

On the orbit of τ Ophiuchi, by *Ejnar Hertzsprung*.

Recent photographic measures of τ Oph = Σ 2262 = ADS 11005 suggest a preliminary revision of the orbit published by DOBERCK 35 years ago (*A.N.* 4063, 170, 101).

In the table below 13 normal places have been collected. The two last ones are photographic from plates taken respectively at Johannesburg and Mount Hamilton. For convenience one axis of the co-ordinates ξ and η was chosen to coincide with W. HERSCHEL's position angle of discovery.

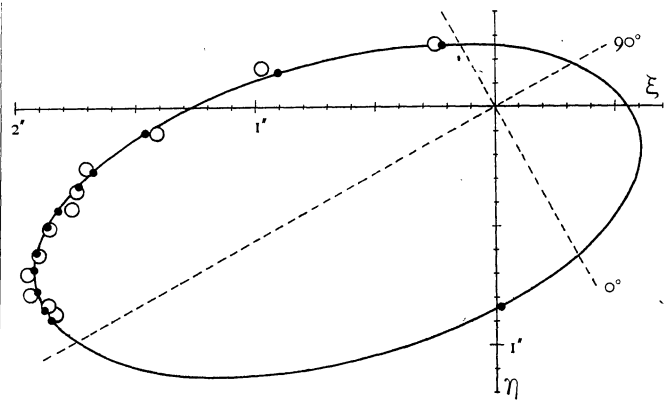
Positions have been calculated from the following elements: $e = .7$, $n = 1^{0^a}.3$, $T = 1829$ and

$$\xi = + .9416 X - 1'' .1783 Y$$

$$\eta = - .6226 X - .4298 Y$$

The corresponding distance at the time of HERSCHEL's first observation, viz. $'' .84$, is more likely to represent the limit of what HERSCHEL could see than the much shorter distance, $'' .50$, given by DOBERCK's orbit.

HERSCHEL's later mean position angle $1803^a .59, ^\circ .2$, is in much better agreement with the present orbit:



$O-C = - 8^\circ .8$, than with that of DOBERCK: $O-C = - 55^\circ .8$.

With a semi-major axis of $1'' .509$, a period of 277 years and the magnitudes of the components 5.34 and 6.04 the dynamical parallax according to *B.A.N.* No. 208 is found to be $'' .0245$.

date	Σ epoch	Σ 2000 -33 o .38	ρ	ξ_0	η_0	M	X	Y	ξ_c	η_c	$\xi_0 - \xi_c$	$\eta_0 - \eta_c$
1783 a .34	331 o .6	o .00	"	" o .000	"	- 59 o .36	- .856	- .705	+ $''$.025	+ $''$.836	- $''$.025	"
1836 o .05	194 o .78	223 o .47	.362	- .249	- .263	9 o .16	+ .183	.335	- .222	- .258	- .27	- .005
48 o .20	231 o .57	260 o .34	.987	- .973	- .166	24 o .96	- .193	.615	- .907	- .144	- .66	- .22
65 o .55	245 o .47	274 o .34	1 o .414	- 1 o .410	+ $''$.107	47 o .51	- .658	.713	- 1 o .460	+ $''$.103	+ .50	+ .4
77 o .31	249 o .51	278 o .44	1 o .727	- 1 o .708	+ .253	62 o .80	- .908	.698	- 1 o .678	+ .265	- .30	- .12
81 o .71	252 o .25	281 o .20	1 o .778	- 1 o .744	+ .345	68 o .52	- .991	.683	- 1 o .738	+ .323	- .6	+ .22
90 o .05	254 o .39	283 o .39	1 o .816	- 1 o .767	+ .421	79 o .36	- 1 o .131	.644	- 1 o .824	+ .427	+ .57	- .6
96 o .03	256 o .22	285 o .25	1 o .928	- 1 o .860	+ .507	87 o .14	- 1 o .221	.610	- 1 o .868	+ .498	+ .8	+ .9
1905 o .67	258 o .45	287 o .54	2 o .008	- 1 o .915	+ .605	99 o .67	- 1 o .346	.545	- 1 o .910	+ .604	- .5	+ .1
12 o .81	260 o .54	289 o .67	2 o .073	- 1 o .952	+ .698	108 o .95	- 1 o .426	.491	- 1 o .921	+ .677	- .31	+ .21
22 o .49	262 o .69	291 o .88	2 o .096	- 1 o .945	+ .781	121 o .53	- 1 o .516	.413	- 1 o .914	+ .767	- .31	+ .14
31 o .61	264 o .59	293 o .82	2 o .042	- 1 o .868	+ .825	133 o .39	- 1 o .584	.334	- 1 o .885	+ .843	+ .17	- .18
37 o .63	265 o .90	295 o .17	2 o .032	- 1 o .839	+ .864	141 o .22	- 1 o .620	.280	- 1 o .855	+ .888	+ .16	- .24

Photographic measures of Σ Orionis and ADS 15972, by *Ejnar Hertzsprung*.

In *B.A.N.* No. 330 the results of my photographic measures of double stars made on plates taken with the 91 cm refractor at Mount Hamilton have been published with the exception of a few plates of in-

ferior quality. The following measures are of the latter kind, but may still be as good as ordinary visual measures.

ADS	$\Delta z \cos \delta$	$\Delta \delta$	Σ	ρ
4186 1937 a .823	AC 9 $''$.633 BC 5 $''$.038 CD 11 $''$.760	8 $''$.519 16 $''$.031 6 $''$.349	or 131 o .49 162 o .55 241 o .64	12 $''$.860 16 $''$.804 13 $''$.364
4188 1937 a .823	52 $''$.368 \pm .02	2 $''$.622 \pm .02 (m.e.)	or 92 o .87	52 $''$.434
15972 1937 a .647	$''$.673 \pm .030	2 $''$.802 \pm .015 (m.e.)	or 166 o .5	2 $''$.882