)

Found October 2, 1923
12.0 conf. " Bkn 24, f. 76
Dr. S. Dec. 1 " as MC 19108, October 1, 1922

~~Berthilda?~~
Georgia?

HB 795

Idm. I 19815

	BD	(1855)	Magn.	Gsell.	(1875)	
a	+19° 391	2 29 46.2	+19 25.6	8.5	711	2 30 53.48 +19 30 31.3
b	+19 392	2 30 11.5	+19 37.7	8.5	713	2 31 18.66 +19 42 58.3
c	+19 394	2 30 29.0	+19 6.1	7.5	715	2 31 36.22 +19 11 7.5

no Cat. star fnc. Ast. is found, except at two great dist., 00
b is taken for Cat. star.

Orient by +19 382 2 27 49.8 +19 29.7 9.5
+19 383 2 27 51.3 +19 16.8 9.4
diff = 1.5

Z.C. Prec.	α = 1 yr. = 3.3570	22 yr. = 73.8540	25 yr. = 83.9250
	δ = 1 yr. = 15.8656	22 yr. = 349.0432	25 = 396.6400

MC	Date	Exposure	Eff. Mid.	G.M.T.	
19108	Oct. 1, 1922	2h 45m 00s to 3h 29m 00s	44m 3h 07m	.800	V

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1923phae.proj.1199W

MC 19108

line for y, Ast.) is not distinct, but seems to be exactly on Ast.

Meas. glass plate	x	y	Mean x	Mean y
Ast. −0.04	−12.00	0.04	−12.00	−0.04	−12.00
a +0.51	−0.51	0.50	−0.53	+0.50	−0.52
b +4.35	+6.98	4.38	+6.98	+4.36	+6.98
c +6.32	−12.58	6.32	−12.62	+6.32	−12.60

Mean y − Asteroid	Mean y − Ast.	x × 98.2	y × 98.2
a +0.54	+11.48	+ 53.028	+ 1127.336
b +4.40	+18.98	+432.080	+1863.836
c +6.36	−0.60	+624.552	− 58.920

a = 18 47.3
b = 31 3.8
c = 58.9

a 2 30 53.48 +19 30 31.3
3.75 18 47.3
2 ~~29~~ 36 49.73 +19 11 44.0

1.0608
53.028
15) 56257405 2
3.750

b 2 31 18.66 +19 42 58.3
30.60 31 3.8
2 30 48.06 +19 11 54.5

1.0623
432.080
15) 458,998.5840
30.60

c 2 31 36.22 +19 11 7.5
44.09 0 58.9
2 30 52.13 +19 12 6.4

1.0588
624.552
15) 661,275.6576
44.0850 +

from a	2 30	49.73	+19 11	44.0	−0.24 −11.0
b	2 30	48.06	+19 11	54.5	−1.99 −0.5
c	2 30	52.13	+19 12	6.4	+2.16 +11.4
		29.92		164.9	
Mean Pos. 1875. ✓	2 30	49.97	+19 11	55.0	2 3
(254)	1	23.92	6	36.6	
(1900)	2 32	13.89	+19 18	31.6	2 32 13.89 +19 18 31.6
	1	13.85	5	49.0	1 23.92 6 36.6
* (1922)	2 33	27.74	+19 24	20.6	2 33 37.81 +19 25 8.2

W for (1925)

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1923phae.proj.1199w

48 Est. of Magn. | Deg. of 138K is an extreme edge.
Use 1560b ast. a little brighter than 8 =
12.3 Corr.

Meas. Oct. 22, 1923. Asteroid

Found October 16, 1923.
Roberta ? " Bk. 24, f. 98
(335) " on MC 20079 October 2, 1923.
N.B. Magn. also see f. 50

Magn. Confirmed
U.S. V Dec. 1

20079
20102

HB 795

Iden. B 12748 (1855) Magn. 1900

a	-15°	6150	22	0	50.0	-15	21.2	8.7	8286	22 3 16.26	-15 8 1.2
b	-15	6151	22	1	51.9	-15	16.6	8.7	8289	22 4 19.06	-15 3 6.1
c	-14	6223	22	1	56.3	-14	35.7	8.2	8291	22 4 21.59	-14 22 53.11
Orient by:	-14	6217	22	0	29.8	-14	5.6	9.5			
	-15	6146	22	0	30.1	-15	5.1	9.8			

L.C. Prec. α 1 yr. = 3.2412 23yr. = 74.5476 ~~22yr. = 71.3064~~ 25yr. = 81.0300
δ 1 yr = 17.5379 ~~22yr. 385.8338~~ 25yr. 438.4475
23yr. 403.3717

MC.	Date	Exposure	Eff.	Mid.	G.M.T.
20079	October 2, 1923	21 34 to 22 14 40	21 54		.580

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1923phae.proj.1199w

measure with glass plate

Mc 20079

	x	y				
Asteroid	+9.00	+0.08	9.02	0,08	+9,01	+0.08
a	+2.92	−19,30	2.90	19,28	+2.91	−19.29
b	+12.22	−16.29	12.18	16,30	+12.20	−16.30
c	+12.68	+8,30	12.68	8,27	+12.68	+8,28

Mean x − Asteroid	Mean y − Asteroid	x x 98.2	y x 98.2
−6,10	19,37	599.020	1902.1347
+3,19	−16,38	313.258	1608,516
+3,67	+8,20	360.394	805.240

a 22 3 16.26 −15 8 1.2

41.37 31. 42.1

22 3 57.63 −14 36 19.1

sec δ = 1.0360

599.020

15) 620584720 0

41.37

b 22 4 19,06 −15 3 6.1

21.63 26 48.5

22 3 57.43 −14 36 17.6

1.0355

313.258

15) 324.3786590

21.625

c 22 4 21,59 −14 22 53,1

24.80 13. 25.2

22 3 56.79 −14 36 18.3

1.0323

360.394

15) 372.0347262

24.802

Firm a 22 3 57.63 −14 36 19.1 +0.35 −0.8

4 b 22 3 57.43 −14 36 17.6 +0.15 +0.7

4 c 22 3 56.79 −14 36 18.3 −0.49 0.0

.85 25.0

Mean Pos. (1900) 22 3 57.28 −14 36 18.3 22 3 57.28 −14 36 18.3

1 14.65 6 43.4 1 21.03 7 18.4

3

*(1922) 22. 5 8.59 −14 29 34.9 (1925) 22 5 18.31 −14 28 59.9

11.83

W pro

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1923phae.proj.1199w

50 Est. of Magn. Seq. of 138 K on MC 3938 Magns. Bk. 19, f. 99
Bottle family there 9 (9 is near edge)
9 = 12,56 Ast. = 12.7 Corr. = 0

Meas. October 22, 1923. Asteroid Compared with 15606 = 12.4 Corr. Use

Found October 16, 1923
" Bk. 24, f. 98
" on MC 20102, October 5, 1923.

Roberts ?
N. B. Magn.

See chart, f. 48.

HB 795

a
b
c

See f. 48, same stars.

2.C. Prec. α = 1 yr. = 3.2426 23 yr. = 74.5798 25 yr. = 81.0650
δ = 1 yr. = 17.5322 23 yr. = 403.2406 438.3050

MC	Date	Exposure	Eff.	Mid.	G.M.T.
20102	Oct. 5, 1923	21 48 25 to 22 20 25	32 00	22 4 25	579

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1923phae.proj.1190w

MC 20102

	x	y	Y	y	Mean x	Mean y
Asteroid	+0.58	+2.00	0,58	2.00	+0.58	+2.00
a	−4.35	−13.73	4.35	13.74	−4.35	−13.74
b	+5.00	−10.74	5.00	10.74	+5.00	−10.74
c	+5.48	+13.88	5.48	13.85	+5.48	+13.86

Mean x − Ast	Mean y − Ast.	x × 98.2	y × 98.2
− 4.93	−15.74	484.126	1545.668 = 25 45.7
+ 4.42	−12.74	434.044	1251.068 = 20 51.1
+ 4.90	+11.86	481.180	1164.652 = 19 24.7

a 22 3 16.26 −15 8 1.2

33.44 25 45.7

22 3 49.70 −14 42 15.5

sec δ = 1.0360

484.126

15) 501.5545360

33.44

b 22 4 19.06 −15 3 6.1

29.96 20 51.1

22 3 49.10 −14 42 15.0

1.0355

434.044

15) 449.4525620

29.96

c 22 4 21.59 −14 22 53.1

33.11 19 24.7

22 3 48.48 −14 42 17.8

1.0323

481.180

15) 496.7221140

33.11

from a	22 3 49.70	−14 42 15.5	+0.61	+0.6	
" b	22 3 49.10	−14 42 15.0	+0.01	+1.1	
" c	22 3 48.48	−14 42 17.8	−0.61	−1.7	
	0.28	18.3			
Mean Pos. (1900)	22 3 49.09	−14 42 16.1	22 3 49.09	−14 42 16.1	(1900)
	1 14.58	6 43.2	1 21.06	7 18.3	
* (1923)	22 5 3.67	−14 35 32.9	22 5 10.15	−14 34 57.8	(1925)

W po

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1923phae.proj.1199w

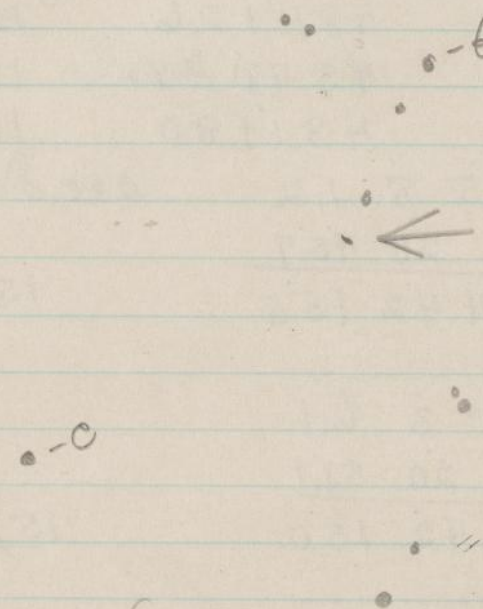
52 Este. of Magn., Comparing 15606 Ast. = 13,6 Corr.

~~Also Comparing 8 Regions MC~~ ~~Magn. 9a, 16t~~

Meas. Oct. 24 Asteroid (?) Trail on MC 20087

Cannot iden. this. Isn't this an asteroid trail?

Found October 15, 1923
" on MC 20087, October 3, 1923
" Bks. 24, p. 93.



Iden; I 16456

	BD	(1855)		Magn.	(1875)		
a	+7 5007	23 11 47.4	+7 27.0	8.8	23 12 48.24	+7 33 18.4	
b	+8 5042	23 12 19.0	+8 16.4	8.9	23 13 19.87	+8 23 25.7	
c	+7 5016	23 15 10.0	+8 26.0	9.1	23 16 11.15	+7 32 23.8	
Orient by:	+8 5037	23 10 36.0	+8 18.5	8.9			
		23 10 36.2	+8 34.9	9.3			

Z.C. Prec, α 1 yr. = 3.0346 23 yr. = 69.7958 25 yr. = 75.8650

δ 1 yr = 19.6492 451.9316 = 491.2300

MC	Date	Exposure	Eq.	Mid. G.M.T.
20087	Oct. 3, 1923	23 30 00	00 01 30	31m 30s 23 46 .656

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1923phae.proj.1190w

Meas. with glass plate

MC 20087 x y x y Mean x Mean y

Film up.

N. up. Ast.	+10,52	+1390	1052	13.90	+10.52	+13.90
a	+0,68	−2.95	0,65	−2.95	+0.66	−2.95
b	+6,08	+27,65	6,08	27,65	+6,08	+27.65
c	+31,52	−4,00	+31,52	−4.00	+31.52	−4.00

When set, the glass plate is quite at a slant on MC plate, Dec +8° maybe some thing slightly wrong with BD Pos. 9 stars for Orientation.

	~~Asteroid~~ = Mean x − Asteroid	Mean y − Ast.	x × 98.2	y × 98.2
a	−9.86	−16.85	968.252	1654.670
b	−4.44	+13.75	436.008	1350.250
c	+21.00	−17.90	2062.200	1757.780

a 23 12 48.24 +7 33 18.4
1 5.12 27 34.7
23 13 53.36 +8 0 53.1

sec δ = 1.0088
968.252
15)976.7726176
65.118

b 23 13 19.87 +8 23 25.7
29.38 22 30.2
23 13 49.25 +8 0 55.5

1.0108
436.008
15)4407168864
29.38

Gesell.
11600
11604
11621

c 23 16 11.15 +7 32 23.8
2 18.68 29 17.8
23 13 52.47 +8 1 41.6

1.0087
2062.200
15)20800.141 11400
138.68

from a	23 13 53.36 +8 0 53.1	+1.67	−17.0
" b	23 13 49.25 +8 0 55.5	−2.44	−14.6
" c	23 13 52.47 +8 1 41.6	+0.78	+31.5
	5.08 1 150.2		
Mean Pos. (1875)	23 13 51.69 +8 1 10.1		
	1 15.86 8 11.2		
(1900)	23 15 7.55 +8 9 21.3	23 15 7.55 +8 9 21.3	
	1 9.80 7 31.9	1 15.86 8 11.2	
*(1923)	23 16 17.35 +8 16 53.2	23 16 23.41 +8 17 32.5	
		(1925)	

Whos

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1923phae.proj.1199w

54 Est. of Magn. * Very bright

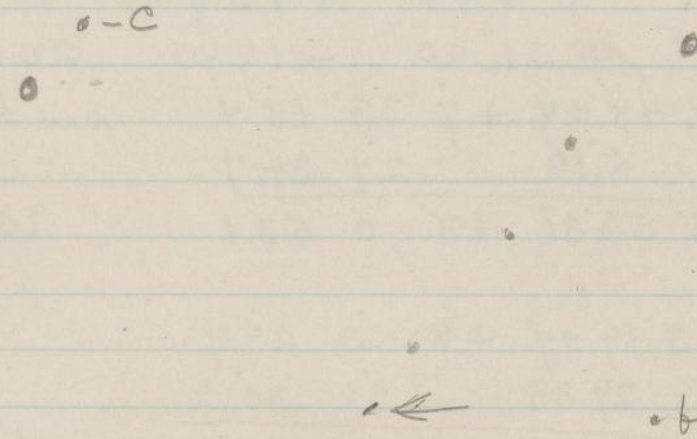
Too bright to compare with 15606. Bet. 2(7.3) & 3(10.2)
about 9.0? (Star c, below, = 8.5 BD)
Kleine Plan. = 8.5

Asteroid

Papagena (471) Dec. 1 9.0 confirmed Dr. S.

Found November 3, 1923
" on MC 19242, November 13, 1922
" Bk. 24, p. 106

H13 795



no choice of stars to measure as asteroid is in extreme corner.

Iden. I 16988

edge of pl. Magn. Gesellschaft

B.D.	(1855)				(1875)			
a +13 728	4	43 40.0	+13 24.2	6.8	1397	4	44 46.78	+13 26 29.4
b +12 666	4	44 13.0	+12 45.3	9.5	1401	4	45 21.63	+12 46 38.5
c +13 737	4	47 43.0	+13 25.6	8.5	1423	4	48 49.57	+13 25 41.9
Orient by:		+13 759	4	51 32.7	+13 56.8	9.5		
		+13 760	4	51 32.7	+13 16.6	9.5		

2.C. Prec. α = 1 yr. = 3.3610 22 = 73.9420 25 = 84.0250
δ = 6.2785 138.1270 156.9625

Checked Dec. 1.57

MC	Date	Exposure	Eff. Mid	G.M.T.
19242	November 13, 1922	$6^h 06^m$ to $6^h 36^m$	$6^h 21^m$	.816

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mc 19242 meas. with ½ mil. glass plate | Use pos. 1. 57.

glass up		x	y	x	y	Mean x	Mean y
	a	-30.28	-3.17	-30.20	-3.20	-30.24	-3.18
	b	-28.46	-27.32	-28.47	-27.32	-28.46	-27.32
	c	+5.74	-3.25	+5.74	-3.27	+5.74	-3.26
	Asteroid	-10.24	-26.20	-10.24	-26.20	-10.24	-26.20

	Mean x - Asteroid	Mean y - Ast.	x × 98.2	y × 98.2
a	-20.00	+23.02	1964.000	2260.564
b	-18.22	+1.12	1445.504	109.984
c	+15.98	+22.94	1569.236	2252.708

a 4 44 46.78 +13 26 29.4
2 14.63 37 40.6
4 47 1.41 +12 48 48.8

rec. δ = 1.0282
1964.000
15) 2019.3848.000
134.63

b 4 45 21.63 +12 46 38.5
1 38.81 1 50.0
4 47 0.44 +12 48 28.5

1.0254
1445,504
15) 1482.2198016
98.8146

c 4 48 49.57 +13 25 41.9
1 47.56 37 32.7
4 47 2.01 +12 48 9.2

1.0281
1569,236
15) 1613.3815316
107.56

from a	4 47 1.41	+12 48 48.8	+0.12	+20.0		
" b	4 47 0.44	+12 48 28.5	-0.85	-00.3		
" c	4 47 2.01	+12 48 9.2	+.72	-19.6		
	3.86			86.5		
Mean Pos. (1875)	4 47 1.29	+12 48 28.8				
(25 yr)	1 24.02	+ 2 37.0				
(1900)	4 48 25.31	+12 51 5.8			(1900) 4 48 25.31	+12 51 5.8
(22)	1 13.94	+ 2 18.1			(25) 1 24.02	+ 2 37.0
✳ 1922	4 49 39.25	+12 53 23.9			(1926) 4 49 49.33	+12 53 42.8

Use p. 57.

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1923phae.proj.1199w

Asteroid

Papagena Same as f. 54 Using old millimeter scale.

This is same plate, MC 19242, meas. with different scale. Not to be cut as diff. position (Note close agreement by this meas. & Reductions)

		1 yr	22 yr	25 yr
Z.C. Prec.	α	3.3609	73.9398	84.0225
	δ	6.2785	138.1270	156.9625

(1875) 4h 47 1.31 +12 48 8.2

25 yr. 1 24.02 2 37.0

(1900) 4 48 25.33 +12 50 45.2

(22) 1 13.94 2 18.1

(1922) 4 49 39.27 +12 53 3.3

(1900) 4 48 25.33 +12 50 45.2

(25) 1 24.02 2 37.0

(1925) 4 49 49.35 +12 53 22.2

W P ∞.

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1923phae.proj.1199w

MC 19242

		x	y	2nd x	2nd y	Mean x	Mean y
1st meas Nov. 9							
2nd meas Nov. 10, plate reset by first Heddings of Orientation stars & Asteroid	a	−30.82	−1.28	−30.74	−1.26	−30.78	−1.27
	b	−25.62	−25.72	−25.68	−25.70	−25.61	−25.71
	c	+5.31	−1.72	+5.40	−1.70	+5.36	−1.71
	Asteroid	−10.78	−24.72	−10.74	−24.72	−10.76	−24.72

Mean x − Asteroid	y Ast	Mean of 1 & 2 − Ast.	
−20.04	+23.44	−20.02	+23.45
−14.84	+1.00	−14.85	−0.99
+16.09	+23.00	+16.12	+23.01

a differs most from f. 55.
very large image, only one reading f 57.

		x × 98.2	y × 98.2	
−20.02	+23.45	1965.964	2302.790	= 38′ 22″.8
−14.85	−0.99	1458.270	97.218	= 1 37.2
+16.12	+23.01	1582.984	2259.582	= 37 39.6

a	4	44	46.78	+13 26	29.4
		2	14.76	38	22.8
	4	47	1.54	+12 48	6.6

1.0282
1965.964
15) 2021.404 1848
134.76

b	4	45	21.63	+12 46	38.5
		1	39.69	1	37.2
	4	47	1.32	+12 48	15.7

1.0254
1458.270
15) 1495.3100 580
99.69

c	4	48	49.57	+13 25	41.9
		1	48.50	37	39.6
	4	47	01.07	+12 48	2.3

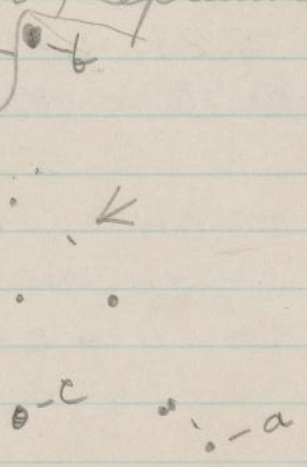
1.0281
1582.984
15) 1627 4658 504
108.498

from c	4	47	01.07	+12 48	2.3	−0.24 −5.8
" b	4	47	1.32	+12 48	15.7	+0.01 +7.5
" a	4	47	1.54	+12 48	6.6	+0.23 −1.6
			.93		24.6	
Mean Pos. 1875	4	47	1.31	+12 48	8.2	

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1923phae.proj.1199W

58 Est. of Magn. Comparing with 15606 11-12 Ast. = 14.0 Obs.
~~Used also 47K MC 4124 Magn. Bk. 7, f. 50~~
Asteroid off-edge of 19068
Found November 6, 1923
(790) " in MC 19068, September 26, 1922,
1912 NW " Bk. 24, f. 112



		1 yr.	22 yr.	25 yr.
Z.C Prec.	α	3.7155	81.7410	92.8875
	δ	12.8617	282.9574	321.5425

2den. I 11613

	~~601~~		18 27.6		48.3	9.2		19 41.86		52 38.7				
	~~598~~		~~16 14.7~~		~~51.4~~	~~8.2~~	1313			~~56 6.3~~				
a	+31	3	~~17 18.3~~	+31	~~38.0~~	~~9.1~~	~~+294~~	3	~~17 27.78~~	+31				
b	+32	629	3	19 11.8	+32	18.3	7.5	1318	3	20 22.98	+32	22	27.7	
c	+31	606	3	19 25.6	+31	51.1	8.5	1323	3	20 38.00	+31	55	23.3	

Print by: +31 599 3 17 34.6 +31 18.7
+32 628 3 17 34.4 +32 10.0
and
+32 618 3 14 4.9 +32 3.2
619 3 14 4.9 +32 20.8
and +31 594 3 16 14.5 +31 30.0
a = +31 595 3 16 14.7 +31 51.4

MC	Date	Exposure	Eff. Mid.	G.M.T.
19068	September 26, 1922	$3^h\ 31^m\ 18^s$ to $4^h\ 01^m\ 18^s$	30^m	3 46 .840

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1923phae.proj.1190W

MC 19068

			Mean x	Mean y
a	-3.65 +1.00	-3.68 +1.00	-3.66	+1.00
b	+1.40 +19.30	1.40 +19.30	+1.40	+19.30
c	+3.57 +2.80	+3.57 +2.80	+3.57	+2.80
Asteroid	+1.92 +9.02	+1.96 +9.01	+1.94	+9.02

	Mean x - Ast.	Mean y - Ast.	x × 98.2	y × 98.2
a	-5.60	-8.02	549.920	787.564 = 13 7.6
b	-0.54	+10.28	53.028	1009.496 = 16 49.5
c	+1.63	-6.22	160.066	610.804 = 10 10.8

a 3 19 41.86 +31 52 38.7
43.17 13 7.6
3 20 25.03 +32 5 46.3

sec. δ = 1.1776
549.920
15)647.585 7920
43.172

b 3 20 22.98 +32 22 27.7
4.19 16 49.5
3 20 27.17 +32 5 38.2

1.1841
53.028
15)62.790 4548
4.19

c 3 20 38.00 +31 55 23.3
12.57 10 10.8
3 20 25.43 +32 5 34.1

1.1782
160.066
15)188.589 7612
12.573

from a	3 20 25.03	+32 5 46.3	-0.85	+6.8
" b	3 20 27.17	+32 5 38.2	+1.29	-1.3
" c	3 20 25.43	+32 5 34.1	-0.45	-5.4
Mean Pos	1763		286	
(1875)	3 20 25.88	+32 5 39.5		
(25)	1 32.89	5 21.5		
(1900)	3 21 58.77	+32 11 1.0		
(22)	1 21.74	4 23.0		
(1922)	3 23 20.51	+32 15 24.0		

(1900) 3 21 58.77 +32 11 1.0
(25) 1 32.89 + 5 21.5
(1925) 3 23 31.66 +32 16 22.5

W P.

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1923phae.proj.1199w

60

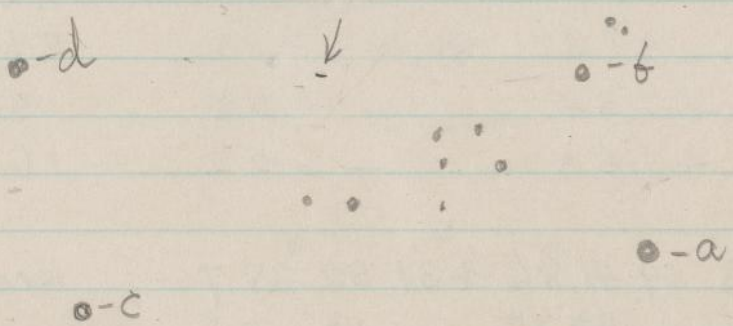
Est. 7 Magn. Compared with 15606 8-9 Ast. = 12.8 Corr.

Asteroid

Found on MC 20034, September 12, 1923, ~~Bb.~~
" " November 7, 1923.
" " Blo. 24, f. 115

Repeated on f. 75

Ginlod ?



Idn. E 29228

a	+27 311	1	49	46.8	+27	49.1	7.7	1073	1	50	53.92 +27 54 34.1
b	+28 335	1	50	39.0	+28	10.5	8.5	1084	1	51	45.57 +28 15 14.1
c	+27 320	1	53	51.3	+27	42.7	6.5	1102	1	54	59.01 +27 47 42.7
d	+28 341	1	54	29.9	+28	5.1	8.2	1108	1	55	38.31 +28 10 56.0

Orient by: +28 335 1 50 39.0 +28 10.5 8.5 = b
+28 336 1 50 39.5 +28 33.1 9.5

Added later
+28 ~~335~~ 332 1 48 10.7 +28 31.0 9.5
+29 330 1 48 10.6 +29 44.6 8.2

Used for setting for measures; f. 75
+28 332 1 49 41.7 +28 13.5 9.3
+29 337 1 49 41.7 +29 51.9 9.5

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1923phae.proj..1199

MC20034 four stars used, as this seems better than either triangle of stars with positions.

			mean x	mean y
Astrid	+23.00	-2.22	23.00	2.23 + 23.00 -2.22
a	+38.68	-11.97	38.60	-11.50 +38.64 -11.48
b	+31.98	+1.30	31.98	1.30 +31.98 +1.30
c	+5.26	-14.76	5.27	-14.76 +5.26 -14.76
d	+0.51	-0.40	-0.52	-0.40 +0.52 -0.40

Meas. made Nov. 20, with old m.m. scale

	mean x - Ast	mean y - Ast	x × 98.2	y × 98.2
a	+15.64	-9.26	1535.848	909."332 = 15' 9."3
b	+8.98	+3.52	881.836	345.664 = 5 45.7
c	-17.74	-12.54	1742.068	1231.428 = 20 31.4
d	-22.48	+1.82	2207.536	178.724 = 2 58.7

Signs R.A. should be reversed

a 1 50 53.92 +27 54 34.1 recd = 1.1316

1 55.86 15 9.3

1 52 49.78 +28 9 43.4

15)1737.965 5968

115.86

b 1 51 45.57 +28 15 14.1 1.1352

1 6.74 5 45.7 881.836

1 52 52.31 +28 9 28.4 15)1001.06 02272

66.74

Reject

c 1 54 59.01 +27 47 42.7 1.1305

2 11.29 20 31.4 1742.068

1 52 47.72 +28 8 14.1 15)1969.40 78740

131.294

d 1 55 38.31 +28 10 56.0 1.1345

2 46.96 2 58.7 2207.536

1 52 51.35 +28 7 57.3 15)2504.449 5920

166.96

from a	1	52 49.78	+28	9 43.4	-0.51
b	1	52 52.31	+28	9 28.4	+2.02
c	1	52 47.72	+28	8 14.1	-2.57
d	1	52 51.35	+28	7 57.3	+1.06
Mean Pos. 1875	1	52 50.29	+28, 8	50.8	

Reject

Discordant results indicate poor orientation. Two stars used not far enough apart. Renewed, p. 75.

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1923phae.proj.1199

see f. 60 Cont.

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1923phae.proj.1199

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1923phae.proj.1199M

64 Est. g Magn. Comparing 15606 11-12?
a faint but large trail about 14.0? Corr.
Asteroid
Found on November 5, 1923
" " MC 20036,
" Bb. 24, f. 107

reject this page
Copied over on f. 66.

⊗ I 24740

B.D.	(1855)				Magn.	Gould.	(1875)			
a	+15 762	5	4	3.6	+15 44.3	8.9	1426	5	5	12.89 +15 45 46.5
b	+16 785	5	5	58.1	+16 29.8	8.7	1433	5	7	7.98 +16 31 50.1
c	+16 769	5	7	7.3	+16 28.3	8.9	1438	5	8	16.29 +15 29 7.0
Identify by					+15 768	5	6	41.1	+15 10.9	9.5
					+16 736	5	6	41.0	+16 36.4	9.1

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1923phae.proj.1199

Mc 20036 Meas. 20135 corrections on this page

	Asteroid +1.00	+11.50	+1.00	+11.48	Mean x +1.00	Mean y +11.49
a	−13.37	−11.06	−13.38	−11.04	−13.38	−11.05
b	~~+13.70~~ +13.76	+17.02	+3.74	+17.02	+3.75	+17.02
c	+13.70	−21.48	+13.65	−21.46	+13.68	−21.47

	Mean x − Asteroid	
a	−*14.38	−22.54
b	+2.75	+5.53
c	+12.68	−32.96

a reject this page

Copied meas. on p. 67

b

c

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1923phae.proj.1199w

66 Jan. 10, 1924 Est. of Magn.
Comp. with MC 15606 Ast. a little fainter than 10 = 13.5 Corr.

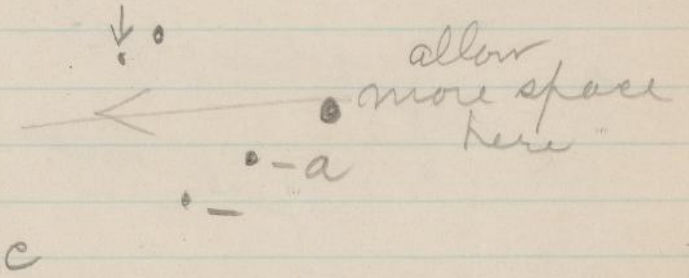
Asteroid

Found on MC 20135, October 8, 1923.
" " November 3, 1923
Bkb. 24, f. 105

(275)
Sapientia?

Not Sapientia

Defect or Asteroid?



I 24740
BD (1855) Magn Gesell (1875)

a +15°762	5	4	3.6	+15	44.3	8.9	1426	5	5	12.89	+15 45 46.5
b +16735	5	5	58.1	+16	29.8	8.7	1433	5	7	7.38	+16 31 50.1
c +15769	5	7	7.3	+15	28.3	8.9	1438	5	8	16.29	+15 29 7.0
Identify by: +15°768	5	6	41.1	+15	10.9	9.5					
+16736	5	6	41.0	+16	36.4	9.1					

	1 yr.	23 yr.	25 yr.
Z.C. Prec. α =	3.4586	79.5018 4538	86.4450 36
δ =	4.6109	106.0507	115.2725

Does prec. diff. affect final position?

Test for diff. if red. in using 1900 pos.

1875 value is used throughout reduction.

5 8 16.24 +16 24 45.5
1 26.40 1 52.6
1925 5 9 42.64 +16 26 38.1

Compare with p. 67

Plate	Date	Exp.		Exp.		Mag
MC 20135	October 8, 1923	5 09	+5 39	30m	5h 24	

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MC 20135 Meas. November 20, old m.m. plate

Asteroid	+1.00 +11.50	+1.00 +11.48	+1.00 +11.49
a	−13.37 −11.06	−13.38 −11.04	−13.38 −11.05
b	+3.76 +17.02	+3.74 +17.02	+3.75 +17.02
c	+13.70 −21.48	+13.65 −21.46	+13.68 −21.47

	Mean x − Asteroid	x × 98.2	y × 98.2
a	−14.38 −22.54	1412.116	2213.428 = 36′ 53.4″
b	+2.75 +5.53	270.050	543.046 = 9 3.0
c	+12.68 −32.96	1245.176	3236.672 = 53 56.7

a 5 12.89 45
5 4 ~~3.6~~ +15 ~~44.3~~ 46.5
1 37.83 36 53.4
5 6 50.72 +15 22 39.9

sec δ = 1.0392
1412.116
15)1467.4709472
97.83

b 5 7 7.38 +16 31 50.1
18.78 9 3.0
5 6 48.60 +16 22 47.1

1.0431
270.050
15)281.6891550
18.78

c 5 8 16.29 +15 29 7.0
1 26.14 53 56.7
5 6 50.15 +16 23 3.7

1.0377
1245.176
15)1292.11913 52
86.14

5	6	50.70	+16 22	39.9	+0.88 −10.3
5	6	48.60	+16 22	47.1	−1.22 −3.1
5	6	50.15	+16 23	3.7	+0.33 +13.5

Mean Pos. (1875)
29.45 9.07 (50.7)
5 6 49.82 +16 22 50.2
1 ~~19.50~~ 26.42 36 + 1 ~~46.7~~ 46.3

(1900)
5 8 ~~09.32~~ 16.24 18 +16 24 ~~36.5~~ 45.5
1 ~~19.50~~ 19.46 1 46.1

5 8 16.24 +16 24 45.5
1 26.42 36 + 1 55.3

(1925) 5 9 ~~42.66~~ 42.54 +16 26 40.8

PoW (1923) 5 9 35.74 +16 26 31.6

1923phae.proj.1199w

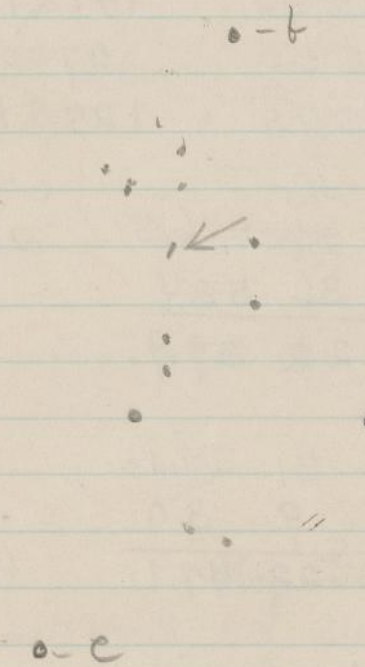
John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1923phae.proj.1199w

68 Magn. ang 64.

Asteroid

(158) Found on November 5, 1923
Koronis " " MC 20036, September 12, 1923.
? Bls. 24, f. 107.



± 26051

	α BD	(1855)	Mag. Gesell.	(1875)		
a	+19 553	3 26 3.4	+19 52.3	8.3	952 3 27 12.44	+19 57 9.1
b	+20 596	3 26 32.3	+20 31.5	8.3	1062 3 27 42.72	+20 35 50.9
c	+19 562	3 28 2.0	+19 34.8	7.0	964 3 29 11.01	+19 39 6.8
Orient by:		+19 542	3 21 26.3	+19 11.5	9.5	
		+19 543	3 21 26.3	+19 56.3	9.2	

	14 yr.	23 yr.	25 yr.
α =	3.4591	79.5593	86.4775
δ =	12.3114	283.1622	307.7859

Plate	Date	Exposed	Exp.	Mid.
MC 20036	September 12, 1923	3h 5m	3h 36m	31m 3h 20m

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1923phae.proj.1190w

MC 20036
meas. November 21, 1923

film			Mean x	Mean y
	Asteroid	-17.00 +10.52	16.99 +10.50	-17.00 +10.51
	a	- 5.76 +3.74	5.73 +3.76	- 5.74 + 3.75
	b	- 9.95 +27.52	9.96 +27.50	- 9.96 +27.51
	c	-23.03 -7.03	23.04 -7.02	-23.04 - 7.02

	Mean x - Asteroid	Mean y - Ast.	x × 98.2	y × 98.2
a	+11.26	- 6.76	1105.732	663.832 = 11' 3.8"
b	+ 7.04	+17.00	691.328	1669.400 = 27 49.4
c	- 6.04	-17.53	593.128	1721.446 = 28 41.4

a 3 27 12.44 +19 57 9.1 sec δ = 1.0639
1 18.43 11 3.8
3 28 30.87 +20 8 12.9

1105.732
15) 1176.3882748
78.426

b 3 27 42.72 +20 35 50.9
49.24 27 49.4
3 28 31.96 +20 8 01.5

1.0683
691.328
15) 738.5457024
49.24

c 3 29 11.01 +19 39 6.8
41.99 28 41.4
3 28 29.02 +20 7 48.2

1.0619
593.128
15) 629.8426232
41.99

from a	3	28	30.87	+20 8	12.9	+0.25 +12.0
b	3	28	31.96	+20 8	1.5	+1.34 + 0.6
c	3	28	29.02	+20 7	48.2	-1.60 -12.7
			1.85		2.6	
Mean Pos (1875)	3	28	30.62	+20 8	0.9	
(25 yr)	1		26.48		5 7.8	
(1900)	3	29	57.10	+20 13	8.7	(1900) 3 29 57.10 +20 13 8.7
(23 yr)	1		19.56		4 43.2	(25 yr) 1 26.48 5 7.8
(1923)	3	31	16.66	+20 17	51.9	(1925) 3 31 23.58 +20 18 16.5

W Pos

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1923phae.proj.1199w

70 Est. of Magn. 12.5 Dr. S.

Comp. 15606, 8-9, Ast. = 12.8 Corr.

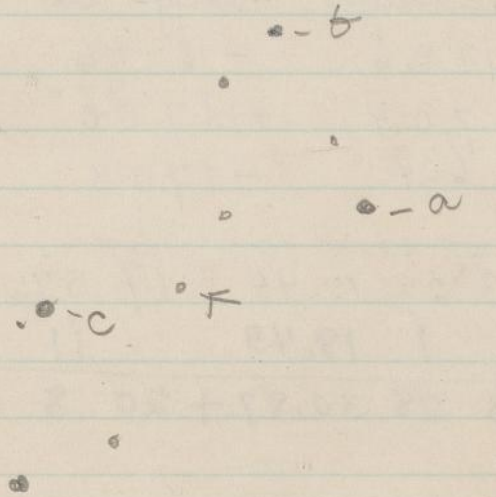
Asteroid ?

Found October 4, 1923.
" on MC 19253, November 16, 1922.
Bb. 24, p. 81.

472
Roma ?
(Given as 11.1 in Eph.)

Question Dr. S.

H.B. 805



Iden. by B 25851

	B.D.	(1855)	Nay Gisball	1900
a	-15 337	1 46 13.6 -15 54.0	9.0 483	1 48 24.44 -15 40 33.2
b	-15 339	1 46 44.2 -15 41.8	8.4 485	1 48 54.96 -15 28 10.3
c	-16 331	1 48 9.6 -16 2.6	8.3 494	1 50 19.86 -15 49 28.5

Orient by: -15 3##7: 1 40 53.0 -15 14.5 9.8
-15 318 1 40 53.7 -15 23.6 8.5
and -16 321 1 44 44.9 -16 30.4 9.8
-16 322 1 44 45.6 -16 21.9 6.9

Prec. I.C.		1 yr.	22 yr.	25 yr.
	α	2.8980	63.7560	72.4500
	δ	17.7984	391.5648	444.9600

Plate	Date	Exposed	Eqf.	Mid.		
19253	November 16, 1922	1 41 00	23	1 52.5	.078 .544	.622

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1922phot.proj.1100W

MC 19253 With old m. m. scale

	−18.22 −8.02	−18.20 −8.02		
Astrid	~~−6.32 −3.17~~	~~−6.32 −3.15~~	−18.21 −8.02	
film up. a	−6.32 −3.17	−6.32 −3.15	−6.32 −3.16	
b	−10.99 +4.38	10.98 +4.40	−10.98 +4.39	
c	~~−23.32 6.32~~	−8.93 −23.27 −8.94	−23.27 −8.94	
	mean x − Astrid	Mean y − Ast.	x × 98.2	y × 98.2
a	+11.89	+4.86	1167.598	477.252 = 7573
b	+7.23	+12.41	709.986	1218.662 = 20187
c	−5.06	−0.92	496.892	90.344

a 1 48 24.44 −15 40 33.2 recd = 1.0387

1 20.85 7 57.3

1 49 45.29 −15 48 30.5

1167.598

15) 1212.784 0426

80.852

b 1 48 54.96 −15 28 10.3 1.0376

49.11 20 18.7 709.986

1 49 44.07 −15 48 29.0

15) 736.814 736

49.11

c 1 50 19.86 −15 49 28.5 1.0394

34.43 1 30.3 496.892

1 49 45.43 −15 47 58.2

15) 516.469 5448

34.43

from a	1 49 45.29	−15 48 30.5	+0.36	−11.3	
" b	1 49 44.07	−15 48 29.0	−0.86	−9.8	
" c	1 49 45.43	−15 47 58.2	+0.50	+21.0	
	2.79	57.7		+21.0	
				−21.1	
Mean Pos.	1 49 44.93	−15 48 19.2	(1900)	1 49 44.93	−15 48 19.2
W — 1900	(22 yr) 1 3.76	6 31.6		(25 yr) 1 12.45	7 25.0
	(1922) 1 50 48.69	−15 41 47.6		(1925) 1 50 57.38	−15 40 54.2

W Pos.

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1923phae.proj.1195w

72 Comp. 15606 a little brighter than 8
Est. of Magn. Ast. = 12.4 Corr. Remeas 12.2 or 12.3
N.B. Image in extreme corner — distorted Asteroid. Use 12.0

Magn. 12.0 ✓ Found on MC 20080, October 2, 1923.
Dr. S. " " October 25, 1923.
353 Bb. 24, f. 104.
Ruferto-Carola.

Confirmed by Dr. S.
Jan. 22, 1924.

N.B. 797

B 26099
a Need not take
b stars as far away as
c DM stars are, since
CPD positions are to be
used for -19°. No
Gesellsch. found covering -19.
These stars make small triangle.

	CPD (Zone -19°)	(1875)	
-19° 8217	22 15 37.5	-19 32.0	
-19 8219	22 16 6.4	-19 47.3	10.
-19 8222	22 17 23.6	-19 22.3	10

Orient by: BD -19° 6283 22 21 49.0 -19 6.5 9.8
-19 6284 22 21 49.5 -19 46.0 9.7
The small triangle seems to be of special advantage for this region as Asteroid is in extreme (prec., S.,) corner of plate.

	1 yr.	23 yr.	25 yr.
Z.C. Prec.	α 3.281	75.4653	82.0275
	δ 18.0249	414.5727	450.6225

Plate	Date	Exposed	Cul.	Mid.		G.M.T.
MC 20080	October 2, 1923	22h 17m 6 22m 51s	34m	22h 34	.670 ✓ .938 ✓	.608 ✓

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1923phae.proj.1199M

MC 20080

			Mean x	Mean y
film	asteroid	+20.65 0.00	20.62 0.00	+20.64 +0.00
ref.	a	+24.00 +2.00	24.00 +2.00	+24.00 +2.00
	b	+19.65 −7.38	19.60 −7.40	+19.62 −7.39
	c	+ 8.74 +8.06	8.74 +8.04	+ 8.74 +8.05

	Mean x − Ast.	Mean y − Ast.	x × 98.2	y × 98.2
a	+3.36	+2.08	329.952	196400 = 3′ 16.″4
b	−1.02	−7.39	100.164	725.698 = 12 5.7
c	−11.90	+8.05	1168.580	790.510 = 13 10.5

a 22 15 37.5 −19 32.0

23.3 3.3

22 16 0.8 −19 35.3

1.0610

329.952

15)350.790720

23.34

b 22 16 6.4 −19 47.3

7.1 12.1

22 15 59.3 −19 35.2

1.0627

100.164

15)106.444 2828

7.096

COD Magn. 10.3 10.3

c 22 17 23.6 −19 22.3

1 22.6 13.2

22 16 1.0 −19 35.5

1.0601

1168.580

15)123.88 116580

82.6

from a	$22^h\ 16^m\ 0.^s8$	$-19^\circ\ 35'.3$	$+0.^s4$	$0.''0$
" b	22 15 59.3	−19 35.2	−1.1	+0.1
" c	22 16 1.0	−19 35.5	+0.6	−0.2
		1.1 −19 35.1.0		
Mean Pos. (1875)	22 16 0.4	−19 35.3		
(25 yr)	1 22.0	7.5		
(1900)	22 17 22.4	−19 27.8		
(23 yr)	1 15.5	6.9		
(1923)	22 18 37.9	−19 20.9		

(1900) 22 17 22.4 −19 27.8

1 22.0 7.5

(1925) 22 18 44.4 −19 20.3

WPO

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1923phae.proj.119dw

MC 20034 Sept. 12, 1923

See p. 60

(1875) 1 52 50.55 +28 9 1.9

2.C.Rec. 1 yr. 23 yr. 25 yr.

α = 3.4103 78.4369 85.2575

δ = 17.6721 406.4583 441.8025

(1875)	1	52	50.55	+28	9	1.9		
(25yr)	1		25.26			7	21.8	
1900	1	54	15.81	+28	16	23.7		
(23yr)	1		18.44			6	46.5	
1923	1	55	34.25	+28	23	10.2		

(1900)	1	54	15.81	+28	16	23.7		
(25yr)	1		25.26			7	21.8	
1925	1	55	41.07	+28	23	45.5		

W Pos Plate	Date ✓ ✓	Exposed h m s	Cut. mid. h m	h ✓ m		G.M.T.
MC 20034	September 12, 1923	1 28 to 2	16 48	1 52	.722 ✓ .078 ✓	.800

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1923phae.proj.1199w

MC20034 Meas. with old mil. plate

		x	y	Mean x	Mean y
Asteroid		−4.28	−30.57	4.28	30.57
film	a	+11.52	−39.62	11.50	39.60
	b	+4.58	−26.94	4.58	26.92
	c	−~~26.88~~ 21.76	−43.50	21.78	43.50
	d	−26.88	−29.18	26.91	29.12

Mean x − Asteroid	Mean y − Asteroid	x × 98".2	y × 98".2
+15.79	−9.04	1550.578	887.728
+8.86	+3.64	870.052	357.448
−17.49	−12.93	1717.518	1269.726
−22.62	+1.42	2221.284	139.444

a 14 47.7
b 5 57.4
c 21 9.7
d 2 19.4

a 1 56 53.92 +27 54 34.1 sec δ = 1.1316
1 56.98 14 47.7
1 52 50.90 +28 9 21.8 1550.578
15)1754.6340648
116.98

b 1 51 45.57 +28 15 14.1 sec δ = 1.1352
1 5.85 5 57.4
1 ~~56~~ 52 ~~39.72~~ 51.42 +28 9 16.7 870.052
15)987.6830304
65.846

c 1 54 59.01 +27 47 42.7 1.1305
2 9.44 21 9.7
1 52 49.57 +28 8 52.4 1717.518
15)1941.6540990
129.44

d 1 55 38.31 +28 10 56.0 1.1345
2 48.00 2 19.4
1 52 50.31 +28 8 36.6 2221.284
15)2520.466980
168.003

from a 1 52 50.90 +28 9 21.8 +0.35 +19.9
b 1 52 51.42 +28 9 16.7 +0.87 +14.8
1 52 49.57 +28 8 52.4 −0.9 −9.6
1 52 50.31 +28 8 36.6 −0.24 −26.3
202.20 1275

Mean Pos for
1875 1 52 50.~~65~~ 55
+28 9 1.9

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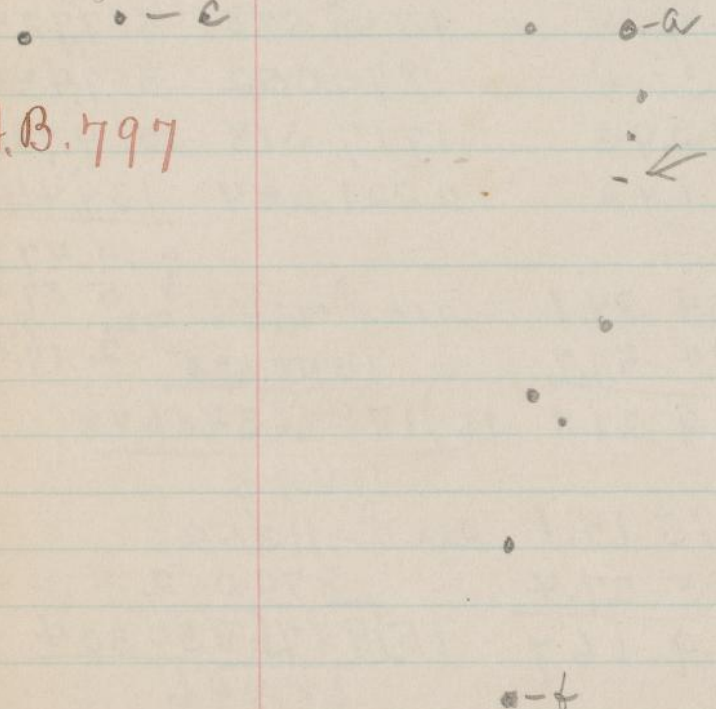
1923phae.proj.1199

76 Jan. 16. Est. of Magn. Comp. MC 15606 Ast. between 6-7, nearer 6
Magn. = 11.7 or 11.8 ~~11.5 or 12.0?~~ 12.0
Corr.
Asteroid

Magn. Dr. S.
12.0

Found on Dec. 24, 1923

Diotima 423 on MC 20296, ~~Bds. 24, p. 167.~~ December 8, 1923.
Confirmed by Bds. 24, p. 167.
Dr. S., Jan. 22, 1924.



H.B. 797

No I plate used,		(1855)		Magn.	Gesellsch.		(1875)				
a	+18° 550	3h 44m 3.2s	+18° 9.2	7.9		1027	3h 45m 12.47s	+18° 13' 18.1"			
b	+17 645	3 44 40.6	+17 34.7	9.0		1031	3 45 50.81	+17 38 16.5			
c	+18 553	3 45 59.3	+18 11.1	8.5		1038	3 47 9.52	+18 15 10.4			

For orientation:

b =
+17° 645 3 44 40.6 +17 34.7 9.0
and +16 522 3 44 40.9 +16 48.7 9.4

		1 yr.	23 yr.	25 yr.
Z.C. Prec	α =	~~11.1222~~	~~255.8106~~	~~278.0550~~
		3.4361	79.0303	85.9025
	δ =	11.1222	255.8106	278.0550

Plate	Date	Exposed	Eff.	Mid.		G.M.T.
MC 20296	December 8, 1923	3h 38m to 4h 18m	40m	3h 58m	.485 v .165	.650

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1923phae.proj.119cw

NC 20296 Meas. with glass m.m. plate Meas. Jan. 16

Asteroid		−4.72	+20.00	4.72 +20.00	−4.72 +20.00
a-large	a	−4.06	+23.94	4.10 +23.92	−4.08 +23.93
ridge	b	−10.00	+2.52	10.00 +2.52	−10.00 +2.52
filmstrip	c	−21.13	+25.37	21.15 +25.38	−21.14 +25.38

	Meas x − Asteroid	Meas y − Ast.	x × 98.2	y × 98.2
a	+0.64	+3.93	62.848	385.926 = 6 25.9
b	−5.28	−17.48	518.496	1716.536 = 28 36.5
c	−16.42	+5.38	1612.444	528.316 = 8 48.3

a 3 45 12.47 +18 13 18.1
4.41 6 25.9
3 45 16.88 +18 6 52.2

1.0528
62.848
15) 66163744
4411

b 3 45 50.81 +17 38 16.5
36.27 28 36.5
3 45 14.54 +18 6 53.0

1.0493
518.496
15) 544.05785528
36.271

c 3 47 9.52 +18 15 10.4
1 53.19 8 48.3
3 45 16.33 +18 6 22.1

1.0530
1612.444
15) 1697.903 5320
113.19

from a	3 45 16.88	+18	6	52.2	+0.96 +9.8
" b	3 45 14.54	+18	6	53.0	−1.38 +10.6
" c	3 45 16.33	+18	6	22.1	+0.41 −20.3
	17.75			127.3	
Mean Pos. W − 1875	3 45 15.92	+18	6	42.4	
(25 yrs)	1 25.90		4	38.1	
(1900)	3 46 41.82	+18	11	20.5	
(23 yr.)	1 19.03		4	15.8	
(1923)	3 48 0.85	+18	15	36.3	

(1900) 3 46 41.82 +18 11 20.5
25 yr. 1 25.90 4 38.1
(1925) 3 48 7.72 +18 15 58.6

Pos. W

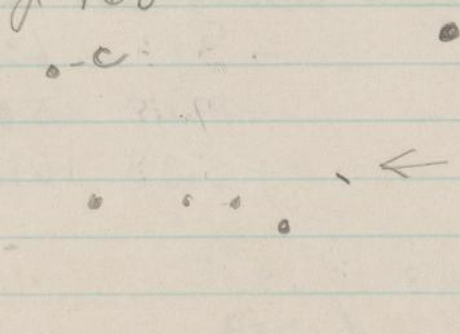
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1923phae.proj.1195w

78 1924 Jan. 2.
Dr. S.
9.5

Magn. Eat. Seg. of 47 K, mkd on MC 15606,
Ast. Trail as bright as Star 3, perhaps a little brighter. 3 - 10.22 Corr.
Asteroid Ast. = 10.0 (or 9.5 ?)

Found on December 26, 1923 -
" " MC 20237, November 12, 1923.
(230) Bk. 24, f. 168.
Athamantis



Confirmed by Dr. S.

H. B. 799.

For Orientation:

+19°	8	10	4	46	24.3	+19 45.4 9.2
+21	7	24	4	46	24.6	+21 26.5 9.0

		(1855)			Gesell.		(1875)		
I 26057									
a	+21 707	4 46 10.2	+21	4.0	8.0	1531	4 41 18.45	+21 5	33.1
b	+21 709	4 41 7.3	+21	41.1	8.2	1534	4 42 18.34	+21 43	44.2
c	+21 718	4 49 25.8	+21	38.6	9.0	1545	4 45 38.57	+21 40	46.1

If +20° 830 were Gesell. this would be chosen. Should prefer not to use so bright a star as +21° 707

	1 yr.	23 yrs.	25 yrs.
IC. Prec.	α 3.5657	82.0111	89.1425
	δ 6.5796	151.3308	164.4900

Plate	Date	Exposed.	Eqt.	Mid.	G.M.T.
MC 20237	November 12, 1923	$4^h\,35^m$ to $5^h\,10^m$	35^m	$4^h\,\frac{53}{52}^m$	.556 .202 .758

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1923phae.proj.1190w

mc 20237

Meas.		Asteroid			Mean x	Mean y
		+5.94	+20.00	5.96 20.00	+ 5.95	+ 20.00
Jan. 2, 1924	a	+ 23.92	+11.02	23.95 11.02	+23.94	+ 11.02
	b	+ 15.08	+34.30	15.08 34.32	+ 15.08	+ 34.31
film	c	- 13.35	+32.38	13.38 32.35	-13.36	+ 32.36

Imp.	Mean x - Asteroid	Mean y - Asteroid	x x 98.2	y x 98.2
a	+17.99	- 8.98	1766.618	881.836
b	+ 9.13	+ 14.31	896.566	1405.242
c	- 19.31	+ 12.36	1896.242	1213.752
				= 14 41.8
				= 23 25.2
				= 20 13.8

a 4 41 18.45 +21 5 33.1 rec. δ = 1.0718

2 6.23 14 41.8 1766.618

4 43 24.68 21 50 51.6 15) 1893.4611724

20 14.9 126.23

b 4 42 18.34 +21 43 44.2 rec δ = 1.0765

1 4.34 23 25.2 896.566

4 43 22.68 +21 20 19.0 15) 965.1532990

64.34

c 4 45 38.57 +21 40 46.1 rec δ = 1.0761

2 16.04 20 13.8 1896.242

4 43 22.53 +21 20 32.3 15) 2040.5460162

136.04

from a 4 43 24.68 +21 20 14.9 +1.38 - 7.2

b 4 43 22.68 +21 20 19.0 -0.62 - 3.1

c 4 43 22.53 +21 20 32.3 -0.77 +10.2

9.89 66.2

Mean Pos. W. (1875) 4 43 23.30 +21 20 22.1

(25 yr.) 1 29.14 + 2 44.5

(1900) 4 44 52.44 +21 23 6.6

(23 yr.) 1 22.01 2 31.3

(1923) 4 46 14.45 +21 25 37.9

(1900) 4 44 52.44 +21 23 6.6

(25 yr.) 1 29.14 2 44.5

(1925) 4 46 21.58 +21 25 51.1

W Pos.

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1923phae.proj.1199w

80 Jan. 2 Magn. Est. Camp. 15606
Ast. Trail nearly as bright as 7 7=11.96 Corr
Ast.=12.0 Corr.

Magn D.S.

Asteroid

Emita

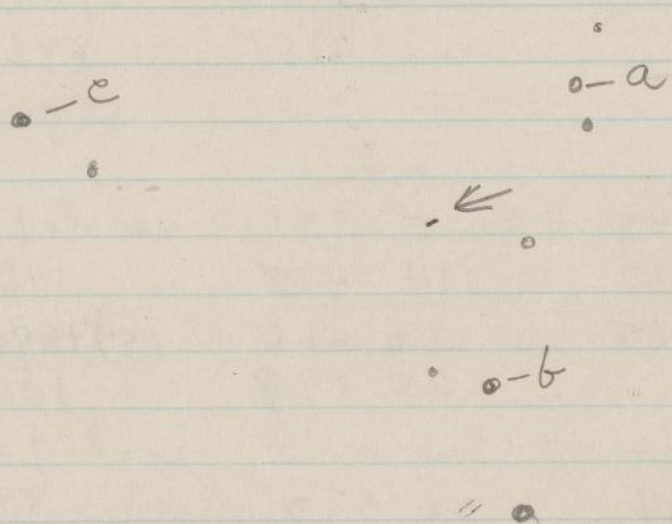
Found on December 27, 1923.

481

" " MC 20268, November 28, 1923

Bk. 24, f. 176

Confirmed
by D.S.
Jan. 22, 1924.



N.B.797

I 24337 BD		(1855)		Magn.	Gesell.		(1875)		
a	+3° 244	1 40 32.7	+3 31.7	9.1	509	1 41 34.73	+3 37 44.1		
b	+3 245	1 41 4.2	+3 6.4	9.2	513	1 42 5.54	+3 12 39.2		
c	+3 249	1 43 29.1	+3 28.8	8.5	520	1 44 31.30	+3 36 5.4		
Orient by:	+3 251	1 44 9.8	+3 27.4	9.3					
	3 252:	1 44 9.8	+3 20.2	9.5					

or, better,

a =	+3 244	1 40 32.7	+3 31.7	9.1	
	+4 313	1 40 33.0	+3 4.5	9.5	

D.C. Prec.	1 yr	23 yr.	25 yr.
α =	3.1070	71.4610	77.6750
δ =	18.0886	416.0378	452.2150

Plate	Date	Exposed	Eff. Mid.		G.M.T.
MC 20268	November 28, 1923	1h 50m to 2h 20m	30m	2h 05m .512v .087v	.599v

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1923phae.proj.119dw

MC 20268

		x	y			Mean x	Mean y
Meas.	Asteroid	+ 3.48	0.00	3.49	0.00	+3.48	0.00
Jan. 2,	a	+10.38	+ 6.98	10.37	6.98	+10.38	+6.98
1924	b	+ 5.47	− 8.32	5.48	8.35	+5.48	−8.34
film	c	~~− 16.26~~ 16.79	~~+ 16.70~~ 6.26	16.70	6.26	−16.70	+6.26

ref.	Mean x − Asteroid	Mean y − Asteroid	x × 98.2	y × 98.2
	+ 6.90	+ 6.98	677.580	685.436
	+ 2.00	− 8.34	196.400	818.988
	− 20.18	+ 6.26	1981.676	614.732

a 1° 41′ 34.73 + 3° 37′ 44.1 — sec δ = 1.0020 — 677.580 = 13′ 25.4

45.26 — 11′ 25.4 — 15) 67893516.00 = 13′ 39.0

1° 42′ 19.99 + 3° 26′ 18.7 — 45.26 — = 10″ 14.7

b 1° 42′ 5.54 + 3° 12′ 39.2 — 1.0016

13.11 — 13′ 39.0 — 196.400

15) 196.7142400

1° 42′ 18.65 + 3° 26′ 18.2 — 13.11

c 1° 44′ 31.30 + 3° 36′ 5.4 — 1.0020

2′ 12.38 — 10″ 14.7 — 1981.676

15) 1985.6393520

1° 42′ 18.92 + 3° 25′ 50.7 — 132.38

from a 1° 42′ 19.99 + 3° 26′ 18.7 + 0.80 + 9.5

b 1° 42′ 18.65 + 3° 26′ 18.2 − 0.54 + 9.0

c 1° 42′ 18.92 + 3° 25′ 50.7 − 0.27 − 18.5

.56 — 27.6

W. (1875) 1° 42′ 19.19 + 3° 26′ 9.2

25 yr. 1′ 17.68 — 7′ 32.2

(1900) 1° 43′ 36.87 + 3° 33′ 41.4

23 yr. 1′ 11.46 — 6′ 56.0

(1923) 1° 44′ 48.33 + 3° 40′ 37.4

(1900) 1° 43′ 36.87 + 3° 33′ 41.4

(25 yr.) 1′ 17.68 + 7′ 32.2

(1925) 1° 44′ 54.55 + 3° 41′ 13.6

W Bo.

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1923phae.proj.1199w

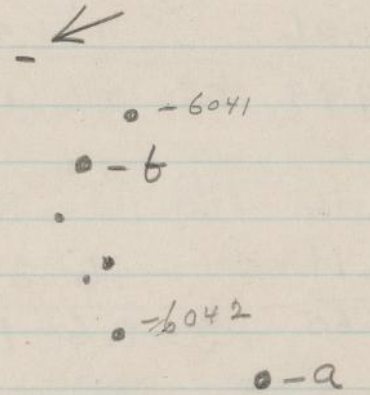
82 Jan. 16 Est. g Magn. Compar MC 15606
Ast = 6-7 nearer 7 11.9 Corr.

Magn Dr. S. Asteroid

Aurora 94 Found on January 4, 1924
" " MC 20104, October 5, 1923.
Bks. 24, f. 186.

Confirmed by Dr. S. Jan. 22, 1924.

N.B. 797.



Asteroid Too near N. edge of plate to get a Gesellschaft star N. except one too great diff. in R.A. Exposed all stars S.

B2173 B.D. c (1855) Gesell. 1900

a	-8	6040	23	2	51.1	-8	35.5	7.7	8232	23	5	12.03	-8	21	1.9
b	-8	6043	23	3	21.4	-8	25.9	9.2	8235	23	5	41.35	-8	10	57.4
c	-8	6054	23	5	50.1	-8	46.7	8.2	8241	23	8	10.86	-8	32	14.7
Omit by:	-8	6049	23	5	24.3	-8	56.5	9.2							
	-8	6050	23	5	24.4	-8	0.9	10							

		1 yr.	23 yr.	25 yr.
Z.C. Prec.	α =	3.1166	71.6818	77.9150
	δ =	19.4986	448.4678	487.4650

Plate	Date	Exposed	Eq.	Mid.	GMT.
MC 20104	October 5, 1923	23h 23m & 23h 57m	34m	23h 40m	.662v .983v .645v

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1923phae.proj.1196

Glass on m. plate. Meas. Jan. 7, 1924.

		x	y	Mean x	Mean y
No 20104	Asteroid	+6.53	+10.00	+6.54	+10.00
film	a	+13.04	+0.03	+13.07	+0.02
up	b	+8.76	+6.30	+8.77	+6.29
	c	−13.96	−6.58	−13.96	−6.59

	Mean x − Asteroid	Mean y − Asteroid	x × 98".2	y × 98".2
a	+6.53	−9.98	641.246	980.036
b	+2.23	−3.71	218.986	364.322
c	−20.50	−16.59	2013.100	1629.138

= 16' 20.04
= 6. 4.32
= 27' 9.14

a 23 5 12.03 −8 21 1.9 sec δ = 1.0107
43.21 16 20.0 641.246
23 5 55.24 −8 4 41.9 15)648,107 3322
43.207

b 23 5 41.35 −8 10 57.4 1.0103
14.75 6 4.3 218.986
23 5 56.10 −8 4 53.1 15)221,241.5558
14.75−

c 23 8 10.86 −8 32 14.7 1.0113
2 15.72 27 9.1 2013.100
23 5 55.14 −8 5 5.6 15)2035,8480300
135.72

from	a	23 5 55.24	−8 4 41.9	−0.25	+11.6
	b	23 5 56.10	−8 4 53.1	+0.61	+0.4
	c	23 5 55.14	−8 5 5.6	−0.35	−12.1
		148	160.6		

Mean Pos. W-1900 ✓

	23 5 55.49	−8 4 53.5
23yr	1 11.68	7 28.5
(1923)	23 7 7.17	−7 57 25.0

(1900) 23 5 55.49 −8 4 53.5
(25yr) 1 17.92 8 7.5
(1925) 23 7 13.41 −7 56 46.0

Pos W

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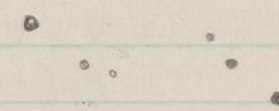
1923phae.proj.1199w

84 Jan. 16. Est. of Magn. Compare with MC 15606.
abmt = 6 Ast. = 11.5 Corr.
Remeas. 5-6 = abmt 11.1
Use 11.0

Magn by Dr. S 11.0 V Asteroid
Dec br. star near

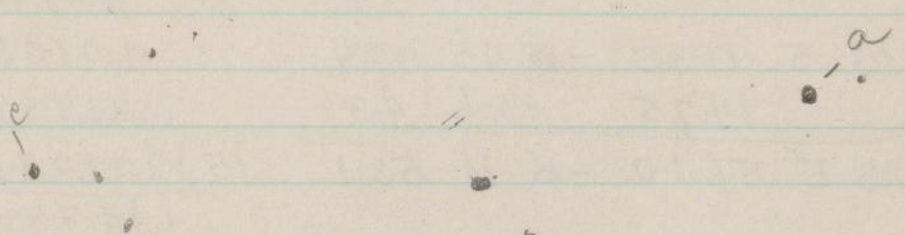
Found on January 7, 1924
" " MC 20081 October 2, 1923

17 Thetis
Bks. 24, p. 188.
Glass up



Confirmed by
Dr. S. Jan. 22.
V

H.B.797



B 22134

	B.D. (1855)			Gesell	1900		
a	-12° 6468	23 11 27.9	-12 57.6	7.2	8162	23 13 48.98	-12 43 3.2
b	-11 6054	23 14 11.3	-11 39.7	8.6	8170	23 16 31.75	-11 24 31.0
c	-13 6402	23 17 51.8	-13 19.1	8.5	8179	23 20 12.99	-13 4 25.5
Orient by:	-11 6066	23 16 5.8	-11 55.2	9.7			
	-12 6479	23 16 5.4	-12 42.2	9.9			

	1 yr.	23 yr.	25 yr.
Z.C. Prec.	α = 3.1255	71.8865	78.1375
	δ = 19.7125	453.3875	492.8125

Plate	Date	Exposed	Exp.	Mid.		G.M.T.
MC 20081	October 2, 1923.	22h 55m to 23h 31m	36m	23h 13m	.670V .965V	.635V

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1923phae.proj.1190w

MC 20081 Meas. with m.m. plate Jan. 8, 1924.

			Mean x	Mean y
Asteroid	−1.82	0.00	1.85	0.00	−1.84	0.00
a	+32.30	−18.70	32.30	18.70	+32.30	−18.70
b	+8.06	+29.52	8.04	29.50	+8.05	+29.51
c	−25.02	−31.58	25.02	31.55	−25.02	−31.56

The Gaillot-schaft does not give stars very close in this region. Selected stars are best possible. Error of orientation will be larger, probably, as stars are scattered

	Mean x − Asteroid	Mean y − Ast.	x × 98.2	y × 98.2	
a	+34.14	−18.70	3352.548	1836.340	= 30′ 36.″3
b	+9.89	+29.51	971.198	2897.882	= 48 17.9
c	−23.18	−31.56	2276.276	3099.192	= 51 39.2

a 23 13 48.98 −12 43 3.2 — 1.0252
3 49.14 30 36.5 — 3352.548
23 17 38.12 −12 12 26.7 — 15)3437.032096
229.14

b 23 16 31.75 −11 24 31.0 — 1.0201
1 6.05 48 17.9 — 971.198
23 17 37.80 −12 12 48.9 — 15)990.7190798
66.05−

c 23 20 12.99 −13 4 25.5 — 1.0266
2 35.79 51 39.2 — 2276.276
23 17 37.20 −12 12 46.3 — 15)2336.8249416
155.79

W−

from a	23 17 38.12	−12 12 26.7	+0.41	+13.9
b	23 17 37.80	−12 12 48.9	+0.09	−8.3
c	23 17 37.20	−12 12 46.3	−0.51	−5.7
	212	121.9		+13.9
				−14.0
W− Mean 1900	23 17 37.71	−12 12 40.6	(1900) 23 17 37.71	−12 12 40.6
Loo. (23y.)	1 11.89	7 33.4	1 18.14	8 12.8
PP W. (1923)	23 18 49.60	−12 5 7.2	(1925) 23 18 55.85	−12 4 27.8

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1923phae.proj.1199w

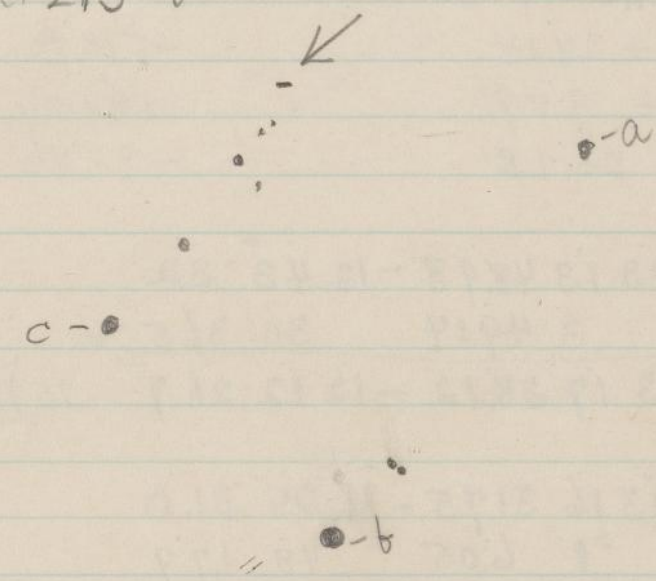
Feb. 16 Est. g Magn. = Abmt = 3 = 10.2

10.2 Dr. S Asteroid

(110) Found on MC 19365, December 19, 1922.
Lydia " " February 5, 1924
Bks. 24, f. 213

Confirmed by Dr. S.

N.B. 799



I 33527	(1855)		Magn	Gesell.	(1875)		
a	+25 742	4 42 42.9	+25 43.9	9.0	2194	4 43 55.95	+25 45 54.7
b	+25 746	4 44 44.3	+25 7.7	7.5	2208	4 45 57.07	+25 9 25.1
c	+25 750	4 45 46.9	+25 29.4	9.1	2216	4 47 2.07	+25 31 20.2

Orient by: +25°749 4 45 36.4 +25 1.5 9.3
+26°762 4 45 36.6 +26 31.1 8.7

	1 yr.	~~23 yr.~~	25 yr.	22 yr.
Z.C. Prec.				
α	3.6852	~~84.7596~~	92.1300	81.0744
δ	6.3537	~~146.1351~~	158.8425	139.7814

Plate	Date.	Exposure	Eff.	Mid. G.M.T.	
MC 19365	December 19, 1922.	4h57m to 5h29m	32m	5h13m.457	.674

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1923phae.proj.1190

MC19365 Meas. with m.m. plate

			Mean x	Mean y
Asteroid	0.00 +2.00	0.00 +2.00	0.00	+2.00
film up & large image	a +18.02 +0.58	+18.02 +0.58	+18.02	+0.58
	b +1.30 −21.88	+1.36 −21.85	+1.33	−21.86
	c −7.57 −8.30	−7.56 −8.30	−7.56	−8.30

	Mean x − Ast.	Mean y − Ast.	x × 98".2	y × 98".2
a	+18.02	−1.42	1769.564	139.444 = 2 19.4
b	+1.33	−23.86	130.606	~~234.852~~ +361.852 = 39 3.1
c	−7.56	−10.30	742.392	1011.460 = 16 51.5

a 4 43 55.95 +25 45 54.7
2 10.99 2 19.4
4 46 6.94 +25 48 14.1

1.1104
1769.564
15)1964.9238656
130.99

b 4 45 57.07 +25 9 25.1
9.62 39 3.1
4 46 6.69 +25 48 28.2

1.1048
130.606
15)144.2935088
9.62

c 4 47 2.07 +25 31 20.2
54.84 16 51.5
4 46 7.23 +25 48 11.7

1.1081
742.392
15)822.6445752
54.84

fm a	4	46	6.94 +25	48	14.1	−.01 −3.9
b	4	46	6.69 +25	48	28.2	−.26 +10.2
c	4	46	7.23 +25	48	11.7	+.28 −6.3
			286		540	

Mean Pos (1875) 4 46 6.95 +25 48 18.0
25 yr. 92.13 2 38.8
(1900) 4 47 39.08 +25 50 56.8
22 yr. 81.07 2 19.8
(1922) 4 49 0.15 +25 53 16.6

(1900) 4 47 39.08 +25 50 56.8
25 yr. 92.13 2 38.8
(1925) 4 49 11.21 +25 53 35.6

Pos −

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1923phae.proj.1199w

88 Feb. 16.. Est. of Magn. = about Star 4 = 10,8 Corr. Magn.
Perhaps = 10.5

A short trail but black.

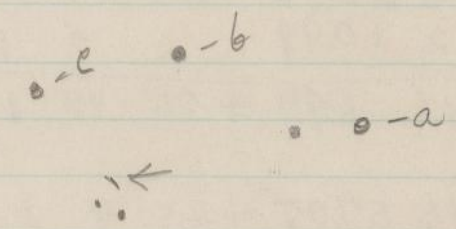
10.5 Dr. S

Asteroid

Found December 18, 1923.
" in MC 19352, December 13, 1922.
Bk. 24, p. 150.

(305)
Gordonia

H.B. 799.
Confirmed by Dr. S.



I 24314

	B.D.		(1855)			Magn.	Gen. loc	(1875)		
a	+17 759	4	30. 17.5	+17 6.3	7.9	1250	4	31 26.65	+17 9 23.5	
b	+17 762	4	31 30.2	+17 10.6	8.2	1256	4	32 39.39	+17 14 27.9	
c	+17 766	4	32 9.0	+17 5.5	8.9	1260	4	33 19.09	+17 8 30.5	
Orient by:	+16° 641	4	33 11.6	+16 25.7	8.3					
	+17 768	4	33 10.9	+17 7.6	8.4					

a, b, c, all are north of Asteroid.

	1 yr.	23 yr.	25 yr.	22 yr
Z.C. Prec.	α 3.4517	79.3891	86.2925	75.9374
	δ 7.4389	171.0947	185.9725	163.6558

G.M.T., See page 92, same plate (3 asteroids)

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Meas. with glass plate.

film of MC 19352

	Asteroid		Mean x	Mean y
	−0.43	+6.00	0.42	+6.00
a	+12.46	+12.54	12.40	+12.54
b	+1.72	+15.57	1.70	+15.56
c	−4.03	+11.92	4.02	+11.95

	Mean x − Asteroid	Mean y − Ast.	x × 98.2	y × 98.2
a	+12.85	+6.54	1261.870	642.228 = 10′ 42.2″
b	+2.13	+9.56	209.166	938.792 = 15 38.8
c	−3.60	+5.94	353.520	583.308 = 9 43.3

a
4 31 26.65 +17 9 23.5
1 28.04 10 42.2
4 32 54.69 +16 58 41.3

1.0466
1261.870
15 | 1320.673 1420
88.045−

b
4 32 39.39 +17 14 27.9
14.60 15 38.8
4 32 53.99 +16 58 49.1

1.0470
209.166
15 | 2189.968 020
14.60

c
4 33 19.09 +17 8 30.5
24.66 9 43.3
4 32 54.43 +16 58 47.2

1.0465
353.520
15 | 369.958 6800
24.66

from a	4 32 54.69	+16 58 41.3	+.32	−4.6
b	4 32 53.99	+16 58 49.1	−.38	+3.2
c	4 32 54.43	+16 58 47.2	+.06	+1.3
		111		176
Mean Pos. (1875)	4 32 54.37	+16 58 45.9		
25 yr.	1 26.29		3 6.0	
(1900)	4 34 20.66	+17 1 51.9	(1900) 4 34 20.66	+17 1 51.9
22 yr.	1 15.94		2 43.7	25 yr. 1 26.29 3 6.0
(1922)	4 35 36.60	+17 4 35.6	(1925) 4 35 46.95	+17 4 57.9

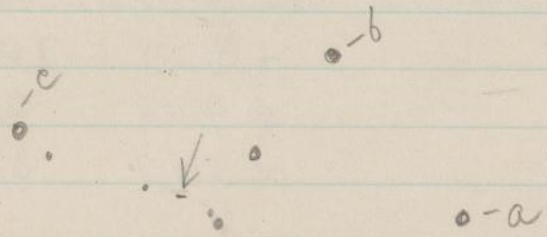
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1923phae.proj.1199w

Feb. 16 Est. of Magn. Ast. between 7-8, nearer 8 = 12.5 Corr. Magn.
12.5 Dr. S.

Asteroid

629 from 698 Found, December 18, 1923.
Bernardina " on MC 19352, December 13, 1922.
H.B.799 Bb. 24, p. 150
Confirmed by Dr. S.



I 24314

	B.D.	(1855)		Magn.	Gerill.	(1875)		
a	+18 7[2]25	4 38 26.7	+18 49.0	8.5	1298	4 39 36.49	+18 51 4.7	
b	+19 782	4 39 14.3	+19 3.4	8.7	1303	4 40 23.65	+19 5 33.7	
c	+18 738	4 41 49.6	+18 56.5	8.8	1321	4 42 59.71	+18 58 29.1	
Orint by:	+18 735	4 40 13.8	+18 43.2	9.2				
	+19 785	4 40 14.2	+19 28.1	9.0				

	1 yr.	~~23 yr.~~	25 yr.	22 yr.
Z.C. Prec.	α 3.5025	~~80.5575~~	87.5625	77.0550
	δ 6.74 3.3	~~155.0959~~	168.5825	148.3526

G.M.T., See page 92, 3 asteroids, same plate.

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1923phae.proj.1190

MC 19352

					Mean x	Mean y
Asteroid	−1.98	0.00	1.96	0.00	−1.97	0.00
a	+13.65	−1.22	13.66	−1.22	+13.66	−1.22
b	+6.78	+7.68	6.78	+7.64	+6.78	+7.66
c	−15.78	+3.32	15.78	+3.32	−15.78	+3.32

	Mean x − Asteroid	Mean y − Ast.	x × 98.2	y × 98.2	
a	+15.63	−1.22	1534.866	119.804	= 1′ 59.″8
b	+8.75	+7.66	859.250	752.212	= 12. 32.2
c	−13.81	+3.32	1356.142	326.024	= 5 26.0

a 4 39 36.49 +18 51 4.7
1 48.13 1 59.8
4 41 24.62 +18 53 4.5

1.0567
1534.866
15) 1621.8929022
108.13

b 4 40 23.65 +19 5 33.7
1 0.62 12 32.2
4 41 24.27 +18 53 1.5

1.0583
859.250
15) 909.3442750
60.62

c 4 42 59.71 +18 58 29.1
1 35.60 5 26.0
4 41 24.11 +18 53 3.1

1.0574
1356.142
15) 1433.9845508
95.60

from a	4 41	24.62	+18 53	4.5	+0.29	+1.″5
b	4 41	24.27	+18 53	1.5	−0.06	−1.5
c	4 41	24.11	+18 53	3.1	−0.22	+0.1
		100		9.1		

Mean Pos. W.

(1875)	4 41	24.33	+18 53	3.0	
25 yr.	1	27.56		2 48.6	
(1900)	4 42	51.89	+18 55	51.6	(1900) 4 42 51.89 +18 55 51.6
22 yr.	1	17.06		2 28.4	1 27.56 2 48.6
(1922)	4 44	8.95	+18 58	20.0	(1925) 4 44 19.45 +18 58 40.2

Pos.

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1923phae.proj.1199w

92 Feb. 16 Est. of Magn. About = 5 = 10.9

This is faint but long trail

1150 Dr. S. Found December 18, 1923

Asteroid

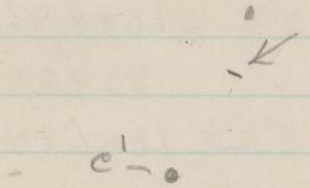
" in MC 19352 December 13, 1922

(419) Bks. 24, p. 149

Aurelia

H.B.799

Confirmed by Dr. S.



These stars marked "prime" because p. 90 stars are so close.

I 24314

	BD.	(1855)		Mag.	Gesell	(1875)		
a'	+19 785	4 40 14.2	+19 28.1	9.0	1310	4 41 25.40	+19 30 3.0	
b'	+19 786	4 41 6.1	+19 18.0	9.0	1316	4 42 17.07	+19 20 9.9	
c'	+19 789	4 41 43.8	+19 40.2	8.5	1320	4 42 53.93	+19 42 15.0	
Orient by:	+20 829	H 41 42.3	+20 1.3	9.5				
	+20 830	4 41 42.5	+20 50.0	9.1				

See, also, the two stars already chosen on p. 90, near by

All stars for meas. are S of Asteroid but no Gesell. stars in other positions are near.

	1 yr.	~~23 yr.~~	25 yr.	22 yr.
Z.C. Prec.	x 3.5262	~~81.1026~~	88.1550	77.5764
	δ 6.6390	~~152.6970~~	165.9750	146.0580

Plate	Date	Exposure	Eq. Mid.	G.M.T.
MC 19352	December 13, 1922.	4^h07^m to 4^h45^m	$38^m\ 4^h26^s.479$ .184	.657

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1923phae.proj.1190

MC 19352

Asteroid	+0.72 −7.00	+0.72 −7.00	+0.72 −7.00
a′	+11.50 −18.72	+11.50 −18.72	+11.50 −18.72
b′	+4.00 −24.72	+4.00 −24.72	+4.00 −24.72
c′	−1.22 −11.10	−1.26 −11.10	−1.24 −11.10

	Mean x − Asteroid	Mean y − Ast.	x × 98.2	y × 98.2
a′	+10.78	−11.72	1058.596	1150.904 = 19′ 10.9″
b′	+3.28	−17.72	322.096	1740.104 = 29′ 0.1″
c′	−1.96	−4.10	192.472	402.620 = 6′ 42.6″

a′ H 4 1 25.40 +19 30 3.0
1 14.86 19 10.9
4 42 40.26 +19 49 13.9

1.0608
1058.596
15) 1122.958368
74.86

b′ 4 42 17.07 +19 20 9.9
22.76 29 0.1
4 42 39.83 +19 49 10.0

1.0597
322.096
15) 341.325312
22.755

c″ 4 42 53.93 +19 42 15.0
13.63 6 42.6
4 42 40.30 +19 48 57.6

1.0622
192.472
15) 204.4437584
13.63

from	a	4 42 40.26	+19 49 13.9	+0.13	+6.7
	b	4 42 39.83	+19 49 10.0	−0.30	+2.8
	c	4 42 40.30	+19 48 57.6	+.17	−9.6
			39		21.5
Mean Pos. (1875)		4 42 40.13	+19 49 7.2		
25 yr.		1 28.16	2 46.0		
(1900)		4 44 8.29	+19 51 53.2		
22 yr.		1 17.58	2 26.1		
(1922)		4 45 25.87	+19 54 19.3		

(1900) 4 44 8.29 +19 51 53.2
1 28.16 2 46.0
(1925) 4 45 36.45 +19 54 39.2

Pos.

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1923phae.proj.1199w

94 Est. of Magn. Compared with MC15606 3-4 about 10.0 or 10.5 ?
March 28, 1924

Asteroid

Asteroid is very long but not very black.
[N.B. out of focus — corner 2nd exp. = 66m

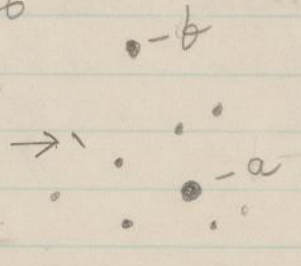
10.5
Dr. S.

Found December 27, 1923
" on MC 16902, September 21, 1920.
" Bb. 24, f. 176

(737) ✓
1912 2B
Confirmed
Dr. S.

1912 2B = 10.3 in Eph.
Norma = 13.9

N.13.805



c

B14785	(1855)				Magn.	Gesell.	(1875)				
a	+6	296	1 46 2.1	+6 54.6	7.8	720	1 47 4.13	+7	1 1.8		
b	+7	295	1 46 18.2	+7 7.6	9.2	721	1 47 18.44	+7	14 12.9		
c	+6	300	1 47 42.4	+6 34.1	8.8	733	1 48 45.49	+6	39 23.5		
Orient by:	+6	290	1 44 56.4	+6 36.9	9.0						
	+6°	291.1	44 56.8	+6 51.8	9.5						
and	+7	296	1 47 6.2	+7 13.5	9.5						
	+7	298	1 48 37.5	+7 13.5	9.5						

	1 yr.	25 yr.	20 yrs.
Z.C. Prec. α	3.1475	78.6875	62.95
δ	17.8821	447.0525	357.6420

Plate	Date	Exposure	to	Exp.	Mid Exp	696 .092m3 .789
MC 16902	September 21, 1920	1 40 30	2 46 30	66m	2h 13 30s	

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1923phae.proj..119Ow

MC 16902 (Extreme corner of plate)

Asteroid	−5.88	+5.12	5.84	+5.18	−5.86	+5.15
a	−0.50	+2.30	0.53	+2.30	−0.52	+2.30
b	−2.54	+10.44	2.54	10.44	−2.54	+10.44
c	−16.03	−10.68	16.03	10.68	−16.03	−10.68

	Mean-Asteroid	Mean-Asteroid	x x 98.2	y x 98.2	
a	+5.34	−2.85	524.388	279.870	= 4 39.9
b	+3.32	+5.29	326.024	519.478	= 8 39.5
c	−10.17	−15.83	998.694	1554.506	= 25 54.5

a 1 47 4.13 +7 1 1.8
+35.22 4 39.9
1 47 39.35 +7 5 41.7

sec. δ = 1.0075
524.388
15)528.3209100
35.22

b 1 47 18.44 +7 14 12.9
+21.91 8 39.5
1 47 40.35 +7 5 33.4

1.0080
326.024
15)328.6321920
21.91

c 1 48 45.49 +6 39 23.5
−1 7.03 −25 54.5
1 47 38.46 +7 5 18.0

1.0068
998.694
15)1005.4851192
67.03

from a	1 47 39.35	+7	5 41.7	−0.04	+10.7	
b	1 47 40.35	+7	5 33.4	+0.96	+2.4	
c	1 47 38.46	+7	5 18.0	−0.93	−13.6	
	2816		931			
Mean Pos. (1875)	1 47 39.39	+7	5 31.0	1 47 39.39	+7 5 31.0	
(25 yr.)	1 18.69		7 27.1	(20 yr.) 1 2.95	5 57.6	
(1900)	1 48 58.08	+7	12 58.1	1 48 42.34	+7 11 28.6	
20 yr.	1 2.95	+	5 57.6	(1900) 1 48 58.08	+7 12 58.1	
(1920)	1 50 1.03	+7	18 55.7	25 yr. 1 18.69	+ 7 27.1	
				(1925) 1 50 16.77	+7 20 25.2	

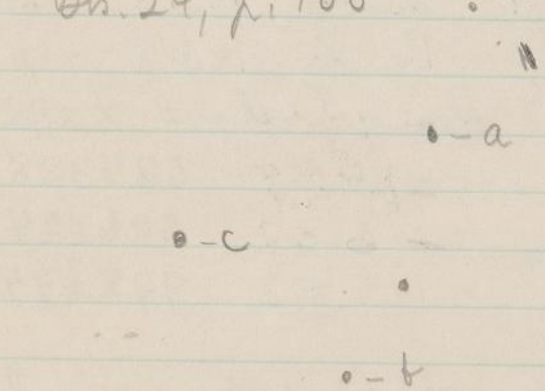
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1923phae.proj.1199w

MC17937 Asteroid

Found on MC 17937, September 24, 1921.
" Jan. 7, 1924.
Bk. 24, p. 188

Idem?



I 26019

BD	1855		Magn.	Gesell.	1900	
a -10 6082	23h 5m 25.0s	-10° 21.3'	7.0	8129	23 7 45.91	-10 6 50.7
b -10 6084	23 5 56.2	-10 42.8	8.6	8133	23 8 16.86	-10 28 27.8
c -10 6086	23 7 8.6	-10 28.6	7.8	8139	23 9 28.95	-10 13 56.3

Orient by: -11° 6025 23 6 2.8 -11 24.0 9.0
-12 6449 23 6 2.8 -11 32.4 9.1

Asteroid is on extreme edge (N) so stars cannot be chosen as I would like.

Z.C. Prec.	1 yr.	21 yr.	25 yr.
α	3.1263	65.6523	78.1575
δ	19.5255	410.0355	488.1375

Plate	Date	Exposed	Eff. Mid.		G.M.T.
MC17937	September 24, 1921	22 59 to 23 37	38m 23h 18m	.691 .968	.659

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1923phae.proj.1190w

MC 17937

Asteroid	+10.02	+31.78	10.02	31.80	+10.02	+31.79
a	+ 5.47	+ 29.74	5.46	29.76	+5.46	+29.75
b	+ 0.78	+ 16.50	0.76	16.50	+0.77	+16.50
c	− 10.06	+ 25.28	10.06	25.30	−10.06	+25.29

	Mean y − Ast.	Mean y − Ast.	x × 98.2	y × 98.2	
			447.792		
a	= 4.56	− 2.04	~~983.964~~	200.328	= 3 20.3
b	− 9.25	−15.29	908.350	1501.478	= 25 1.5
c	− 20.08	− 6.50	~~989~~ 1971.856	638.300	= 10 38.3

a 23 7 45.91 −10 6 50.7 — 1.0158
30.32 3 20.3 — 447.792
23 7 15.59 −10 3 30.4 — 15)454867.1136
30.32

b 23 8 16.86 −10 28 27.8 — 1.0169
61.58 25 1.5 — 908.350
23 7 15.28 −10 3 26.3 — 15)923.701.11150
61.58

c 23 9 28.95 −10 13 56.3 — 1.0162
2 13.59 10 38.3 — 1971.856
23 7 15.36 −10 3 18.0 — 15)2003.8000672
133.59

from a	23 7 15.59	−10	3	30.4	+0.18	−55
b	23 7 15.28	−10	3	26.3	−0.13	−1.4
c	23 7 15.36	−10	3	18.0	−0.05	+6.9
	123			74.7		
Mean Pos. 1900	23 7 15.41	−10	3	24.9		
(21 yr.)	1 5.65	(N)	6	50.0		
(1921)	23 8 21.06	−9	56	34.9		
(25 yr.)	1 18.16		8	8.1		
(1925)	23 9 39.22	−9	48	26.8		

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1923phae.proj.1199w

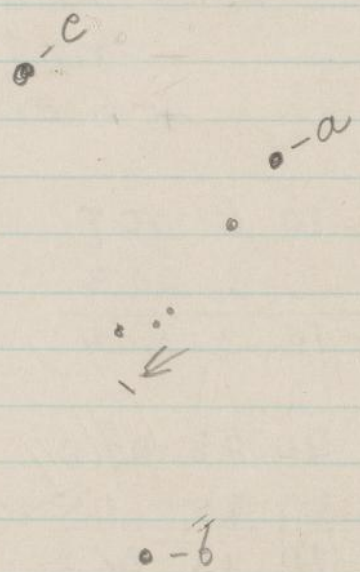
98

Same object as ƒ100? Est. g Magn. See MC 15606.
12.0 or 12.5
this in color = 7.? (12.0)

11.5 Dr. S. Asteroid

Found on MC 19852, June 11, 1923.
" " July 14, 1923
Bb. 24, p. 36.

Identity?



Not found in March exp.!

	I 20940			(1855)			Magn.	Gould.		1875		
a	+23	3052	17	1	5.1	+23 36.0	8.5	5854	17	1	54.88	+23 34 5.7
b	+22	3085	17	3	12.6	+22 40.0	8.5	5864	17	4	5.06	+22 38 2.9
c	+23	3058	17	3	35.0	+23 45.3	7.9	5867	17	4	24.94	+23 44 10.4
	Orient by:	+22	3088	17	3	34.7	+22	2.1	9.3			
	c' =	+23	3058.	17	3	35.0	+23	45.3	7.9			

Z.C. Pree.	1 yr.	23 yr.	25 yr.
α	2.5189	57.9347	62.9725
δ	4.8530	111.6190	121.3250

Plate	Date	Exposed	Exp.	Mid.	G.M.T.
MC 19852	June 11, 1923	18 ~~54~~ 07 to 18 37	~~40~~ 30	18h 22m .979 .763	.742

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MC 19852 Meas. with glass plate, Feb. 23, 1924.

			Mean x	Mean y
Asteroid	−6.28	+11.65	−6.28	+11.58	−6.28	+11.62
a	+11.06	+29.00	+11.04	+28.97	+11.05	+28.98
b	−6.96	−5.48	−6.96	−5.48	−6.96	−5.48
c	−10.02	+35.02	−10.03	+35.02	−10.02	+35.02

	Mean x − Ast.	Mean y − Ast.	x × 98.2	y × 98.2
a	+17.33	+~~40.60~~ 17.36	1701.806	1704.752 = 28 24.8
b	−0.68	+~~6.14~~ 17.10	66.776	1679.220 = 27 59.2
c	−3.74	+~~46.64~~ 23.40	367.268	2297.880 = 38 17.9

a 17 1 54.88 +23 34 5.7 — 1.0910 — 1701.806 — 15)1856.6703460 — 123.78

2 3.78 — 28 24.8

17 3 58.66 +23 5 40.9

b 17 4 5.06 +22 38 2.9 — 1.0834 — 66.776 — 15)723.45 1184 — 4.82

4.82 — 27 59.2

17 4 0.24 +23 6 2.1

c 17 4 24.94 +23 44 10.4 — 1.0924 — 367.268 — 15)401.2035632 — 26.748

26.75 — 38 17.9

17 3 58.19 +23 5 52.5

from a	17	3 58.66	+23 5 40.9	−0.37	−10.9
b	17	4 0.24	+23 6 2.1	+1.21	+10.3
c	17	3 58.19	+23 5 52.5	−0.84	+0.7

2709 + 23 — 955 — 60 — 1555

Mean Pos. 1875 — 17 3 59.03 +23 5 51.8

(25 yr.) 1 2.97 — 5 2 1.3

(1900) 17 5 2.00 +23 3 50.5

(23 yr.) 57.93 — S 1 51.6

(1923) 17 5 59.93 +23 1 58.9

(1900) 17 5 2.00 +23 3 50.5

25 yr. 1 2.97 S 2 1.3

1925 17 6 4.97 +23 1 49.2

1923phae.proj.1190w

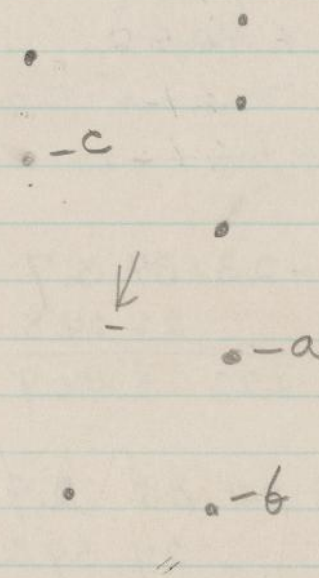
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1923phae.proj.1199w

Est'd Magn. See MC 15606
11.7 - 12.0

11.5 Dr. Is. Asteroid
Found on MC 19696, April 9, 1923,
" " July 14, 1923.
Bk. 24, p. 36.

Iden?



Not found Mars.

I 20940

						1855		Magn. Gesell.		1875		
a	+21	3046	16	59	16.0	+21	31.1	8.7	5839	17 0	6.41	+21 29 32.9
b	+21	3049	~~17~~ 16	59	~~29.9~~ 9.2	+21	~~16.0~~ 13.8	9.2	5846	17 0	21.18	+21 12 9.3
c	+21	3050	17	0	12.6	+21	46.0	9.0	5848	17 1	3.18	+21 45 0.0
Orient by:	+21	3048	17	0	8.9	+21	54.3	9.0				
	+21	3049	= ~~8~~		17 0	9.2	+21	16.0	9.2			

3049 is not in Gesell.

Z.C.	Prec.	1 yr.	23 yr.	25 yr.
	α	2.5620	58.9260	64.0500
	δ	5.1256	117.8888	128.1400

Plate	Date	Exposed	Exp.	Mid.	G.M.T.
MC 19696	April 9, 1923	16 53 to 17 23	30m	17h 8m .151 .712	.863

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1923phae.proj.119dw

Mc 19696 Meas. with glass plate February 23, 1924

			Mean x	Mean y
Asteroid	−0.96	+7.00	−0.96	+7.00
a	+4.70	+5.52	+4.67	+5.52
b	~~+3.70~~ +2.68	~~−5.22~~ −3.74	~~+3.69~~ +3.03	~~−5.22~~ −3.74
c	−3.52	+14.88	−3.52	+14.86

Plate re-set, a & c verified, new b measured.

	Mean x − Ast.	Mean y − Ast.	x × 98.2	y × 98.2
a	+5.63	−1.48	552.866	145.336 = 2 25.3
b	~~+3.65~~ +2.06	~~−12.22~~ −10.74	358.430	1200.004 = 20 0.0
c	−2.56	+7.86	251.392	771.852 = 12 51.9

a 17 0 6.41 +21 29 32.9 — 1.0747
39.61 2 25.3 — 552.866
17 0 46.02 +21 31 58.2 — 15) 594.1650902 = 39.611

b 17 0 21.18 +21 12 9.3 — 1.0726
25.63 20 0.0 — 358.430
17 0 46.81 +21 32 9.3 — 15) 384.4520180 = 25.630

c 17 1 3.18 +21 45 0.6 — 1.0767
18.04 12 51.9 — 251.392
17 0 45.14 +21 32 8.7 — 15) 270.6737664 = 18.045−

from a 17 0 46.02 +21 31 58.2 +0.03 −7.2
b 17 0 46.81 +21 32 9.3 +0.82 +3.9
c 17 0 45.14 +21 32 8.7 −0.85 +3.3
297 162

Mean Pos. 1875 17 0 45.99 +21 32 5.4
25 yr. 1 4.05 S 2 8.1

(1900) 17 0 50.04 +21 29 57.3 | (1900) 17 0 50.04 +21 29 57.3
(23 yr) 58.93 1 57.9 | (25 yr) 1 4.05 S 2 8.1
(1923) 17 2 48.97 +21 27 59.4 | (1925) 17 2 54.09 +21 27 49.2

Pos.

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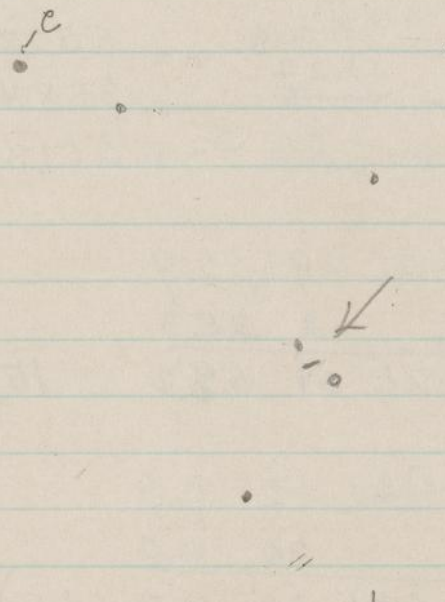
1923phae.proj.1199w

102 April 11, 1924. Est. ∫ Magn. Comp. with 15606 Ast. brighter than 3.
Ast. = 10.0 or a little brighter

10.0 Asteroid
Dr. S. Found on December 19, 1923
" on MC 18104, October 25, 1921
" Bk. 24, p. 159.

(31)
Euphrosyne
V

H.B. 805



B 28695	1855		Magn.	Gesell.		1900		
a	−8 119	0 34 30.3	−8 53.2	8.2	139	0 36 46.97	−8 38 15.8	
b*	−10 142	0 36 1.3	−10 6.8	8.5	144	0 38 17.38	−9 51 55.6	
c	−8 134	0 37 53.0	−8 57.7	9.0	150	0 40 9.06	−8 42 33.3	
Orient by:	−8 118	0 34 14.5	−8 19.2	9.7				
	−9 132	0 34 14.8	−9 17.0	9.1				
and	−8 128	0 36 36.4	−8 19.2	9.1				
	−9 140	0 36 36.9	−9 50.9	9.3				

N.B.D.

*−10 142 is also in Gesell −10° to −14° (Cambridge N.D.)
0 38 17.34 −9 51 57.3 As positions differ slightly
the position in −6° to −10° is taken.

		1 yr.	25 yr.	21 yr.
ZC Prec.	α	3.0358	75.8950	63.7518
	δ	19.7785 (51)	494.4625 (3775)	415.8485 (2771)
Rlate MC 18104	Date	Oct. 25, 1921	Epoch 0 33 +1 13	Eff. Mid. 140 9 53

.603 .037 1.46

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1923phae.proj.119DW

Meas. with glass micrometer plate, April 8, 1924.

MC 18/04

Asteroid	−16.26	−7.23	16.26	7.22	−16.26	−7.22
a	−2.50	+17.28	2.50	17.28	−2.50	+17.28
b	−16.42	−27.70	16.40	27.70	−16.41	−27.70
c	−33.12	+14.84	33.12	14.84	−33.12	+14.86

	Mean x − Ast.	Mean y − Ast.	x × 98.2	y × 98.2	
a	+13.76	+24.50	1351 369.232	2400 ~~55~~00	= 40 5.9
b	−0.15	−20.48	14.730	2011.136	= 33 31.1
c	−16.86	+22.08	1655.652	2168.256	= 36 8.3

a 0 36 46.97 −8 38 15.8
1 31.12 40 5.9
0 38 18.09 −9 18 21.7

sec δ = 1.0115
1351 369.232
15)13667711680
91.12

b 0 38 17.38 −9 51 55.6
−1.00 33 31.1
0 38 16.38 −9 18 24.5

1.0150
14.730
15)149509500
1.00
1.0148 (17) 1.0116
1655.652
15)1679.6589540 (5.023)
111.98 (67)
15)1674.857563
111.66

c 0 40 9.06 (60) −8 42 33.3
−1 51.98 36 8.3
0 38 17.08 (38) −9 18 41.6
(40)

from a 0 38 18.09 −9 18 21.7
b 0 38 16.38 −9 18 24.5
c 0 38 17.08 (40 34) −9 18 41.6
21 55.84 (85) 87 8

Mean Pos. 1900 0 38 17.18 (29) −9 18 29.3 (1900)
21 yr. 1 3.75 6 55.3
1921 0 39 20.93 −9 11 34.0
21.04

0 38 17.18 (29) −9 18 29.3 (1900)
25 yr. 1 15.90 8 14.5 (4) −
0 39 33.08 −9 10 14.8 (9) (1925)
.19

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1923phae.proj.1199w

104 April 11, 1924 12.0 or 12.5 Compared as f. 106.

12.0 Asteroid
Dr. S. Found on December 19, 1923
" " MC 18104, October 25, 1921.
" Bk. 24, f. 159.

~~Krosa~~ ✓ extreme fol. S. corner
or Pariana (347) of plate
?
Confirmed

H.13.805

B17638 (1855) Magn. Gesell 1900

a	-12	15	7	0	46	16.8	-12	39.2	9.2	171	0	48	32.35	-12	24	15.2
b	-11	17	2	0	48	22.0	-11	50.5	8.7	178	0	50	37.58	-11	36	11.2
c	-12	16	3	0	48	50.2	-12	19.1	9.0	182	0	51	5.61	-12	4	26.6
Orient by:	-11	16	2	0	44	57.1	-11	27.3	9.7							
	-12	15	4	0	44	56.8	-12	39.5	8.9							

and a & -12 154 .δ

Σc. Prec.	1 yr.	21 yr.	25 yr.
α	3.0104	63.2184	75.26
δ	19.56~~03~~ 16 ✓	410.~~7663~~ 1923	489.~~0075~~ 40

See f. 102 3 Ast. on same plate

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1923phae.proj.119dw

Meas. with glass plate, April 8, 1924.

	MC 18104				Mean x	Mean y
Asteroid	-6.32	-17.00	6.35	17.00	-6.34	-17.00
a	+8.08	-30.58	8.06	30.58	+8.07	-30.58
b	-10.86	-1.08	-10.88	~~-1.13~~	-10.87	-1.10
c	-14.94	-18.58	14.93	18.56	-14.94	-18.57

	Mean x - Ast.	Mean y - Ast.	x × 98.2	y × 98.2
a	+14.41	-13.58	1415.062	1333.556 = 22 13.6
b	-4.53	+15.90	444.846	1561.380 = 26 1.4
c	-8.60	-1.57	844.520	154.174 = 2 34.2

a 0 48 32.35 -12 24 15.2
+1 36.59 22 13.6
0 50 8.94 -12 2 1.6

Rec δ = 1.0239
1415.062
15)1448.8819818
96.59

b 0 50 37.58 -11 36 11.2
30.28 26 1.4
0 50 7.30 -12 2 12.6

1.0209
444.846
15)454.1432814
30.28

c 0 51 5.61 -12 4 26.6
57.57 2 34.2
0 50 8.04 -12 1 52.4

1.0226
844.520
15)863.6061520
57.57

		α (s)	δ (″)
firm a	0 50 8.94 -12 2 1.6	+0.85	+0.6
b	0 50 7.30 -12 2 12.6	-0.79	-10.4
c	0 50 8.04 -12 1 52.4	-0.05	+9.8
	.28	66	

Mean Pos 1900: 0 50 8.09 -12 2 2.2
21 yr. 1 3.22 6 ~~51.8~~ 11.1
1921 0 51 11.31 -11 55 ~~11.4~~

(1900) 0 50 8.09 -12 2 2.2
(25 yr) 1 15.26 8 9.4
(1925) 0 51 23.35 -11 53 ~~52.8~~

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1923phae.proj.1199w

106 Apr. 11.

V 12.5 ?

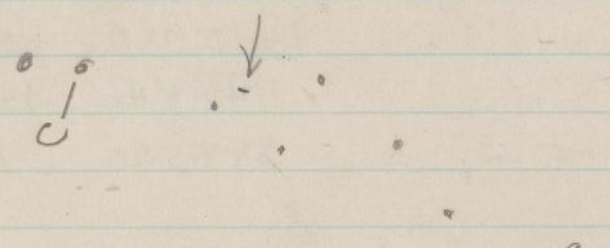
Dr. S.

Est. g Magn. Compared with 15606 abnt = 9 ?
Ast. = 13.0 but compared with Bernardina, MC 19353 Bkb. 21, p. 90, announced as 12.5, this is larger but faint. Ast. = 12.0 ?

Asteroid
Found on December 19, 1923
" " MC 18104, October 25, 1921
" Bk. 24, p. 159.

(742)
1913 TL

Confirmed Dr. S.
See Marc
Eph. 547



H.B. 805

B28695

	DM.	(1855)			Gesell.	1900		
a	-9	180 0 46 23.8	-9	5.8 8.5	179 0 48 40.00	-8	51	4.4
b	-9	181 0 46 59.0	-9	31.2 6.2	182 0 49 14.84	-9	16	55.3
c	-8	165 0 48 21.7	-8	50.4 8.2	187 0 50 37.52	-8	35	41.8
Orient by:	-8°	147. 0 42 37.9	-8	53.4 9.2				
	-10	168 0 42 37.8	-10	17.4 9.9	this is, on MC plate, 2 stars of nearly equal magn. Prob.			
	-8	153 0 44 17.1	-8	22.9 9.5	Combined in Dm ?			
	-9	171 0 44 17.9	-9	36.5 7.6				

		1 yr.	21 yr.	25 yr
Z.C.				
Prec.	α	3.0286	63.6006	75.7150
	δ	19.58 ~~44~~ 21	411. ~~2724~~ .2241	489. ~~6100~~ .5525

See p. 102. 3 Ast. on same plate.

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1923phae.proj.119dw

Meas. with glass plate, April 9, 1924.

MC 18107 1

			Mean x	Mean y
Asteroid	-28 40 +10.00	28 45 10.00	-28.42	+10.00
a	-18 96 +2.05	18 98 2.00	-18.97	+2.02
b	~~-24.28~~ 36.68 -13.40	24.30 13.40	-24.29	-13.40
c	-36.68 +11.28	36.72 11.28	-36.70	+11.28

	Mean x - Ast.	Mean y - Ast.	x × 98".2	y × 98".2
a	+ 9.45	- 7.98	927".990	783".636 = 13 3.6
b	+ 4.13	- 23.40	405.566	2297.880 = 38 17.9
c	- 8.28	+ 1.28	813.096	125.696 = 2. 5.7

a 0 48 40.00 -8 51 4.4
+ 1 2.61 13 3.6
0 49 42.61 -8 38 0.8

sec δ = 1.0121
927.990
15)939.2186790
62.6146

b 0 49 14.84 -9 16 55.3
+ 27.39 38 17.9
0 49 42.23 -8 38 37.4

1.0132
405,566
15)410.9194712
27.3946

c 0 50 37.52 -8 35 41.8
+ ~~54.98~~ 82 ✓ 2 5.7
0 49 ~~42.54~~ 79 ✓ -8 37 47.5

1.0142 ✓
813.096
15)8246.4196 32
54.98 82 ✓

0 49 42.61 -8 38 0.8 +0.15 +7.8
0 49 42.23 -8 38 37.4 -0.23 -28.8
0 49 42.54 70 ✓ -8 37 47.5 +0.08 +21.1
138 154 25.7

Mean Pos. 1900
0 49 42.46 -8 38 8.6
21 yr. 1 3.60 6 51.2
(1921) 0 50 46.11 -8 31 17.4

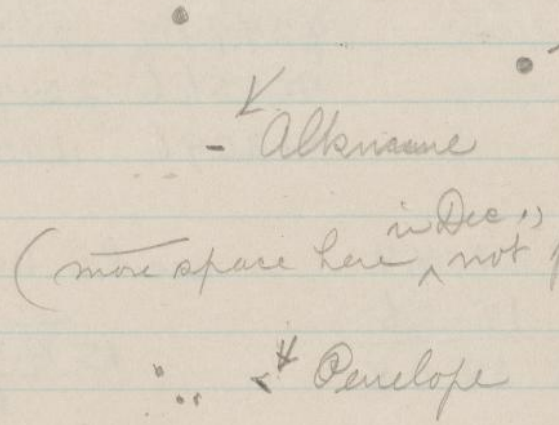
(1900) 0 49 42.51 -8 38 8.6
25 yr. 115.72 8.96
(1925) 0 50 58.23 -8 29 59.0

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1923phae.proj.1199w

108 Est. of Magn. Seq. 47K Penelope 11.4 · Corr Magn
Compared with MC 15606 a little brighter than 6.
August 30. 2 Asteroids Alkmene 13.2 Corr Magn.
(a little bright than 10)
Found on MC 20020 = Sept. 4, 1923
Bk. 26, f. 55. Penelope found Aug. 29
Alkmene " Aug. 30.

(82)
Alkmene N Ff
(201)
Penelope S Br.



HB. 809

B 25681 B.D. (1855)

				Magn.	Gsell.	1900					
a = -2°	3	0	0	20.3	-2	11.8	8.9	17	0	2	38.29	-1	54	18.4
b = -3°	5	0	1	17.4	-3	1.4	7.4	22	0	3	35.60	-2	46	45.2
c = -2	8	0	2	22.0	-2	58.8	9.5	25	0	4	40.22	-2	43	46.2
Orient Ly	-1°	3	0h	1m	45.8	-1°	33.8	9.0						
	-2°	6	0	1	45.6	-2	43.5	10						

Alkmene
(1900) 0 3 32.61 -1 58 51.0
23yr. 1 10.64 7 41.2
(1923) 0 H 43.25 -1 51 9.8
25yr. 1 16.79 8 21.2 +11(a)
(1925) 0 H 44.04 -1 50 29.7 (1925)

		1 yr.	25 yr.	23 yr.
2C Prec.				
Penelope	α	3.0714	76.7850	70.6422
	δ	20.0519	501.2975	461.1937
Alkmene	α	3.0713	76.7825	70.6399
	δ	20.0518	501.2950	461.1914

Plate	Date	Exposed	Exp.	Mid. Exp.	G.M.T.
MC 20020	September 4, 1923	23h 31m 00s to 00h 05m 00s	34m	23h 48m	.736

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1923phae.proj.119dw

MC 20020

Film wf. Meas. with m.m. glass plate, Sept. 2.

North Fh. Ast	-6.18	+10.44	-6.17	+10.42	-6.18	+10.43
South Br. Ast.	-5.42	-7.88	-5.42	-7.88	-5.42	-7.88
North F a	+2.24	+13.20	+2.22	+13.20	+2.23	+13.20
b	-6.70	-18.88	-6.70	-18.88	-6.70	-18.88
c	-16.55	-16.96	-16.55	-16.95	-16.55	-16.96

	Mean x - Br. Ast.	y - Br. Ast.	x x 98.2	y x 98.2
a	+7.65	+21.08	751230	2070 −34 1036.056
b	-1.28	-11.00	125.656	=18 0.2 1080.200
c	-11.13	-9.08	1092.966	=14 51.7 891.656
Fh. - Br.	-0.76	+18.31	74.632	=29 58.0 1798.042

sec δ Penelope 1.0010 74.632 / 15 | 74.706320 / 4.98 / 49.0 / 58.0 / 51.0 (1900)

Penelope = 0 3 27.63 −2 28 49.0 / Ref. −0 0 0.98 −1 58 51.0 / Resonance = 0 3 32.61 −2 28 58.0

a	0 2	38.29	-1	54	18.4
		50.11		34	30.1
	0 3	28.40	-2	28	48.5

sec δ = 1.0006 / 751.230 / 15 | 751.6807380 / 50.112

b	0 3	35.60	-2	46	45.2
		8.39		18	0.2
	0 3	27.21	-2	28	45.0

1.0012 / 125.656 / 15 | 125.8678872 / 8.39

c	0 3	40.22	-2	43	45.2
	1	12.94		14	51.7
	0 3	27.28	-2	28	53.5

1.0011 / 1092.966 / 15 | 1094.1682626 / 72.94

for Penelope							
a Resonance	0 3	28.40	-2	28	48.5	+0.77	+00.5
b		27.21			45.0	-0.42	+4.0
c		27.28			53.5	-0.35	-4.5
		1.89			2.70		
Mean Pos. 1900	0 3	27.63	-2	28	49.0	0 3 27.63	-2 28 49.0
25 yr.	1	10.64		7	41.2	25 yr. 1 16.78	8 21.3
(1925)	0 4	38.27	-2	21	7.8	(1926) 0 4 44.41	-2 20 27.7

Penelope

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1923phae.proj.1199w

110

Sept. 3.

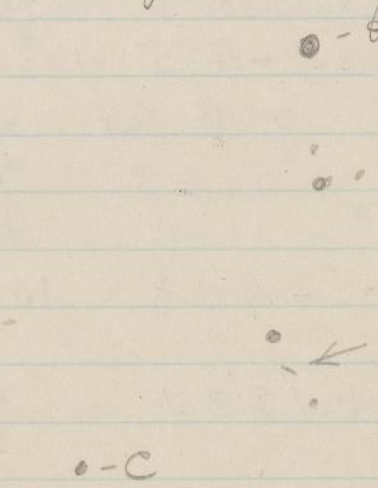
Est. of Magn.
Comp. with Seq. MC 15606
a little br. than 7.

11.8. Corr. Magn.

Asteroid
Found on MC 19978, Bk. 26, f. 58. = August 18, 1923.
" " August 30, 1924.

(233)
Asterope

HB 809



B 23727

	B.D.	1855.		Magn.	Gesell	1875			
a =	+1 4589	22 3 37.9	+1 9.5	9.3	7713	22 4 38.31	+1 16 0.7		
b =	+2 4476	22 4 56.0	+2 0.9	7.5	7717	22 5 56.61	+2 7 6.7		
c =	+1 4593	22 7 1.7	+1 15.7	9.0	7731	22 8 2.52	+1 21 45.2		
Orient by	+1° 4597	22 8 20.6	+1 52.6	9.4					
	+3 4689	22 8 20.3	+3 33.4	7.3					

using 10 b~

ZC	Prec. 1 yr.	25 yr.	23 yr.
α	3.0546	76.3650	70.2558
δ	17.6330	440.8250	405.5590

Plate	Date	Exposed		Eff. Mid. Ef	GMT
MC 19978	August 18, 1923	21h 50m 00s to 22h 20m 00s		30 22h 05m	.711

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MC 19978 Meas. with glass micrometer plate, Sept. 3, film up.

Ast.	+9.27	−35.00	+9.24	−35.00	+9.26	−35.00
a	+23.89	−47.36	+23.92	−47.30	+23.90	−47.33
b	+11.56	−16.07	+11.56	−16.10	+11.56	−16.08
c	∓7.46	−32.03 (44)	−7.45	44.03	−7.46	−44.03

Ast. on extreme prec. edge of plate. Is orientation correct?

	Mean x − Ast.	Mean y − Ast.	x × 98.2	y × 98.2
a	+14.64	−12.33	1437.648	1210.806 = 20 10.8
b	+ 2.30	+18.92	225.860	1857.944 = 30 57.9
c	− 16.72	− 9.03	1641.904	886.746 = 14 46.7

a 22 4 38.31 +1 16 0.7
95.87 20 10.8
22 6 14.18 +1 36 11.5

rec δ = 1.0003
1437.648
15 | 1438.079 2944
95.872

b 22 5 56.61 +2 7 6.7
15.07 30 57.9
22 6 11.68 +1 36 8.8

1.0007
225.860
15 | 226.018 1020
15.07

c 22 8 2.52 +1 21 45.2
1 49.56 14 46.7
22 6 12.96 +1 36 31.9

1.0009
1641.904
15 | 1643 3817 136
109.56

from a	22 6 14.18	+1 36 11.5	+1.24	−5.9
b	22 6 11.68	+1 36 8.8	−1.26	−8.6
c	22 6 12.96	+1 36 31.9	+0.02	+14.5
	8.82		52.2	
Mean Pos. 1875	22 6 12.94	+1 36 17.4		
(25 yr.)	1 16.36	7 20.8		
(1900)	22 7 29.30	+1 43 38.2		
(23 yr)	1 10.26	6 45.6		
(1923)	22 8 39.56	+1 50 23.8		

22 7 29.30 +1 43 38.2
(25 yr) 1 16.36 + 7 20.8
(1925) 22 8 45.66 +1 50 59.0

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1923phae.proj.1199w

112

Est. Magn. 9.0 or 9.5 Sept. 30, 1924. Cor. Magn.

Comp. with 15606

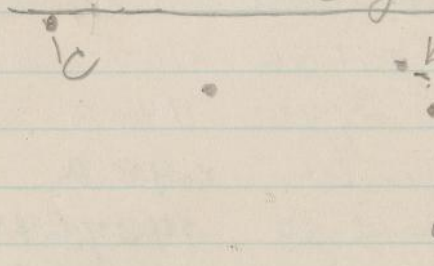
Asteroids in MC 20280

Asteroid on MC 20280, December 1, 1923.

Bk. 26, p. 66 Found Sept. 24, 1924.

N edge

North of Br.



Ariadne (43)

9.5 Dm3.

HB 809

Plate	Date	Eff. from	to	Eff. Mid.	G.M.T.
MC 20280	December 1, 1923	23h 20m	0h 25m 6.5m	23h 52m .506 .992	.498

B 26520 1855 Magn. Gesell. Nicolajew 1875

a	−0	45 09	23	16	6.4	−0	29.8	8.7	5815	23 17 7.26	−0 23 40.0
b	−0	45 11	23	16	31.0	−0	29.6	9.0	5818	23 17 32.45	−0 23 11.7
c	−0	45 14	23	18	10.6	−0	16.1	8.7	5821	23 19 11.60	−0 9 24.0

Orient in Dec −

No stars in R.A.

−0	45 04	23	13	11.5	−0 4.6	9.1
−0	45 16	23	19	59.0	−0 4.6	8.9

But these are beyond MC plate

−0	45 02	23	11	48.6	−0 30.6	9.1
−0	45 18	23	22	0.7	−0 30.3	9.5

	1 yr.	23 yr.	25 yr.
Zc. Pres.			
α	3s.07731	70s.68813	76s.82750
δ	19".7194	453".4082	492".8350
		7' 33".4	8' 12".8

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1923phae.proj.1190

NC 20280 On extreme N edge

Ast	+11.00	+16.70	+11.00	+16.68	+11.00	+16.69
a	+16.22	+10.12	+16.20	+10.08	+16.21	+10.10
b	+12.38	+10.40	+12.38	+10.38	+12.38	+10.39
c	−2.97	+18.74	−2.95	+18.74	−2.96	+18.74

(Maybe put in position a little, owing to little choice in presentation)

	x-Asteroid	y-Asteroid	x × 98".2	y × 98".2
a	+5.21	−6.59	511.622	647.138 = 10′ 47".1
b	+1.38	−6.30	135.516	618.660 = 10 18.7
c	−13.96	+2.05	1370.872	201.310 = 3 21.3

a 23 17 7.26 −0 23 40.0 — sec δ = 1.0000

34.11 — 10 47.1

23 17 41.37 −0 12 52.9

15) 511.622 = 34.11

b 23 17 32.45 −0 23 11.7 — 1.0000

9.03 — 10 18.7

23 17 41.48 −0 12 53.0

15) 135.516 = 9.03

c 23 19 11.60 −0 9 24.0 — 1.0000

1 31.39 — 3 21.3

23 17 40.21 −0 12 45.3

15) 1370.872 = 91.39

from a	23 17 41.37	−0 12 52.9	+0.35 −0.25
b	23 17 41.48	−0 12 53.0	+0.46 −0.26
C	23 17 40.21	−0 12 45.3	−0.81 +0.51
	06	12	
Mean Pos 1875	23 17 41.02	−0 12 50.4	
25yr.	1 16.83	8 12.8	
(1900)	23 18 57.85	−0 4 37.6	(1900) 23 18 57.85 −0 4 37.6
23yr.	1 10.68	7 33.4	25yr. 1 16.83 8 12.8
(1923)	23 20 08.53	+0 2 55.8	(1925) 23 20 14.68 +0 3 35.2

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1923phae.proj.1199w

114

Magn. 10,5 or 11,0 ? Comp. with 15606

Est. Magn. Sept. 30 Corr. Magn.

Asteroid found on MC 20280

December 1, 1923.

Center & long trail

Rather faint but swift motion = long trail

Found Sept. 24, 1924

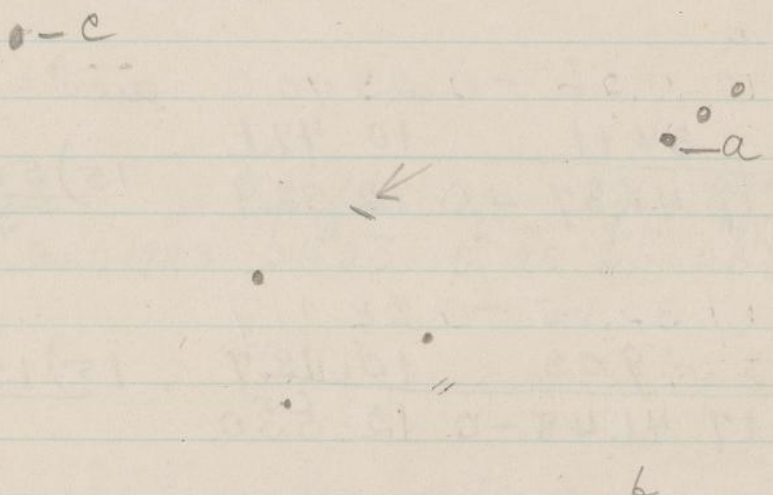
Bb. 26, p. 66.

(75)

Eurydike

11.0 Dr. S.

HB 809



B 26520

	BD.	1855		Magn.	Gesell	1900	Strassburg
a	-2 5926	23 11 11.6	-2 43.2	8.9	8023	23 13 30.59	-2 28 19.7
b	-3 5614	23 11 36.7	-3 25.6	9.1	8025	23 13 54.48	-3 10 3.3
c	-2 5943	23 14 36.7	-2 37.0	8.7	8039	23 16 55.96	-2 22 21.3
Uniek by	-2 5933	23 12 17.9	-2 30.0	9.5			
	-3 5617	23 12 17.7	-3 43.7	9.5			

Z.C. Prec.	1 yr	23 yr.	25 yr.
α	3.0841	70.9373	77.1025
δ	19.6703	452.4169	491.7575
		7' 32.4	8 11.8

G.M.T. see p. 112

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1923phae.proj.1198

Ast. is a long trail. Attempted to est. center of image MC 20280

Ast.	−4.36	+19.00	−4.32	+19.00	−4.34	+19.00
a	+10.08	+24.03	+10.08	+24.03	+10.08	+24.03
b	+6.45	−1.50	+6.45	−1.50	+6.45	−1.50
c	−21.34	+27.74	−21.35	+27.74	−21.34	+27.74

	Mean x-Ast.	Mean y-Ast.	x×98.2	y×98.2
a	+14.42	+5.03	1416.044	493.946 = 8 13.9
b	+10.79	−20.50	1059.578	2013.100 = 33.33.1
c	−17.00	+8.74	1669.400	858.268 = 14 18.3

a 23 13 30.59 −2 28 19.7
1 34.50 8 13.9
23 15 5.09 −2 36 33.6

b 23 13 54.48 −3 10 3.3
1 10.75 33 33.1
23 15 5.23 −2 36 30.2

c 23 16 55.96 −2 22 21.3
1 51.39 14 18.3
23 15 4.57 −2 36 39.6

rec. δ = 1.0010
1416.044
15)1417.4600440
94.50

1.0016
1059.578
15)1061.2733248
70.75

1.0009
1669.400
15)1670.9024600
111.39

from a	23 15	5.09	−2	36	33.6	+0.13 +0.9
b	23 15	5.23	−2	36	30.2	+0.27 +4.3
c		4.57	−2	36	39.6	−0.39 −5.1
		14.89			13.4	
Mean for 1900 ✓	23 15	4.96	−2	36	34.5	(1900) 23 15 4.96 −2 36 34.5
23yr		30.93		7	32.4	1 17.10 8 11.8
(1923)	23 16	15.89	−2	29	2.1	(1925) 23 16 22.06 −2 28 22.7

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1923phae.proj.1199w

116

Ent. Magn. Sept. 30

Smith faint

Image faint but very long. Magn about 12.0 Poor. Comp. with 1=606 Magn.

Asteroid in MC 20280, December 1, 1923.

Found on September 24, 1924.

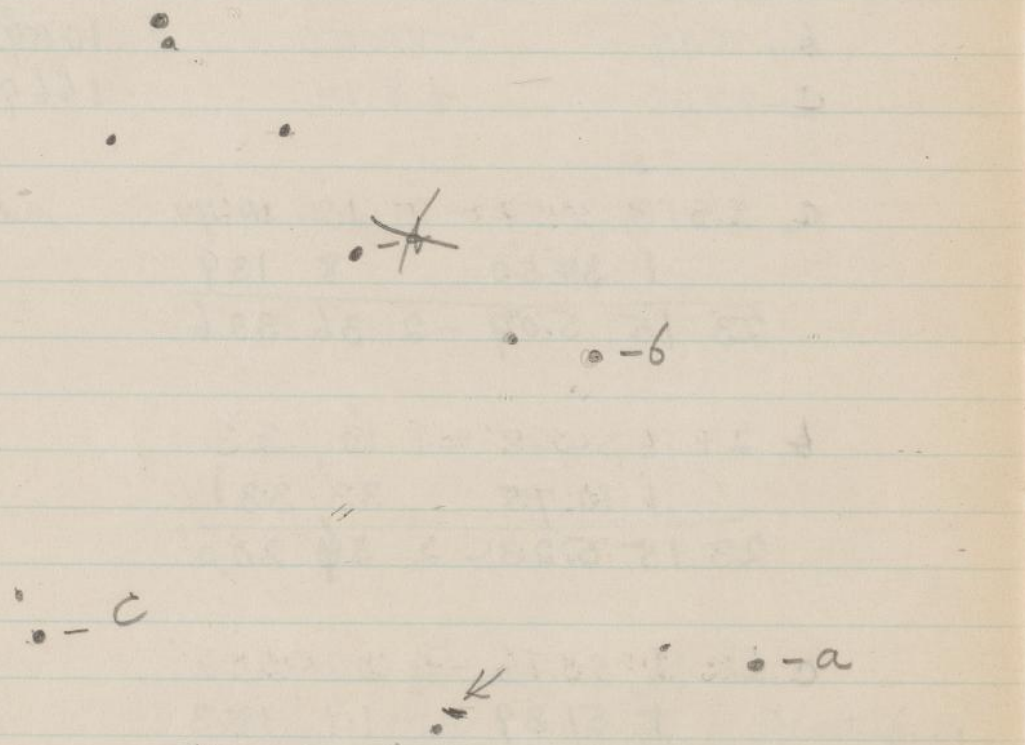
Bb. 26, f. 66.

(60)

Echo

12.0 Drs

HB 809



B 26520

	BD		1855		Magn Gesell.			Strassburg 1900		
a	-4	5881	23 16	36.4	-4 26.5	9.0	8046	23 18 55.34	-4 11	49.4
b	-3	5631	23 17	33.5	-3 54.4	9.0	8052	23 19 52.18	-3 39	42.3
c	-4	~~5644~~ 5890	23 21	54.2	-4 23.6	8.5	8066	23 24 13.36	-4 8	47.7
	Orient by		-4	5877	23 15 28.3	-4 48.4	9.5			
			-5	5980	23 15 28.3	-5 24.0	9.5			

No Orientation good; Near together Dec.

Z.C. Prec.	1 yr.	23 yr.	25 yr.
α	$3^s.0895$	$71^s.0585$	$77^s.2375$
δ	$19''.7699$	$454''.7077$	$494''.2475$
		$7' 34''.7$	$8' 14''.2$

GMT see f. 112

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1923phae.proj.119pw

NC 20280

Ast.	-6.52	-5.00	-6.54	-5.00	-6.53	-5.00
a	+16.68	+2.32	+16.68	+2.35	+16.68	+2.34
b	+7.95	+22.04	+7.97	+22.04	+7.96	+22.04
c	-31.97	+4.20	-31.98	+4.20	-31.98	+4.20

	Mean x - Ast.	Mean y - Ast.	x × 98.2	y × 98.2
a	+23.21	+7.34	2279.222	720.788 = 12 0.8
b	+14.49	+27.04	1422.918	2655.328 = 44 15.3
c	-25.45	+9.20	2499.190	903.440 = 15 3.4

a 23 18 55.34 -4 11 49.4
2 32.36 12 0.8
23 21 27.70 -4 23 50.2

rec. δ = 1.0027
2279.222
15) 2285375 8994
152.36

b 23 19 52.18 -3 39 42.3
1 35.06 44 15.3
23 21 27.24 -4 23 57.6

1.0021
1422.918
15) 1425.906 1278
95.06

c 23 24 13.36 -4 8 47.7
2 47.05 15 3.4
23 21 26.31 -4 23 51.1

1.0026
2499.190
15) 2505.687 8940
167.05-

from a	23 21 27.70	-4 23 50.2	+0.62	+2.8	
b	23 21 27.24	-4 23 57.6	+0.16	-4.6	
c	23 21 26.31	-4 23 51.1	-0.77	+1.9	
		25		89	47
Mean Pos. 1900 ✓	23 21 27.08	-4 23 53.0	(1900)	23 21 27.08	-4 23 53.0
	23 yr. 1 11.06	7 34.7	25 yr.	1 17.24	8 14.2
(1923)	23 22 38.14	-4 16 18.3	(1925)	23 22 44.32	-4 15 38.8

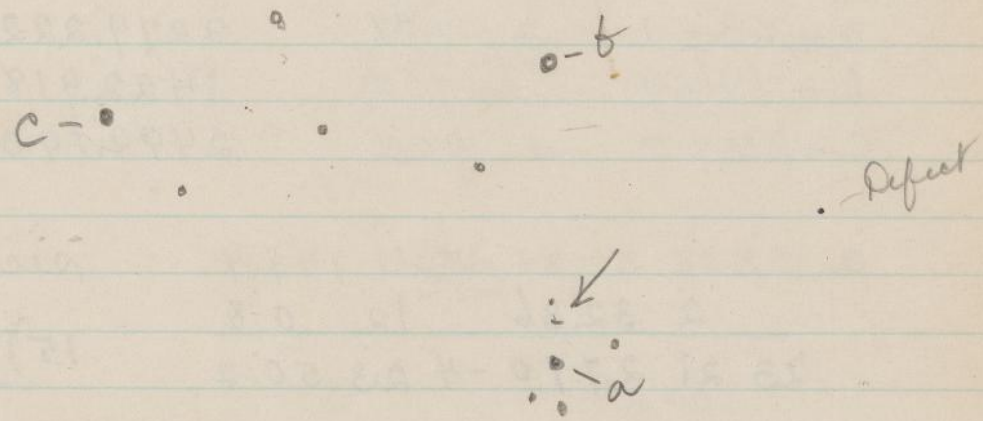
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1923phae.proj.1199w

Comp. with 15606 Magn. = 13.0 Cir. Magn. both
" " Seg. 114K " = 12.8

Asteroid in MC 20953, August 26, 1924
Very Faint
Found on September 27, 1924.
Bks. 26, p. 73

? Pulcova
762
HB. 809



	B1950	1855.	Mag. Gesell.	1875	Nicolajeir
a	+0 4885	22 22 56.5 +0 3.5	9.0 5659	22 23 58.88	+0° 9' 58".8
b	+0 4884	22 22 56.0 +0 25.0	9.0 5658	22 23 57.30	+0 30 37.6
c	+0 4892	22 25 17.2 +0 21.8	8.2 5671	22 26 17.92	+0 27 40.9
Orient by	+0 4894	22h 26m 15.8	+0° 26.9	8.7	
	+1 4625	22 26 15.9	+1 53.3	9.3	

Z.C. Place.	1 yr.	24 yr.	25 yr.
(10h) α	3.s0702	73.s6848	76.s7550
δ	18."3191	439."6584	457."9775
		7' 19."7	7' 38."0

Plate	Date	Exposed.	Eff.	Mid Eff.	G.M.T.
MC 20953	August 26, 1924	22h 34m 25s	40m	22h 54m	.769 .952 .721

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Measmith glass plate, film ref, Sept. 30, 1924

MC 20953, on extreme Pree. edge.

Ast.	+10.60	−14.00	+10.60	−14.00	+10.60	−14.00
a	+10.46	−15.68	+10.45	−15.68	+10.46	−15.68
b	+10.71	−3.03	+10.68	−3.04	+10.70	−3.04
c	−10.88	−4.78	−10.88	−4.80	−10.88	−4.79

	x-Asteroid	y-Asteroid	x × 98".2	y × 98".2
a	−0.14	−1.68	13.748	164.976 = 2 45.0
b	+0.10	+10.96	9.820	1076.272 = 17 56.3
c	21.48	+9.21	2109.336	904.422 = 15 4.4

a 22 23 58.88 +0 9 58.8 recd 1.0000

0.92 2 45.0 15) 13.748

22 23 57.96 +0 12 43.8 0.92

b 22 23 57.30 +0 30 37.6 1.0000

0.65 17 56.3 15) 9.820

22 23 57.95 +0 12 41.3 0.655−

c 22 26 17.92 +0 27 40.9 1.0000

2 20.62 15 4.4

22 23 57.30 +0 12 36.5 15) 2109.336

140.62

from a	22 23 57.96	+0 12 43.8	+0.22	+3.3
b	23 57.95	0 12 41.3	+0.21	+0.8
c	23 57.30	12 36.5	−0.44	−4.0
	221	16		
Mean Pos. 1875	22 23 57.74	+0 12 40.5		
25 yr.	1 16.76	7 38.0 N		
(1900)	22 25 14.50	+0 20 18.5		
24 yr	1 13.68	7 19.7		
(1924)	22 26 28.18	+0 27 38.2		

(1900) 22 25 14.50 +0 20 18.5

25 yr. 1 16.76 7 38.0

(1925) 22 26 31.26 +0 27 56.5

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1923phae.proj.1199w

120

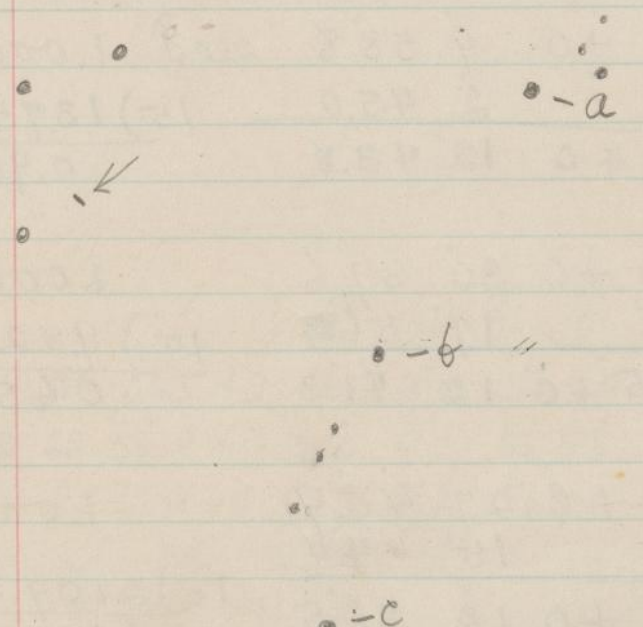
Althaea
(119)

H.B. 809

Magn. about 11.8 Comp. with 15606
11.5 Comp. with star 8 of Seq. 114 K | Corr magn. both

Asteroid on MC 19954, August 13, 1923

Found on September 27, 1924
Bk. 26, p. 73
Ast. near fol. edge of plate
No stars fol. Asteroid are Gesell Cat. stars.



	B 10198	(1855)	Magn.	Gesell	(1875)	Nicolajew
a	+0 4925	22 40 36.7	+0 6.3	8.8	5725	22 41 38.61 +0 13 12.8
b	-0 4422	22 42 10.0	-0 26.5	9.0	5729	2243 11.12 -0 20 55.9
c	-0 4423	22 42 26.5	-0 54.5	8.6	5730	22 43 28.32 -0 47 52.4
Orient	+0 4925, a pos. above,		+0° 6'3	8.8		
in Dec.	+0 4930,	22 43 27.9	+0 6.2	9.3		

ZC Prec.	1 yr.	23 yr.	25 yr.
α	3.0723	70.6629	76.8075
δ	18.9879	436.7217	474.6975

Plate — 7 16.7 — 7 54.7 — mid Eff.

MC 19954 August 13, 1923 $22^h 33^m 08^s$ $25^h 03^m 08^s$ 30^m ~~23 18~~ 22 53 ~~468~~ 951 .807 .758 .754

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MC 19954 meas. with glass plate, Sept. 30, 1924.

Ast.	−20.00 +21.18	−20.00 +21.20	−20.00 +21.19
film-up a	+10.03 +30.00	+10.02 +30.02	+10.02 +30.01
b	−4.02 +9.06	−4.04 +9.06	−4.03 +9.06
c	−6.62 −7.42	−6.62 −7.40	−6.62 −7.41

	x-Asteroid	y-Asteroid	x × 98.″2	y × 98.″2
a	+30.02	+8.82	2947.964	866.124 = 14′ 26.″1
b	+15.97	−12.13	1568.254	1191.166 = 19 51.2
c	+13.38	−28.60	1313.916	2808.520 = 46. 48.5

a 22 41 38.61 +0 13 12.8 recd 1.0000

3 16.53 14 26.1

22 44 55.14 −0 1 13.3 15) 2947.964

196.53

b 22 43 11.12 −0 20 55.9 1.0000

1 44.55 19 51.2 15) 1568.254

22 44 55.67 −0 1 04.7 104.55

c 22 43 28.32 −0 47 52.4 1.0001

1 27.60 46 48.5 1313.916

22 44 55.92 −0 1 3.9 15) 1314.0473916

87.603

from a	22 44 55.14	−0 1 13.3	−0.44	−6.0
b	22 44 55.67	−0 1 4.7	+0.09	+2.6
c	22 44 55.92	−0 1 3.9	+0.34	+3.4
		173	219	
Mean Pos. 1875	22 44 55.58	−0 1 7.3		
25 yr.		1 16.81	7 54.7	
1900	22 46 12.39	+0 6 47.4		
23 yr.		1 10.66	7 16.7	
1923	22 47 23.05	+0 14 04.1		

(1900) 22 46 12.39 +0 6 47.4

25 yr. 1 16.81 7 54.7

(1925) 22 47 29.20 +0 14 42.1

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1923phae.proj.1199w

122 Vch 3 Magn. about ~~120~~ ? Comp. with 1560.6. Corr Mag.
Difficult; very long but faint
Asteroid — see note Bb. 26, f. 66. MC 20280
Found on October 3, 1924. Dec. 1, 1923

Prec., long, faint.
(112)
Iphigénia

13.0 Dr. S.
~~H~~B. 809.

o-b
o-a
o
o
o
o - c

B 26520 1855 Mag. Gesell. Strassburg 1900

a	-3	5575	23	1	33.8	-3	19.9	9.1	7983	23	3	53.45 -3 5 34.8
b	-3	5576	23	1	35.8	-3	14.3	8.0	7984	23	3	55.18 -2 59 40.6
c	-3	5584	23	4	8.8	-3	53.2	8.3	7993	23	6	27.92 -3 38 38.1
Orient by:	-2	5891	23	0	51.9	-2	8.5	10				
	-3	5571	23	0	51.8	-3	15.3	9.2				

Z.C. Prec.	1 yr.	23 yr.	25 yr.
α	3.0918	71.1114	77.2950
δ	19.4550	447.4650	486.3750
		7 27.46	8 6.38

See f. 112

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Meas. with glass m. m. plate Oct. 3.

MC 20280

film up.

Ast.	+14.02	-12.24	+14.04	-12.24	+14.03 -12.24
a	+13.50	+0.54	+13.48	+0.55	+13.49 +0.54
b	+13.28	+4.20	+13.26	+4.18	+13.27 +4.19
c	-10.02	-19.68	-10.02	-19.68	-10.02 -19.68

	x-Asteroid	y-Asteroid	x×98.″2	y×98.″2	
a	-0.54	+12.78	53.028	1254.996	=20 53.0
b	-0.76	+16.43	74.682	1613.426	=26 53.4
c	-24.05	-7.44	2361.710	730.608	=12 10.6

a 23 3 53.45 -3 5 34.8
3.54 20 55.0
23 3 49.91 -3 26 29.8

sec δ = 1.0015
53.028
15)53.107 5420
3.540

b 23 3 55.18 -2 59 40.6
4.98 26 53.4
23 3 50.20 -3 26 34.0

1.0014
74.682
15)74.736 4848
4.982

c 23 6 27.92 -3 38 38.1
2 37.76. 12 10.6
23 3 50.16 -3 26 27.5

1.0020
2361.710
15)2366.433 4200
157.76

from a 23 3 49.91 -3 26 29.8 -0.18 +0.6
b 23 3 50.20 -3 26 34.0 +0.11 -3.6
c 23 3 50.16 -3 26 27.5 +0.07 +2.9
27 91.3

Mean Pos. (1900) 23 3 50.09 -3 26 30.4 (1900) 23 3 50.09 -3 26 30.4
23 y. 1 11.11 7 27.5 25 y. 1 17.30 8 64
(1923) 23 5 1.20 -3 19 2.9 (1925) 23 5 7.39 -3 18 24.0

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1923phae.proj.1199w

Friday, October 31, 1924

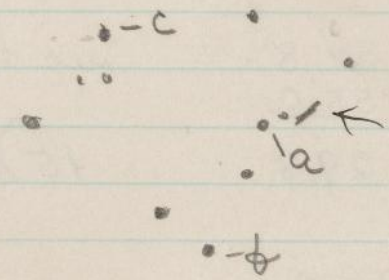
Baade's ~~Reinmuth's~~ Object = Asteroid ?

Found (special exam. for object)
on October 28, 1924
on I 44244 / taken for object, October 26

Not iden.
Baade's Object
No magn. to be
given

See also, prec.
I plates, showing
Obj.
Orb, only, meas.

HB 809



	B.D.		1855			Mag.	Gesell. Leipzig 1875				
a	+13° 4696	21h	17m	53.0	+13°	2.3′	9.3	8483	21	18	57.51 +13 7 3.2
b	+12 4625	21	18	21.9	+12	49.8	8.7	8487	21	19	19.53 +12 53 24.0
c	+13 4705	21	19	4.9	+13	12.0	8.8	8498	21	20	2.80 +13 17 25.2

Orient by: +12° 4617 21 16 48.4 +12 2.8 9.2
+14 4604. 21 16 48.1 +14 38.5 9.0

	using 9h	1 yr.	25 yr	24 yr.
Z.C. Prec.	α	2.8703	71.7575	68.8872
	δ	15.2869	382.1725	366.8856

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1923phae.proj.119cw

film of I 44244

Asteroid long trail.

	−4.96	+3.00	−4.96	+3.00	−4.96	+3.00
a	−6.03	+2.57	−6.02	+2.60	−6.02	+2.58
b	−8.52	−2.43	−8.53	−2.42	−8.52	−2.42
c	−12.42	+6.42	−12.44	6.38	−12.43	+6.40

			x × 163"	y × 163"
a	−1.06	−0.42	172.78	68.46 = 1 8.5
b	−3.56	−5.42	580.28	883.46 = 14 43.5
c	−7.47	+3.40	1217.61	554.20 = 9 14.2

a 21 18 51.51 +13 7 3.2 sec δ = 1.0268

11.83 1 8.5

21 18 39.68 +13 8 11.7

172.78

15)177.410504

11.827

b 21 19 19.53 +12 53 24.0 1.0259

39.69 14 43.5 580.28

21 18 39.84 +13 8 07.5 15)595.309252

39.687

c 21 20 2.80 +13 17 25.2 1.0275

1 23.41 9 14.2 1217.61

21 18 39.39 +13 8 11.0 15)12511.094275

83.406

from a $21^h\ 18^m\ 39^s.68\ +13^\circ\ 8'\ 11''.7\ +0^s.04\ +1''.6$

$18\ 39.84\ \ 8\ 7.5\ +.20\ -2.6$

$18\ 39.39\ \ 8\ 11.0\ -.25\ +0.9$

191 02

Mean Pos. 1875 21 18 39.64 +13 8 10.1

25yr. 1 11.76 6 22.2

1900 21 19 51.40 +13 14 32.3 (1900) 21 19 51.40 +13 14 32.3

24yr. 1 8.89 6 6.9 25yr. 1 11.76 6 22.2

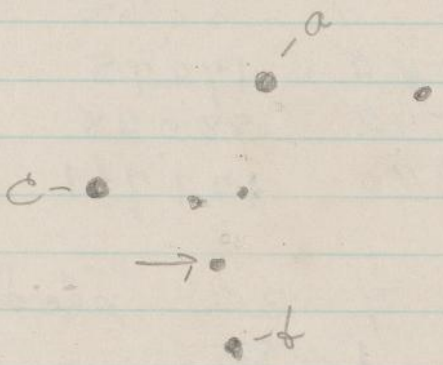
(1924) 21 21 0.29 +13 20 39.2 (1925) 21 21 3.16 +13 20 54.5

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1923phae.proj.1199w

Arduina? See Bk. 25, p. 146

For Asphid.



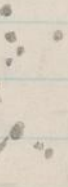
Peculiar image on A 8370 = July 3, 1907

Edin. B 27996 (Slide 1182)"

	CPD	(1875)		Magn.
a	-28 6604	18 27 44.1	-28 25.2	8.6
b	-28 6607	18 27 56.1	-28 54.8	9.0
c	-28 6611	18 29 8.6	-28 36.5	8.0

c	18 29 8.6	-28 36.5	187
	1 35.0	1.0	
	18 30 43.6	-28 35.5	190
	26.6	0.3	
	18 31 10.2	-28 35.2	190

Detail on A8370 ft. stars near Arduina



Orientation: -28 6613 18 29 24.4 -28 42.7 10.2
-28 6635 18 32 44.2 -28 42.8 9.8

Prec. Z.C.	1 yr.	25 yr.	7 ~~24~~ yr.
α	3.8008	95.02	26.6056
δ	2.4643	61.6075	17.2501

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1923phae.proj.119cw

Ast.	+16.00	-3.87	16.00 -3.88	+16.00 -3.88
a	+22.82	+17.20	22.78 +17.20	+22.80 +17.20
b	+19.72	-12.55	19.78 -12.60	+19.75 -12.58
c	+3.95	+6.00	3.95 +6.00	+3.95 +6.00

x - Asteroid	y - Ast.	x × 60"	y × 60"
+6.80	+21.08	408.00	1264.80 = 21' 4".8
+3.75	-8.70	225.00	522.00 = 8 42.0
-12.05	+9.88	723.00	592.80 = 9 52.8

a 18 27 44.1 -28 25.2 sec δ = 1.1370

30.9 21.1 408.

18 28 15.0 -28 46.3 15)463.8960

30.926

b 18 27 56.1 -28 54.8 1.1425

17.1 8.7 225.

1875 18 28 13.2 -28 46.1 15)257.0625

17.137

c 1900 18 29 8.6 -28 36.5 1.1396

54.9 9.9 723.

1907 18 28 13.7 -28 46.4 15)823.5693

54.905-

from a	18 28	15.0	-28 46.3	+1.0	0.0
b		13.2	-28 46.1	-0.8	+0.2
c		13.7	-28 46.4	-0.3	-0.1
Mean Pos. 1875	18 28	14".0	-28 46.3		
25 yr.		1 35.0	n 1.0		
(1900)	18 29	49.0	-28 45.3		
7 yr.		26.6	n 0.3		
July 3 1907	18 30	15.6	-28 45.0		

a 18 27 44.1 -28 25.2 1875
1 35.0 1.0
18 29 19.1 -28 24.2 1900
26.6 0.3
18 29 45.7 -28 23.9 1907

b 18 27 56.1 -28 54.8 1875
1 35.0 1.0
18 29 31.1 -28 53.8 1900
26.6 0.3
18 29 57.7 -28 53.5 1907

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1923phae.proj.1199w

128 abmt - Tan 15606 - 120 (30m exp.)
This plate, 21156, is 90m exp.
Therefore object = ?

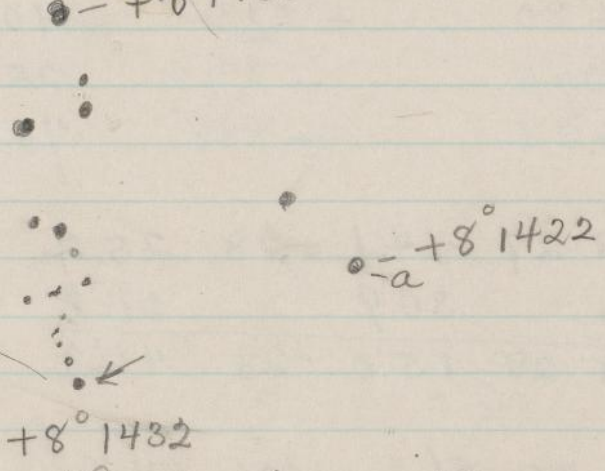
Milky Way Region

Asteroid on MC 21156

Magn.?

Found February 9, 1925.
Bks 32, f. 17.

Scott (876) Found on MC 21156 November 26, 1924.
13.5?



I 21377		(1855)			RD Magn.	Gaill Do.		Leipzig (1875)			
a	+8° 1422	6	30	32.5	+8 36.6	8.4	3091	6	31	37.54	+8 35 54.6
b	+8 1430	6	31	24.0	+8 46.2	8.9	3105	6	32	29.20	+8 44 59.3
c	+8 1432	6	31	40.2	+8 28.1	8.9	3109	6	32	45.90	+8 27 33.9

I 26828	Orient by	+8° 1436	6h	32	13.56	+8° 29.4	9.3		
		+7 1394		32	13.5	+7 44.0	9.5		

		1 yr	25 yr.	24 yrs.
L.C. Prec.				
(using 18h)	α	3.2704	81.7600	78.4896
	δ	2.8297	70.7425	67.9128

Ks 25 Seg. mkd on MC 2612, Magns. Bk. 19, f. 71. Mkd on 21156
Ast. between 12-13
12 - 12.73 Corr. = 12.96
13 - 13.58 13.84
Ast. abmt 13.2 Corr.

										GMT
						end.	Offset	Mid Exp	.515	
MC 21156	November 26, 1924	6	52	00	8	22	00	90	7	37	.316	.831

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1923phae.proj.1190

MC21156 Meas. February 16, 1925.

	x	y	x	y	Mean x	Mean y
Asteroid	-2.18	+18.00	-2.15	+18.00	-2.16	+18.00
a	+5.30	+21.48	+5.33	+21.45	+5.32	+21.46
b	-2.55	+27.00	-2.56	+27.00	-2.56	+27.00
c	-5.04	+16.32	-5.04	+16.35	-5.04	+16.34

	x - Asteroid	y - Asteroid	x × 98".2	y × 98.2
a	+ 7.48	+ 3.46	734.536	339.772
b	- 0.40	+ 9.00	39.280	883.800
c	- 2.88	- 1.66	282.816	163.012

a
6 31 37.54 +8 35 54.6
49.53 5 39.8
6 32 27.07 +8 30 14.8

sec δ = 1.0114
734.536
15 | 7429097.104
49.527

b
6 32 29.20 +8 44 59.3
2.65 14 43.8
6 32 26.55 +8 30 15.5

1.0118
39.280
15 | 39.743 5040
2.65-

c
6 32 45.90 +8 27 33.9
19.06 2 43.0
6 32 26.84 +8 30 16.9

1.0110
282.816
15 | 285 92[illegible]760
19.06

	h	m	s	°	′	″	s	″
from a	6	32	27.07	+8	30	14.8	+0.25	-0.9
" b			26.55		30	15.5	-0.27	-0.2
" c			26.84		30	16.9	+0.02	+1.2
			2.46			17.2		
Mean Pos. (1875)	6	32	26.82	+8	30	15.7		
25 yr.		1	21.76		S 1	10.7		
(1900)	6	33	48.58	+8	29	5.0		
24 yr.		1	18.49		S 1	7.9		
(1924)	6	35	7.07	+8	27	57.1		

(1900)	6	33	48.58	+8 29 5.0
25 yr.	1	21.76	S 1	10.7
(1925)	6	35	10.34	+8 27 54.3

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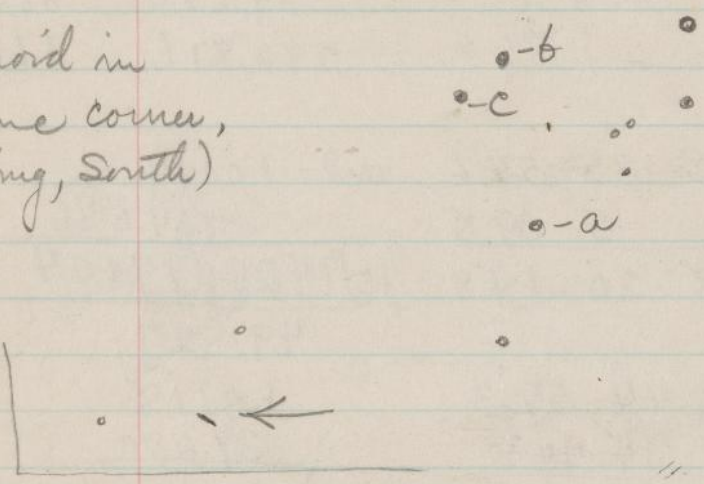
1923phae.proj.1199w

MC 15606

Asteroid

(737)
1912 2B Found on MC 20961, August 28, 1924.
" " December 9, 1924
Bks. 26, f. 78

Asteroid in extreme corner, (following, South)



B 26332 Leipzig (1875)

a	+5	5166	23	17	45.0	+5	6.5	9.4	11687	23	18	45.52 +5 13 3.3
b	+5	5167	23	17	49.1	+5	16.7	9.0	11639	23	18	52.28 +5 24 5.4
c	+5	5168	23	17	58.3	+5	14.9	8.7	11640	23	19	0.24 +5 21 16.1
Orient by:	+5	5158	23	12	19.3	+5	3.8	9.3				
	+5	5159	23	12	19.5	+5	51.5	9.2				

Z.C. Prec. (using 11h)	1 yr.	24 yr.	25 yr.
α	3.0518	73.2432	76.2950
δ	19.7506	474.0144	493.7650

Plate	Date	Exp.		Exp.	Mid Exp.	
MC 20961	August 28, 1924.	23 21 00	23 54	33	23h 37m 38s	.982 .764 .746 .746

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1923phae.proj.1190

MC 20961

			Mean x	Mean y
Asteroid	-16.28 0.00	16.28 0.00	-16.28	0.00
film up	a -4.32 +6.58	4.35 +6.58	-4.34	+6.58
pr up	b -5.38 +13.40	5.33 +13.35	-5.36	+13.38
	c -6.58 +11.68	6.58 11.70	-6.58	+11.69

x - Asteroid	y - Asteroid	x x 98.2	y x 98.2	
+ 11.94	+6.58	1172.508	646.156	= 10 46.2
+ 10.92	+13.38	1072.344	1318.916	= 21 53.9
+ 9.70	+11.69	952.540	1147.958	= 19 8.0

a 23 18 45.52 +5 13 3.3
1 18.49 10 46.2
23 20 4.01 +5 2 17.1

sec δ = 1.0041
1172.508
15) 1177.3152828
78.488

b 23 18 52.28 +5 24 5.4
1 11.81 21 53.9
23 20 4.09 +5 2 11.5

1.0045
1072.344
15) 1077.1695480
71.81

c 23 19 0.24 +5 21 16.1
1 3.78 19 8.0
23 20 4.02 +5 2 8.1

1.0044
952.540
15) 956.7311760
63.78

from a	23	20 4.01	+5	2 17.1	-.03	+4.9
b	23	20 4.09	+5	2 11.5	+.05	-0.7
c	23	20 4.02	+5	2 8.1	-.02	-4.1
		12		3 67		

Mean Pos. (1875) 23 20 4.04 +5 2 12.2
25 yr. 1 16.30 8 13.8
(1900) 23 21 20.34 +5 10 26.0
24 yr. 1 13.24 7 54.0
(1924) 23 22 33.58 +5 18 20.0

(1900) 23 21 20.34 +5 10 26.0
(25 yr) 1 16.30 8 13.8
(1925) 23 22 36.64 +5 18 39.8

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