

TABLE II.

Pair No.	E	No.	Star	Mag.	$\alpha_{1950}$		$\delta_{1950}$	
					<sup>h</sup>	<sup>m</sup>	<sup>°</sup>	<sup>'</sup>
165	E	189	$\delta$ Aquarii	3.5	22	52.0	-16	5
	W	139	$\eta$ Ophiuchi	2.6	17	7.5	-15	40

$\phi$	S		z		$A_E$		$A_W$		dz	$dA_E$	$dA_W$	Var. for $\Delta\phi = +10'$		
	<sup>h</sup>	<sup>m</sup>	<sup>°</sup>	<sup>'</sup>	<sup>°</sup>	<sup>'</sup>	<sup>°</sup>	<sup>'</sup>				$\Delta z$	$\Delta A$	E
+0	20	0.0	45	56	292	41	67	56	-69	+29	-	+3.8	+9.0	-
1		0.0	46	19	293	34	67	3	-69	+31	-	+4.0	+8.8	-
2		0.1	46	43	294	26	66	11	-68	+33	-	+4.1	+8.6	-
3		0.1	47	8	295	17	65	20	-68	+35	-	+4.2	+8.4	-
4		0.1	47	34	296	7	64	30	-67	+36	-	+4.4	+8.2	-
5		0.1	48	0	296	56	63	41	-67	+38	-	+4.5	+8.1	-
6		0.1	48	28	297	44	62	54	-66	+39	-	+4.6	+7.9	-
7		0.2	48	56	298	31	62	7	-65	+41	-	+4.7	+7.7	-
8		0.2	49	24	299	16	61	21	-65	+42	-	+4.8	+7.5	-
9		0.2	49	54	300	1	60	37	-64	+44	-	+5.0	+7.3	-
10		0.2	50	24	300	44	59	54	-63	+45	-	+5.1	+7.1	-
11		0.3	50	54	301	27	59	11	-63	+46	-	+5.2	+7.0	-
12		0.3	51	26	302	8	58	30	-62	+47	-	+5.3	+6.8	-
13		0.3	51	58	302	48	57	50	-61	+49	-	+5.4	+6.6	-
14		0.3	52	30	303	27	57	11	-61	+50	-	+5.5	+6.4	-
15		0.3	53	3	304	5	56	33	-60	+51	-	+5.6	+6.3	-
16		0.4	53	37	304	42	55	56	-59	+52	-	+5.6	+6.1	-
17		0.4	54	11	305	19	55	21	-58	+53	-	+5.7	+5.9	-
18		0.4	54	46	305	54	54	46	-58	+53	-	+5.8	+5.8	-
19		0.4	55	21	306	28	54	12	-57	+54	-	+5.9	+5.6	-
+20	20	0.5	55	56	307	1	53	39	-56	+55	-	+6.0	+5.4	-

Annual Precessions of S, z,  $A_E$ , and  $A_W$ .

$\phi$	$\delta S$	$\delta z$	$\delta A_E$	$\delta A_W$
0	m	'	'	'
+0	+0.05	-0.1	-0.4	-0.1
5	0.05	0.1	0.4	0.2
10	0.05	0.1	0.4	0.2
15	0.05	0.1	0.4	0.2
+20	+0.04	-0.1	-0.4	-0.2

Pair No.	E	No.	Star	Mag.	$\alpha_{1950}$		$\delta_{1950}$	
					<sup>h</sup>	<sup>m</sup>	<sup>°</sup>	<sup>'</sup>
166	E	191	$\alpha$ Pegasi	2.6	23	23	+14	56
	W	140	$\alpha^1$ Herculis	3.1-3.9	17	12.4	+14	27

$\phi$	S		z		$A_E$		$A_W$		dz	$dA_E$	$dA_W$	Var. for $\Delta\phi = +10'$		
	<sup>h</sup>	<sup>m</sup>	<sup>°</sup>	<sup>'</sup>	<sup>°</sup>	<sup>'</sup>	<sup>°</sup>	<sup>'</sup>				$\Delta z$	$\Delta A$	E
+0	20	7.6	46	15	249	6	110	12	-70	-26	+	-3.5	+9.0	-
1		7.6	45	54	250	0	109	18	-71	-24	+	-3.4	+9.1	-
2		7.5	45	35	250	55	108	22	-71	-22	+	-3.2	+9.3	-
3		7.5	45	16	251	51	107	26	-72	-20	+	-3.1	+9.4	-
4		7.5	44	58	252	48	106	29	-72	-17	+	-2.9	+9.6	-
5		7.5	44	41	253	46	105	31	-72	-15	+	-2.7	+9.7	-
6		7.4	44	25	254	45	104	32	-72	-12	+	-2.6	+9.9	-
7		7.4	44	10	255	45	103	33	-72	-10	+	-2.4	+10.0	-
8		7.4	43	56	256	45	102	32	-72	-7	+	-2.2	+10.1	-
9		7.4	43	43	257	46	101	31	-72	-5	+	-2.1	+10.2	-
10		7.3	43	31	258	47	100	29	-72	-2	+	-1.9	+10.3	-
11		7.3	43	21	259	50	99	27	-72	+1	-	-1.7	+10.4	-
12		7.3	43	11	260	53	98	24	-72	+4	-	-1.5	+10.5	-
13		7.3	43	2	261	56	97	21	-72	+6	-	-1.3	+10.6	-
14		7.2	42	55	263	0	96	17	-72	+9	-	-1.2	+10.7	-
15		7.2	42	48	264	4	95	12	-72	+12	-	-1.0	+10.7	-
16		7.2	42	43	265	8	94	8	-72	+15	-	-0.8	+10.8	-
17		7.2	42	39	266	13	93	3	-72	+17	-	-0.6	+10.8	-
18		7.1	42	36	267	18	91	57	-71	+20	-	-0.4	+10.8	-
19		7.1	42	34	268	23	90	52	-71	+23	-	-0.2	+10.9	-
+20	20	7.1	42	34	269	28	89	46	-70	+26	-	0.0	+10.9	-

Annual Precessions of S, z,  $A_E$ , and  $A_W$ .

$\phi$	$\delta S$	$\delta z$	$\delta A_E$	$\delta A_W$
0	m	'	'	'
+0	+0.05	+0.1	-0.4	-0.1
5	0.05	+0.1	0.5	0.1
10	0.05	0.0	0.5	0.1
15	0.05	0.0	0.5	0.1
+20	+0.04	0.0	-0.5	-0.1



TABLE II.

		No.	Star	Mag.	$\alpha_{1950}$	$\delta_{1950}$
					<sup>h</sup> <sup>m</sup>	<sup>°</sup> <sup>'</sup>
Pair No. 167	E	189	$\delta$ Aquarii	3.5	22 52.0	-16 5
	W	143	$\xi$ Serpentis	3.6	17 34.7	-15 22

$\varphi$	S	z	$A_E$	$A_W$	dz	$dA_E$	$dA_W$	Var. for $\Delta\varphi = +10'$	
								$\Delta z$	$\Delta A$ E W
0	h m	° '	° '	° '	'	'	'	'	'
+ 0	20 13.9	42 45	294 6	67 2	-69	+ 33	-	+4.0	+ 9.9 -
1	13.9	43 10	295 5	66 3	-68	+ 36	-	+4.2	+ 9.7 -
2	13.9	43 35	296 2	65 6	-68	+ 38	-	+4.3	+ 9.5 -
3	14.0	44 1	296 58	64 9	-67	+ 40	-	+4.4	+ 9.3 -
4	14.0	44 28	297 53	63 15	-66	+ 42	-	+4.6	+ 9.1 -
5	14.1	44 56	298 47	62 21	-66	+ 43	-	+4.7	+ 8.8 -
6	14.1	45 25	299 39	61 29	-65	+ 45	-	+4.9	+ 8.6 -
7	14.1	45 55	300 30	60 38	-64	+ 46	-	+5.0	+ 8.4 -
8	14.2	46 25	301 20	59 48	-64	+ 48	-	+5.1	+ 8.2 -
9	14.2	46 56	302 9	59 0	-63	+ 49	-	+5.2	+ 8.0 -
10	14.3	47 28	302 56	58 13	-62	+ 50	-	+5.4	+ 7.8 -
11	14.3	48 0	303 42	57 27	-61	+ 51	-	+5.5	+ 7.6 -
12	14.3	48 33	304 27	56 42	-61	+ 53	-	+5.6	+ 7.4 -
13	14.4	49 7	305 10	55 59	-60	+ 54	-	+5.7	+ 7.2 -
14	14.4	49 41	305 53	55 17	-59	+ 55	-	+5.8	+ 7.0 -
15	14.5	50 16	306 34	54 36	-58	+ 56	-	+5.9	+ 6.8 -
16	14.5	50 52	307 14	53 57	-57	+ 57	-	+6.0	+ 6.6 -
17	14.5	51 28	307 52	53 18	-57	+ 58	-	+6.1	+ 6.4 -
18	14.6	52 5	308 30	52 41	-56	+ 58	-	+6.1	+ 6.2 -
19	14.6	52 42	309 7	52 5	-55	+ 59	-	+6.2	+ 6.0 -
+20	20 14.7	53 19	309 42	51 30	-54	+ 60	-	+6.3	+ 5.8 -

Annual Precessions of S, z,  $A_E$ , and  $A_W$ .

$\varphi$	$\delta S$	$\delta z$	$\delta A_E$	$\delta A_W$
0	m	'	'	'
+ 0	+0.05	-0.1	-0.5	-0.1
5	0.05	0.1	0.4	0.1
10	0.05	0.1	0.4	0.1
15	0.05	0.1	0.4	0.2
+20	+0.04	-0.1	-0.4	-0.2

		No.	Star	Mag.	$\alpha_{1950}$	$\delta_{1950}$
					<sup>h</sup> <sup>m</sup>	<sup>°</sup> <sup>'</sup>
Pair No. 168	E	184	$\gamma$ Aquarii	4.0	22 19.1	-1 38
	W	153	$\eta$ Serpentis	3.4	18 18.7	-2 55

$\varphi$	S	z	$A_E$	$A_W$	dz	$dA_E$	$dA_W$	Var. for $\Delta\varphi = +10'$	
								$\Delta z$	$\Delta A$ E W
0	h m	° '	° '	° '	'	'	'	'	'
+ 0	20 18.7	30 45	273 11	84 16	-75	+ 10	-	+0.8	+ 16.9 -
1	18.6	30 50	274 52	82 36	-75	+ 15	-	+1.1	+ 16.7 -
2	18.5	30 58	276 31	80 56	-74	+ 21	-	+1.4	+ 16.5 -
3	18.5	31 6	278 9	79 18	-74	+ 25	-	+1.6	+ 16.3 -
4	18.4	31 17	279 47	77 41	-74	+ 30	-	+1.9	+ 16.1 -
5	18.3	31 30	281 23	76 4	-73	+ 35	-	+2.2	+ 15.9 -
6	18.2	31 44	282 57	74 29	-72	+ 39	-	+2.5	+ 15.6 -
7	18.1	31 59	284 30	72 56	-72	+ 43	-	+2.7	+ 15.4 -
8	18.0	32 16	286 2	71 24	-71	+ 47	-	+3.0	+ 15.1 -
9	17.9	32 35	287 31	69 54	-70	+ 51	-	+3.2	+ 14.8 -
10	17.8	32 55	288 59	68 26	-69	+ 54	-	+3.5	+ 14.5 -
11	17.7	33 16	290 25	67 0	-68	+ 58	-	+3.7	+ 14.1 -
12	17.6	33 39	291 48	65 36	-67	+ 61	-	+3.9	+ 13.8 -
13	17.5	34 3	293 10	64 14	-66	+ 63	-	+4.1	+ 13.4 -
14	17.5	34 29	294 29	62 54	-65	+ 66	-	+4.4	+ 13.1 -
15	17.4	34 56	295 47	61 35	-64	+ 68	-	+4.6	+ 12.7 -
16	17.3	35 24	297 2	60 19	-63	+ 71	-	+4.8	+ 12.3 -
17	17.2	35 53	298 15	59 6	-62	+ 73	-	+4.9	+ 12.0 -
18	17.1	36 23	299 25	57 54	-61	+ 74	-	+5.1	+ 11.6 -
19	17.0	36 54	300 34	56 45	-60	+ 76	-	+5.3	+ 11.2 -
+20	20 16.9	37 26	301 40	55 38	-59	+ 77	-	+5.5	+ 10.8 -

Annual Precessions of S, z,  $A_E$ , and  $A_W$ .

$\varphi$	$\delta S$	$\delta z$	$\delta A_E$	$\delta A_W$
0	m	'	'	'
+ 0	+0.05	0.0	-0.6	+0.1
5	0.05	0.0	0.6	0.0
10	0.05	-0.1	0.6	0.0
15	0.05	0.1	0.5	0.0
+20	+0.04	-0.1	-0.5	-0.1



TABLE II.

	No.	Star	Mag.	$\alpha_{1950}$	$\delta_{1950}$
				<sup>h</sup> <sup>m</sup>	<sup>°</sup> <sup>'</sup>
Pair No. 169	E 193	$\gamma$ Piscium	3.9	23 14.6	+3 1
	W 146	$\gamma$ Ophiuchi	3.7	17 45.4	+2 43

$\varphi$	S		z		$A_E$		$A_W$		dz	$dA_E$	$dA_W$	Var. for $\Delta\varphi = +10'$			
	<sup>h</sup>	<sup>m</sup>	<sup>°</sup>	<sup>'</sup>	<sup>°</sup>	<sup>'</sup>	<sup>°</sup>	<sup>'</sup>				$\Delta z$	$\Delta A$	E	W
+0	20	30.0	41	51	265	29	94	5	-75	-	7	+	-0.7	+11.1	-
1		30.0	41	47	266	36	92	58	-75	-	4	+	-0.6	+11.2	-
2		30.0	41	45	267	43	91	51	-75	-	1	+	-0.4	+11.2	-
3		30.0	41	43	268	50	90	44	-75	+	3	-	-0.2	+11.2	-
4		30.0	41	43	269	58	89	36	-75	+	6	-	0.0	+11.2	-
5		29.9	41	43	271	5	88	29	-75	+	9	-	+0.2	+11.2	-
6		29.9	41	45	272	12	87	22	-75	+	12	-	+0.4	+11.2	-
7		29.9	41	48	273	19	86	15	-74	+	15	-	+0.6	+11.1	-
8		29.9	41	53	274	26	85	8	-74	+	18	-	+0.8	+11.1	-
9		29.9	41	58	275	32	84	1	-74	+	20	-	+1.0	+11.1	-
10		29.9	42	5	276	39	82	55	-73	+	23	-	+1.2	+11.0	-
11		29.8	42	13	277	44	81	49	-73	+	26	-	+1.4	+10.9	-
12		29.8	42	21	278	49	80	44	-72	+	29	-	+1.6	+10.8	-
13		29.8	42	31	279	54	79	39	-72	+	31	-	+1.8	+10.7	-
14		29.8	42	42	280	58	78	35	-71	+	34	-	+1.9	+10.6	-
15		29.8	42	55	282	1	77	32	-71	+	37	-	+2.1	+10.5	-
16		29.8	43	8	283	4	76	29	-70	+	39	-	+2.3	+10.4	-
17		29.7	43	22	284	6	75	27	-69	+	42	-	+2.5	+10.2	-
18		29.7	43	38	285	7	74	26	-69	+	44	-	+2.6	+10.1	-
19		29.7	43	54	286	7	73	25	-68	+	46	-	+2.8	+10.0	-
+20	20	29.7	44	11	287	6	72	26	-67	+	48	-	+3.0	+9.8	-

Annual Precessions of S, z,  $A_E$ , and  $A_W$ .

$\varphi$	$\delta S$	$\delta z$	$\delta A_E$	$\delta A_W$
0	m	'	'	'
+0	+0.05	0.0	-0.5	0.0
5	0.05	0.0	0.5	0.0
10	0.05	0.0	0.5	0.0
15	0.05	0.0	0.5	-0.1
+20	+0.05	-0.1	-0.5	-0.1

	No.	Star	Mag.	$\alpha_{1950}$	$\delta_{1950}$
				<sup>h</sup> <sup>m</sup>	<sup>°</sup> <sup>'</sup>
Pair No. 170	E 193	$\gamma$ Piscium	3.9	23 14.6	+3 1
	W 149	67 Ophiuchi	4.0	17 58.1	+2 56

$\varphi$	S		z		$A_E$		$A_W$		dz	$dA_E$	$dA_W$	Var. for $\Delta\varphi = +10'$			
	<sup>h</sup>	<sup>m</sup>	<sup>°</sup>	<sup>'</sup>	<sup>°</sup>	<sup>'</sup>	<sup>°</sup>	<sup>'</sup>				$\Delta z$	$\Delta A$	E	W
+0	20	36.4	40	16	265	21	94	32	-75	-	7	+	-0.8	+11.8	-
1		36.4	40	12	266	31	93	21	-75	-	4	+	-0.6	+11.8	-
2		36.4	40	9	267	42	92	11	-75	-	1	+	-0.4	+11.8	-
3		36.4	40	7	268	53	91	0	-75	+	2	-	-0.2	+11.9	-
4		36.4	40	7	270	5	89	48	-75	+	6	-	0.0	+11.9	-
5		36.4	40	8	271	16	88	37	-75	+	9	-	+0.2	+11.9	-
6		36.4	40	10	272	27	87	26	-75	+	12	-	+0.4	+11.8	-
7		36.3	40	13	273	38	86	15	-74	+	15	-	+0.6	+11.8	-
8		36.3	40	17	274	48	85	5	-74	+	18	-	+0.8	+11.7	-
9		36.3	40	23	275	59	83	54	-74	+	21	-	+1.1	+11.7	-
10		36.3	40	30	277	9	82	44	-73	+	24	-	+1.3	+11.6	-
11		36.3	40	38	278	18	81	35	-73	+	27	-	+1.5	+11.5	-
12		36.3	40	47	279	27	80	26	-72	+	30	-	+1.7	+11.4	-
13		36.3	40	58	280	35	79	18	-72	+	33	-	+1.8	+11.3	-
14		36.3	41	10	281	43	78	10	-71	+	36	-	+2.0	+11.2	-
15		36.3	41	22	282	49	77	3	-70	+	39	-	+2.2	+11.1	-
16		36.3	41	36	283	56	75	57	-70	+	41	-	+2.4	+10.9	-
17		36.3	41	51	285	1	74	52	-69	+	44	-	+2.6	+10.8	-
18		36.3	42	7	286	5	73	48	-68	+	46	-	+2.8	+10.6	-
19		36.3	42	25	287	8	72	45	-68	+	48	-	+3.0	+10.4	-
+20	20	36.3	42	43	288	10	71	42	-67	+	50	-	+3.1	+10.3	-

Annual Precessions of S, z,  $A_E$ , and  $A_W$ .

$\varphi$	$\delta S$	$\delta z$	$\delta A_E$	$\delta A_W$
0	m	'	'	'
+0	+0.05	0.0	-0.5	0.0
5	0.05	0.0	0.5	0.0
10	0.05	0.0	0.5	0.0
15	0.05	-0.1	0.5	0.0
+20	+0.05	-0.1	-0.5	-0.1



TABLE II.

Pair No. 171  
 E 2  $\gamma$  Pegasi 2.9  $\alpha_{1950}$  0 10.7  $\delta_{1950}$  +14 54  
 W 140  $\alpha^1$  Herculis 3.1-3.9 17 12.4 +14 27

$\phi$	S		z		$A_E$		$A_W$		dz	d $A_E$	d $A_W$	Var. for $\Delta\phi = +10'$				
	h	m	°	'	°	'	°	'				$\Delta z$	E	W		
+0	20	41.7	54	19	251	32	107	53	-71	-	17	+	-3.1	+	6.8	-
1		41.7	54	0	252	13	107	12	-72	-	15	+	-3.0	+	6.9	-
2		41.7	53	43	252	55	106	30	-72	-	14	+	-2.9	+	7.0	-
3		41.6	53	26	253	38	105	47	-72	-	12	+	-2.8	+	7.1	-
4		41.6	53	10	254	21	105	4	-72	-	10	+	-2.7	+	7.2	-
5		41.6	52	54	255	4	104	21	-72	-	8	+	-2.5	+	7.3	-
6		41.6	52	39	255	49	103	36	-73	-	6	+	-2.4	+	7.4	-
7		41.6	52	25	256	33	102	52	-73	-	4	+	-2.3	+	7.5	-
8		41.5	52	12	257	18	102	6	-73	-	2	+	-2.2	+	7.6	-
9		41.5	51	59	258	4	101	21	-73		0		-2.0	+	7.7	-
10		41.5	51	48	258	50	100	34	-72	+	2	-	-1.9	+	7.7	-
11		41.5	51	37	259	37	99	48	-72	+	4	-	-1.8	+	7.8	-
12		41.5	51	27	260	24	99	1	-72	+	6	-	-1.6	+	7.9	-
13		41.4	51	17	261	11	98	13	-72	+	8	-	-1.5	+	7.9	-
14		41.4	51	9	261	59	97	26	-72	+	10	-	-1.3	+	8.0	-
15		41.4	51	1	262	47	96	38	-72	+	12	-	-1.2	+	8.0	-
16		41.4	50	54	263	35	95	49	-72	+	15	-	-1.1	+	8.1	-
17		41.4	50	48	264	23	95	0	-71	+	17	-	-0.9	+	8.1	-
18		41.3	50	43	265	12	94	12	-71	+	19	-	-0.8	+	8.1	-
19		41.3	50	39	266	1	93	22	-71	+	21	-	-0.6	+	8.2	-
+20	20	41.3	50	36	266	50	92	33	-70	+	23	-	-0.5	+	8.2	-

Annual Precessions of S, z,  $A_E$ , and  $A_W$ .

$\phi$	$\delta S$	$\delta z$	$\delta A_E$	$\delta A_W$
°	m	'	'	'
+0	+0.05	+0.1	-0.4	-0.1
5	0.05	+0.1	0.4	0.1
10	0.05	0.0	0.4	0.1
15	0.05	0.0	0.4	0.1
+20	+0.05	0.0	-0.5	-0.1

Pair No. 172  
 E 7  $\eta$  Ceti 3.6  $\alpha_{1950}$  1 6.1  $\delta_{1950}$  -10 27  
 W 137  $\zeta$  Ophiuchi 2.7 16 34.4 -10 28

$\phi$	S		z		$A_E$		$A_W$		dz	d $A_E$	d $A_W$	Var. for $\Delta\phi = +10'$				
	h	m	°	'	°	'	°	'				$\Delta z$	E	W		
+0	20	50.2	65	2	281	32	78	26	-73	+	7	-	+2.0	+	4.6	-
1		50.2	65	14	282	0	77	59	-73	+	9	-	+2.1	+	4.5	-
2		50.2	65	27	282	26	77	32	-73	+	10	-	+2.2	+	4.5	-
3		50.2	65	40	282	53	77	6	-73	+	12	-	+2.2	+	4.4	-
4		50.2	65	54	283	19	76	39	-73	+	13	-	+2.3	+	4.4	-
5		50.2	66	8	283	45	76	13	-73	+	15	-	+2.4	+	4.3	-
6		50.2	66	22	284	11	75	48	-72	+	16	-	+2.5	+	4.2	-
7		50.2	66	37	284	36	75	23	-72	+	18	-	+2.5	+	4.2	-
8		50.2	66	53	285	1	74	58	-72	+	19	-	+2.6	+	4.1	-
9		50.2	67	8	285	25	74	33	-71	+	20	-	+2.7	+	4.1	-
10		50.2	67	25	285	50	74	9	-71	+	22	-	+2.7	+	4.0	-
11		50.2	67	41	286	13	73	45	-71	+	23	-	+2.8	+	3.9	-
12		50.2	67	58	286	37	73	22	-70	+	25	-	+2.9	+	3.9	-
13		50.2	68	16	287	0	72	59	-70	+	26	-	+2.9	+	3.8	-
14		50.2	68	33	287	23	72	36	-69	+	27	-	+3.0	+	3.8	-
15		50.2	68	51	287	45	72	14	-69	+	28	-	+3.1	+	3.7	-
16		50.2	69	10	288	7	71	52	-68	+	30	-	+3.1	+	3.6	-
17		50.2	69	29	288	28	71	30	-68	+	31	-	+3.2	+	3.5	-
18		50.2	69	48	288	49	71	9	-67	+	32	-	+3.2	+	3.5	-
19		50.2	70	7	289	10	70	49	-67	+	33	-	+3.3	+	3.4	-
+20	20	50.2	70	27	289	30	70	28	-66	+	34	-	+3.3	+	3.4	-

Annual Precessions of S, z,  $A_E$ , and  $A_W$ .

$\phi$	$\delta S$	$\delta z$	$\delta A_E$	$\delta A_W$
°	m	'	'	'
+0	+0.05	-0.1	-0.4	-0.1
5	0.05	0.1	0.4	0.2
10	0.05	0.1	0.3	0.2
15	0.05	0.1	0.3	0.2
+20	+0.05	-0.1	-0.3	-0.2



TABLE II.

Pair No.	No.	Star	Mag.	$\alpha_{1950}$		$\delta_{1950}$	
				h	m	°	'
173	E 1	$\alpha$ Androm.	2.2	0	5.8	+28	49
	W 145	$\mu$ Herculis	3.5	17	44.5	+27	45

$\phi$	S		z		$A_E$		$A_W$		dz	$dA_E$	$dA_W$	Var. for $\Delta\phi = +10'$			
	h	m	°	'	°	'	°	'				$\Delta z$	$\Delta A$		
													E	W	
+0	20	56.2	54	8	233	30	125	4	-61	-	32	+	-5.9	+5.9	-
1		56.1	53	33	234	6	124	28	-61	-	31	+	-5.8	+6.0	-
2		56.1	52	59	234	42	123	51	-62	-	30	+	-5.7	+6.2	-
3		56.0	52	25	235	20	123	13	-62	-	29	+	-5.6	+6.4	-
4		56.0	51	52	235	59	122	34	-62	-	28	+	-5.5	+6.6	-
5		55.9	51	19	236	39	121	54	-63	-	26	+	-5.4	+6.7	-
6		55.9	50	47	237	20	121	13	-63	-	25	+	-5.3	+6.9	-
7		55.8	50	15	238	2	120	31	-64	-	24	+	-5.2	+7.1	-
8		55.8	49	45	238	45	119	48	-64	-	22	+	-5.1	+7.3	-
9		55.7	49	14	239	29	119	3	-64	-	21	+	-5.0	+7.5	-
10		55.7	48	45	240	15	118	18	-64	-	19	+	-4.9	+7.6	-
11		55.6	48	16	241	1	117	31	-65	-	18	+	-4.7	+7.8	-
12		55.6	47	48	241	48	116	43	-65	-	16	+	-4.6	+8.0	-
13		55.5	47	21	242	37	115	54	-65	-	14	+	-4.5	+8.2	-
14		55.5	46	54	243	27	115	4	-65	-	12	+	-4.4	+8.4	-
15		55.4	46	29	244	18	114	13	-66	-	10	+	-4.2	+8.6	-
16		55.4	46	4	245	10	113	20	-66	-	8	+	-4.1	+8.8	-
17		55.3	45	40	246	3	112	27	-66	-	6	+	-3.9	+8.9	-
18		55.3	45	17	246	57	111	32	-66	-	4	+	-3.8	+9.1	-
19		55.2	44	54	247	52	110	36	-66	-	2	+	-3.6	+9.3	-
+20	20	55.1	44	33	248	49	109	39	-66		0		-3.5	+9.5	-

Annual Precessions of S, z,  $A_E$ , and  $A_W$ .

$\phi$	$\delta S$	$\delta z$	$\delta A_E$	$\delta A_W$
0	m	'	'	'
+0	+0.05	+0.1	-0.4	-0.1
5	0.05	0.1	0.4	0.1
10	0.05	0.1	0.4	0.1
15	0.05	0.1	0.5	-0.1
+20	+0.05	+0.1	-0.5	0.0

DATA REQUIRED FOR OBSERVATION.

Pair No.	No.	Star	Mag.	$\alpha_{1950}$		$\delta_{1950}$	
				h	m	°	'
174	E 191	$\alpha$ Pegasi	2.6	23	2.3	+14	56
	W 158	$\zeta$ Aquilæ	3.0	19	3.1	+13	47

$\phi$	S		z		$A_E$		$A_W$		dz	$dA_E$	$dA_W$	Var. for $\Delta\phi = +10'$			
	h	m	°	'	°	'	°	'				$\Delta z$	$\Delta A$		
													E	W	
+0	21	3.7	33	26	242	6	115	36	-67	-	53	+	-4.5	+13.4	-
1		3.6	33	0	243	28	114	14	-68	-	50	+	-4.3	+13.9	-
2		3.6	32	35	244	52	112	49	-68	-	47	+	-4.1	+14.3	-
3		3.5	32	11	246	19	111	22	-69	-	44	+	-3.8	+14.7	-
4		3.4	31	49	247	48	109	53	-70	-	40	+	-3.6	+15.1	-
5		3.3	31	28	249	20	108	21	-70	-	36	+	-3.3	+15.4	-
6		3.2	31	9	250	54	106	47	-71	-	32	+	-3.1	+15.7	-
7		3.2	30	51	252	29	105	12	-71	-	27	+	-2.8	+16.0	-
8		3.1	30	35	254	6	103	35	-72	-	23	+	-2.5	+16.3	-
9		3.0	30	20	255	45	101	56	-72	-	18	+	-2.3	+16.6	-
10		2.9	30	8	257	25	100	15	-72	-	13	+	-2.0	+16.9	-
11		2.8	29	57	259	7	98	32	-73	-	8	+	-1.7	+17.1	-
12		2.7	29	47	260	50	96	49	-73	-	3	+	-1.4	+17.2	-
13		2.6	29	40	262	34	95	5	-73	+	3	-	-1.1	+17.4	-
14		2.6	29	34	264	18	93	20	-73	+	8	-	-0.8	+17.5	-
15		2.5	29	30	266	4	91	33	-72	+	13	-	-0.5	+17.6	-
16		2.4	29	28	267	49	89	47	-72	+	19	-	-0.2	+17.6	-
17		2.3	29	28	269	35	88	1	-72	+	24	-	+0.1	+17.6	-
18		2.2	29	30	271	20	86	14	-71	+	29	-	+0.5	+17.6	-
19		2.1	29	34	273	6	84	28	-71	+	35	-	+0.8	+17.5	-
+20	21	2.0	29	39	274	51	82	42	-70	+	40	-	+1.1	+17.5	-

Annual Precessions of S, z,  $A_E$ , and  $A_W$ .

$\phi$	$\delta S$	$\delta z$	$\delta A_E$	$\delta A_W$
0	m	'	'	'
+0	+0.05	+0.1	-0.6	+0.1
5	0.05	0.1	0.6	0.1
10	0.05	+0.1	0.7	0.2
15	0.05	0.0	0.7	0.2
+20	+0.05	0.0	-0.7	+0.2



TABLE II.

Pair No.	E	No.	Star	Mag.	$\alpha_{1950}$		$\delta_{1950}$	
					h	m	°	'
175		3	$\iota$ Ceti	3.8	0	16.9	-9	6
		148	$\nu$ Ophiuchi	3.5	17	56.3	-9	46

$\varphi$	S		z		$A_E$		$A_W$		dz	$dA_E$	$dA_W$	Var. for $\Delta\varphi = +10'$		
	h	m	°	'	°	'	°	'				$\Delta z$	E	W
+0	21	6.4	48	53	282	7	76	59	-73	+15	-	+2.2	+8.5	-
1		6.4	49	7	282	57	76	8	-73	+17	-	+2.3	+8.4	-
2		6.3	49	21	283	48	75	18	-73	+19	-	+2.5	+8.3	-
3		6.3	49	37	284	37	74	28	-72	+21	-	+2.6	+8.2	-
4		6.3	49	53	285	26	73	39	-72	+23	-	+2.7	+8.1	-
5		6.2	50	9	286	14	72	51	-72	+25	-	+2.9	+8.0	-
6		6.2	50	27	287	2	72	3	-71	+27	-	+3.0	+7.9	-
7		6.2	50	45	287	49	71	16	-71	+29	-	+3.1	+7.7	-
8		6.1	51	5	288	35	70	30	-70	+31	-	+3.3	+7.6	-
9		6.1	51	25	289	20	69	45	-70	+33	-	+3.4	+7.5	-
10		6.1	51	45	290	5	69	0	-69	+34	-	+3.5	+7.4	-
11		6.0	52	7	290	49	68	16	-68	+36	-	+3.6	+7.2	-
12		6.0	52	29	291	32	67	33	-68	+37	-	+3.8	+7.1	-
13		6.0	52	52	292	14	66	50	-67	+39	-	+3.9	+7.0	-
14		5.9	53	15	292	55	66	9	-67	+40	-	+4.0	+6.8	-
15		5.9	53	39	293	36	65	28	-66	+42	-	+4.1	+6.7	-
16		5.9	54	4	294	16	64	48	-65	+43	-	+4.2	+6.6	-
17		5.8	54	29	294	55	64	8	-65	+45	-	+4.3	+6.4	-
18		5.8	54	56	295	33	63	30	-64	+46	-	+4.4	+6.3	-
19		5.8	55	22	296	10	62	52	-63	+47	-	+4.5	+6.2	-
+20	21	5.7	55	49	296	47	62	16	-62	+48	-	+4.6	+6.0	-

Annual Precessions of S, z,  $A_E$ , and  $A_W$ .

$\varphi$	$\delta S$	$\delta z$	$\delta A_E$	$\delta A_W$
0	m	'	'	'
+0	+0.05	-0.1	-0.4	0.0
5	0.05	0.1	0.4	0.0
10	0.05	0.1	0.4	-0.1
15	0.05	0.1	0.4	0.1
+20	+0.05	-0.1	-0.4	-0.1

DATA REQUIRED FOR OBSERVATION.

Pair No.	E	No.	Star	Mag.	$\alpha_{1950}$		$\delta_{1950}$	
					h	m	°	'
176		4	$\delta$ Androm.	3.5	0	36.6	+30	35
		147	$\xi$ Herculis	3.8	17	55.8	+29	15

$\varphi$	S		z		$A_E$		$A_W$		dz	$dA_E$	$dA_W$	Var. for $\Delta\varphi = +10'$		
	h	m	°	'	°	'	°	'				$\Delta z$	E	W
+0	21	17.5	56	44	232	30	125	45	-60	-30	+	-5.9	+5.3	-
1		17.5	56	8	233	3	125	13	-61	-29	+	-5.9	+5.4	-
2		17.4	55	33	233	36	124	40	-61	-28	+	-5.8	+5.6	-
3		17.3	54	58	234	10	124	6	-61	-27	+	-5.7	+5.7	-
4		17.3	54	24	234	44	123	31	-62	-26	+	-5.7	+5.9	-
5		17.2	53	51	235	20	122	55	-62	-25	+	-5.6	+6.1	-
6		17.2	53	17	235	57	122	18	-62	-23	+	-5.5	+6.2	-
7		17.1	52	45	236	35	121	40	-63	-22	+	-5.4	+6.4	-
8		17.0	52	13	237	14	121	1	-63	-21	+	-5.3	+6.6	-
9		17.0	51	41	237	54	120	21	-63	-19	+	-5.2	+6.7	-
10		16.9	51	11	238	34	119	40	-63	-18	+	-5.1	+6.9	-
11		16.8	50	40	239	16	118	57	-64	-16	+	-5.0	+7.1	-
12		16.8	50	11	239	59	118	14	-64	-15	+	-4.9	+7.3	-
13		16.7	49	42	240	44	117	30	-64	-13	+	-4.8	+7.4	-
14		16.6	49	14	241	29	116	44	-64	-12	+	-4.6	+7.6	-
15		16.6	48	46	242	15	115	57	-65	-10	+	-4.5	+7.8	-
16		16.5	48	20	243	2	115	10	-65	-8	+	-4.4	+8.0	-
17		16.4	47	54	243	50	114	21	-65	-7	+	-4.3	+8.1	-
18		16.4	47	29	244	39	113	31	-65	-5	+	-4.1	+8.3	-
19		16.3	47	4	245	30	112	40	-65	-3	+	-4.0	+8.5	-
+20	21	16.2	46	41	246	21	111	48	-65	-1	+	-3.9	+8.6	-

Annual Precessions of S, z,  $A_E$ , and  $A_W$ .

$\varphi$	$\delta S$	$\delta z$	$\delta A_E$	$\delta A_W$
0	m	'	'	'
+0	+0.05	+0.2	-0.4	-0.1
5	0.05	0.1	0.4	-0.1
10	0.05	0.1	0.4	0.0
15	0.05	0.1	0.4	0.0
+20	+0.05	+0.1	-0.5	0.0



	No.	Star	Mag.	$\alpha_{1950}$	$\delta_{1950}$
				<sup>h</sup> <sup>m</sup>	<sup>°</sup> <sup>'</sup>
Pair No. 177	E 11	$\tau$ Ceti	3.7	1 41.7	-16 12
	W 139	$\eta$ Ophiuchi	2.6	17 7.5	-15 40

$\varphi$	S		z		$A_E$		$A_W$		dz	$dA_E$	$dA_W$	Var. for $\Delta\varphi = +10'$		
	<sup>h</sup>	<sup>m</sup>	<sup>°</sup>	<sup>'</sup>	<sup>°</sup>	<sup>'</sup>	<sup>°</sup>	<sup>'</sup>				$\Delta z$	$\Delta A$	
												E	W	
+ 0	21	24.8	65	56	287	48	72	48	-71	+ 10	-	+3.0	+ 4.3	-
1		24.8	66	14	288	13	72	23	-71	+ 12	-	+3.1	+ 4.2	-
2		24.8	66	33	288	38	71	58	-71	+ 13	-	+3.1	+ 4.1	-
3		24.8	66	52	289	2	71	34	-71	+ 15	-	+3.2	+ 4.1	-
4		24.9	67	11	289	26	71	10	-71	+ 16	-	+3.3	+ 4.0	-
5		24.9	67	31	289	50	70	46	-70	+ 17	-	+3.4	+ 3.9	-
6		24.9	67	52	290	13	70	23	-70	+ 19	-	+3.4	+ 3.8	-
7		24.9	68	12	290	36	70	0	-70	+ 20	-	+3.5	+ 3.8	-
8		25.0	68	33	290	58	69	38	-69	+ 21	-	+3.5	+ 3.7	-
9		25.0	68	54	291	20	69	16	-69	+ 22	-	+3.6	+ 3.6	-
10		25.0	69	16	291	42	68	55	-69	+ 24	-	+3.7	+ 3.5	-
11		25.0	69	38	292	3	68	34	-68	+ 25	-	+3.7	+ 3.5	-
12		25.0	70	1	292	23	68	13	-68	+ 26	-	+3.8	+ 3.4	-
13		25.1	70	23	292	43	67	53	-67	+ 27	-	+3.8	+ 3.3	-
14		25.1	70	46	293	3	67	34	-67	+ 28	-	+3.9	+ 3.2	-
15		25.1	71	10	293	22	67	15	-66	+ 29	-	+3.9	+ 3.2	-
16		25.1	71	33	293	41	66	56	-66	+ 31	-	+4.0	+ 3.1	-
17		25.1	71	57	293	59	66	38	-65	+ 32	-	+4.0	+ 3.0	-
18		25.2	72	22	294	17	66	21	-65	+ 33	-	+4.1	+ 2.9	-
19		25.2	72	46	294	34	66	4	-64	+ 34	-	+4.1	+ 2.8	-
+20	21	25.2	73	11	294	51	65	47	-64	+ 35	-	+4.2	+ 2.8	-

Annual Precessions of S, z,  $A_E$ , and  $A_W$ .

$\varphi$	$\delta S$	$\delta z$	$\delta A_E$	$\delta A_W$
	<sup>m</sup>	<sup>'</sup>	<sup>'</sup>	<sup>'</sup>
+ 0	+0.05	-0.1	-0.3	-0.1
5	0.05	0.1	0.3	0.1
10	0.05	0.1	0.3	0.1
15	0.05	0.1	0.3	0.1
+20	+0.05	-0.1	-0.3	-0.2

	No.	Star	Mag.	$\alpha_{1950}$	$\delta_{1950}$
				<sup>h</sup> <sup>m</sup>	<sup>°</sup> <sup>'</sup>
Pair No. 178	E 7	$\eta$ Ceti	3.6	1 6.1	-10 27
	W 148	$\nu$ Ophiuchi	3.5	17 56.3	- 9 46

$\varphi$	S		z		$A_E$		$A_W$		dz	$dA_E$	$dA_W$	Var. for $\Delta\varphi = +10'$		
	<sup>h</sup>	<sup>m</sup>	<sup>°</sup>	<sup>'</sup>	<sup>°</sup>	<sup>'</sup>	<sup>°</sup>	<sup>'</sup>				$\Delta z$	$\Delta A$	
												E	W	
+ 0	21	31.4	54	59	282	48	78	3	-73	+ 12	-	+2.2	+ 6.9	-
1		31.4	55	12	283	28	77	22	-73	+ 14	-	+2.3	+ 6.8	-
2		31.4	55	26	284	9	76	42	-73	+ 15	-	+2.4	+ 6.7	-
3		31.4	55	41	284	49	76	2	-73	+ 17	-	+2.5	+ 6.6	-
4		31.5	55	56	285	28	75	22	-72	+ 19	-	+2.6	+ 6.5	-
5		31.5	56	12	286	7	74	44	-72	+ 21	-	+2.7	+ 6.5	-
6		31.5	56	29	286	46	74	5	-72	+ 22	-	+2.8	+ 6.4	-
7		31.6	56	46	287	24	73	27	-71	+ 24	-	+2.9	+ 6.3	-
8		31.6	57	4	288	1	72	50	-71	+ 26	-	+3.0	+ 6.2	-
9		31.6	57	22	288	38	72	13	-70	+ 27	-	+3.1	+ 6.1	-
10		31.6	57	41	289	14	71	37	-70	+ 29	-	+3.2	+ 6.0	-
11		31.7	58	1	289	50	71	2	-69	+ 30	-	+3.3	+ 5.9	-
12		31.7	58	21	290	25	70	27	-69	+ 32	-	+3.4	+ 5.8	-
13		31.7	58	42	290	59	69	52	-68	+ 33	-	+3.5	+ 5.7	-
14		31.8	59	3	291	33	69	19	-68	+ 34	-	+3.6	+ 5.6	-
15		31.8	59	25	292	7	68	45	-67	+ 36	-	+3.7	+ 5.5	-
16		31.8	59	47	292	40	68	13	-67	+ 37	-	+3.8	+ 5.4	-
17		31.9	60	10	293	12	67	41	-66	+ 38	-	+3.9	+ 5.3	-
18		31.9	60	34	293	43	67	10	-65	+ 40	-	+4.0	+ 5.2	-
19		31.9	60	58	294	14	66	39	-65	+ 41	-	+4.0	+ 5.1	-
+20	21	32.0	61	22	294	45	66	9	-64	+ 42	-	+4.1	+ 5.0	-

Annual Precessions of S, z,  $A_E$ , and  $A_W$ .

$\varphi$	$\delta S$	$\delta z$	$\delta A_E$	$\delta A_W$
	<sup>m</sup>	<sup>'</sup>	<sup>'</sup>	<sup>'</sup>
+ 0	+0.05	-0.1	-0.4	0.0
5	0.05	0.1	0.4	0.0
10	0.05	0.1	0.4	-0.1
15	0.05	0.1	0.4	0.1
+20	+0.05	-0.1	-0.4	-0.1



TABLE II.

	No.	Star	Mag.	$\alpha_{1950}$	$\delta_{1950}$
Pair No. 179	E 9	$\theta$ Ceti	3.8	1 21.5	-8 26
	W 148	$\nu$ Ophiuchi	3.5	17 56.3	-9 46

$\phi$	S		z		$A_E$		$A_W$		dz	$dA_E$	$dA_W$	Var. for $\Delta\phi = +10'$		
	h	m	°	'	°	'	°	'				$\Delta z$	$\Delta A$	E
+ 0	21	38.6	56	46	280	6	78	17	-74	+ 10	-	+1.9	+ 6.4	-
1		38.6	56	57	280	44	77	39	-74	+ 11	-	+2.0	+ 6.4	-
2		38.5	57	10	281	22	77	1	-73	+ 13	-	+2.1	+ 6.3	-
3		38.4	57	23	282	0	76	23	-73	+ 15	-	+2.2	+ 6.2	-
4		38.4	57	36	282	37	75	46	-73	+ 17	-	+2.3	+ 6.2	-
5		38.3	57	51	283	14	75	9	-73	+ 18	-	+2.4	+ 6.1	-
6		38.3	58	5	283	50	74	33	-72	+ 20	-	+2.5	+ 6.0	-
7		38.2	58	21	284	26	73	57	-72	+ 22	-	+2.6	+ 5.9	-
8		38.2	58	37	285	1	73	21	-71	+ 23	-	+2.7	+ 5.9	-
9		38.1	58	54	285	36	72	46	-71	+ 25	-	+2.8	+ 5.8	-
10		38.0	59	11	286	11	72	11	-70	+ 26	-	+2.9	+ 5.7	-
11		38.0	59	29	286	44	71	37	-70	+ 28	-	+3.0	+ 5.6	-
12		37.9	59	47	287	18	71	4	-70	+ 29	-	+3.1	+ 5.5	-
13		37.9	60	6	287	50	70	31	-69	+ 31	-	+3.2	+ 5.4	-
14		37.8	60	26	288	23	69	58	-69	+ 32	-	+3.3	+ 5.3	-
15		37.8	60	46	288	54	69	26	-68	+ 34	-	+3.4	+ 5.2	-
16		37.7	61	6	289	25	68	54	-68	+ 35	-	+3.5	+ 5.1	-
17		37.6	61	27	289	56	68	23	-67	+ 36	-	+3.6	+ 5.0	-
18		37.6	61	49	290	26	67	53	-66	+ 38	-	+3.6	+ 5.0	-
19		37.5	62	11	290	55	67	23	-66	+ 39	-	+3.7	+ 4.9	-
+20	21	37.4	62	33	291	24	66	53	-65	+ 40	-	+3.8	+ 4.8	-

Annual Precessions of S, z,  $A_E$ , and  $A_W$ .

$\phi$	$\delta S$	$\delta z$	$\delta A_E$	$\delta A_W$
0	m	'	'	'
+ 0	+0.05	-0.1	-0.4	0.0
5	0.05	0.1	0.4	0.0
10	0.05	0.1	0.4	0.0
15	0.05	0.1	0.4	-0.1
+20	+0.05	-0.1	-0.3	-0.1

	No.	Star	Mag.	$\alpha_{1950}$	$\delta_{1950}$
Pair No. 180	E 14	$\xi$ Piscium	4.8	1 51.0	+2 57
	W 146	$\nu$ Ophiuchi	3.7	17 45.4	+2 43

$\phi$	S		z		$A_E$		$A_W$		dz	$dA_E$	$dA_W$	Var. for $\Delta\phi = +10'$		
	h	m	°	'	°	'	°	'				$\Delta z$	$\Delta A$	E
+ 0	21	48.2	61	22	266	39	93	6	-75	- 2	+	-0.6	+ 5.5	-
1		48.2	61	19	267	12	92	33	-75	- 1	+	-0.5	+ 5.5	-
2		48.2	61	16	267	44	92	1	-75	+ 1	-	-0.4	+ 5.5	-
3		48.2	61	14	268	17	91	28	-75	+ 3	-	-0.3	+ 5.5	-
4		48.2	61	13	268	50	90	55	-75	+ 5	-	-0.2	+ 5.5	-
5		48.1	61	12	269	23	90	22	-75	+ 6	-	-0.1	+ 5.5	-
6		48.1	61	12	269	56	89	49	-75	+ 8	-	0.0	+ 5.5	-
7		48.1	61	12	270	29	89	16	-75	+ 10	-	+0.1	+ 5.5	-
8		48.1	61	13	271	2	88	43	-74	+ 11	-	+0.2	+ 5.5	-
9		48.1	61	15	271	35	88	10	-74	+ 13	-	+0.3	+ 5.5	-
10		48.1	61	17	272	8	87	37	-74	+ 15	-	+0.4	+ 5.5	-
11		48.1	61	19	272	41	87	4	-74	+ 17	-	+0.5	+ 5.5	-
12		48.1	61	23	273	13	86	31	-73	+ 18	-	+0.6	+ 5.4	-
13		48.1	61	26	273	46	85	59	-73	+ 20	-	+0.7	+ 5.4	-
14		48.1	61	31	274	18	85	26	-73	+ 21	-	+0.8	+ 5.4	-
15		48.1	61	36	274	51	84	54	-72	+ 23	-	+0.9	+ 5.4	-
16		48.0	61	41	275	23	84	21	-72	+ 25	-	+1.0	+ 5.4	-
17		48.0	61	47	275	55	83	49	-71	+ 26	-	+1.1	+ 5.3	-
18		48.0	61	54	276	27	83	17	-71	+ 28	-	+1.1	+ 5.3	-
19		48.0	62	1	276	59	82	45	-70	+ 29	-	+1.2	+ 5.3	-
+20	21	48.0	62	8	277	30	82	14	-70	+ 31	-	+1.3	+ 5.2	-

Annual Precessions of S, z,  $A_E$ , and  $A_W$ .

$\phi$	$\delta S$	$\delta z$	$\delta A_E$	$\delta A_W$
0	m	'	'	'
+ 0	+0.05	0.0	-0.3	0.0
5	0.05	0.0	0.3	0.0
10	0.05	0.0	0.3	0.0
15	0.05	0.0	0.3	0.0
+20	+0.05	0.0	-0.3	0.0



TABLE II.

Pair No. 181  
 E 12  $\zeta$  Ceti 3.9  $\alpha_{1950}$   $\delta_{1950}$   
     W 148  $\nu$  Ophiuchi 3.5 17 56.3 - 9 46

$\varphi$	S		z		$A_E$		$A_W$		dz	$dA_E$	$dA_W$	Var. for $\Delta\varphi = +10'$		
	h	m	°	'	°	'	°	'				$\Delta z$	$\Delta A$	E
+ 0	21	52.8	60	14	282	13	78	44	-73	+ 9	-	+2.0	+ 5.6	-
1		52.8	60	27	282	46	78	11	-73	+ 11	-	+2.1	+ 5.5	-
2		52.9	60	40	283	19	77	38	-73	+ 12	-	+2.2	+ 5.5	-
3		52.9	60	54	283	52	77	5	-73	+ 14	-	+2.3	+ 5.4	-
4		52.9	61	8	284	24	76	33	-73	+ 16	-	+2.4	+ 5.4	-
5		53.0	61	23	284	56	76	1	-72	+ 17	-	+2.5	+ 5.3	-
6		53.0	61	38	285	28	75	29	-72	+ 19	-	+2.6	+ 5.2	-
7		53.0	61	54	285	59	74	58	-72	+ 20	-	+2.7	+ 5.2	-
8		53.1	62	10	286	30	74	28	-71	+ 22	-	+2.8	+ 5.1	-
9		53.1	62	27	287	0	73	58	-71	+ 23	-	+2.8	+ 5.0	-
10		53.1	62	44	287	30	73	28	-70	+ 25	-	+2.9	+ 5.0	-
11		53.2	63	2	287	59	72	59	-70	+ 26	-	+3.0	+ 4.9	-
12		53.2	63	20	288	28	72	30	-70	+ 27	-	+3.1	+ 4.8	-
13		53.2	63	39	288	57	72	2	-69	+ 29	-	+3.2	+ 4.7	-
14		53.3	63	58	289	25	71	34	-69	+ 30	-	+3.3	+ 4.6	-
15		53.3	64	18	289	53	71	6	-68	+ 31	-	+3.3	+ 4.6	-
16		53.4	64	38	290	20	70	39	-68	+ 33	-	+3.4	+ 4.5	-
17		53.4	64	58	290	46	70	13	-67	+ 34	-	+3.5	+ 4.4	-
18		53.4	65	19	291	13	69	47	-67	+ 35	-	+3.5	+ 4.3	-
19		53.5	65	41	291	38	69	22	-66	+ 36	-	+3.6	+ 4.2	-
+20	21	53.5	66	3	292	3	68	57	-65	+ 38	-	+3.7	+ 4.2	-

Annual Precessions of S, z,  $A_E$ , and  $A_W$ .

$\varphi$	$\delta S$	$\delta z$	$\delta A_E$	$\delta A_W$
0	m	'	'	'
+ 0	+0.05	-0.1	-0.3	0.0
5	0.05	0.1	0.3	0.0
10	0.05	0.1	0.3	0.0
15	0.05	0.1	0.3	-0.1
+20	+0.05	-0.1	-0.3	-0.1

DATA REQUIRED FOR OBSERVATION.

Pair No. 182  
 E 13  $\alpha$  Triang. 3.6  $\alpha_{1950}$   $\delta_{1950}$   
     W 151  $\circ$  Herculis 3.8 18 56.3 +29 20

$\varphi$	S		z		$A_E$		$A_W$		dz	$dA_E$	$dA_W$	Var. for $\Delta\varphi = +10'$		
	h	m	°	'	°	'	°	'				$\Delta z$	$\Delta A$	E
+ 0	21	58.3	63	0	236	38	122	41	-63	- 21	+	-5.5	+ 4.3	-
1		58.3	62	27	237	4	122	15	-63	- 20	+	-5.4	+ 4.4	-
2		58.3	61	55	237	31	121	48	-63	- 19	+	-5.3	+ 4.5	-
3		58.2	61	23	237	59	121	20	-64	- 18	+	-5.3	+ 4.6	-
4		58.2	60	52	238	27	120	52	-64	- 17	+	-5.2	+ 4.8	-
5		58.2	60	21	238	56	120	23	-64	- 16	+	-5.1	+ 4.9	-
6		58.2	59	50	239	25	119	53	-64	- 15	+	-5.0	+ 5.0	-
7		58.1	59	21	239	56	119	23	-65	- 13	+	-5.0	+ 5.1	-
8		58.1	58	51	240	27	118	51	-65	- 12	+	-4.9	+ 5.3	-
9		58.1	58	22	240	59	118	19	-65	- 11	+	-4.8	+ 5.4	-
10		58.1	57	53	241	32	117	46	-65	- 9	+	-4.7	+ 5.5	-
11		58.0	57	25	242	6	117	13	-65	- 8	+	-4.6	+ 5.7	-
12		58.0	56	58	242	40	116	38	-65	- 7	+	-4.5	+ 5.8	-
13		58.0	56	31	243	15	116	3	-65	- 5	+	-4.4	+ 5.9	-
14		58.0	56	5	243	51	115	27	-66	- 4	+	-4.3	+ 6.0	-
15		57.9	55	39	244	27	114	50	-66	- 2	+	-4.3	+ 6.2	-
16		57.9	55	14	245	5	114	13	-66	- 1	+	-4.2	+ 6.3	-
17		57.9	54	49	245	43	113	34	-66	+ 1	-	-4.1	+ 6.4	-
18		57.9	54	25	246	22	112	55	-66	+ 3	-	-4.0	+ 6.6	-
19		57.8	54	2	247	2	112	15	-66	+ 4	-	-3.9	+ 6.7	-
+20	21	57.8	53	39	247	42	111	34	-65	+ 6	-	-3.8	+ 6.8	-

Annual Precessions of S, z,  $A_E$ , and  $A_W$ .

$\varphi$	$\delta S$	$\delta z$	$\delta A_E$	$\delta A_W$
0	m	'	'	'
+ 0	+0.05	+0.2	-0.3	0.0
5	0.05	0.2	0.3	0.0
10	0.05	0.1	0.3	0.0
15	0.05	0.1	0.4	0.0
+20	+0.05	+0.1	-0.4	0.0



TABLE II.

		No.	Star	Mag.	$\alpha_{1950}$	$\delta_{1950}$
					<sup>h</sup> <sup>m</sup>	<sup>°</sup> <sup>'</sup>
Pair No. 183	E	16	$\nu$ Ceti	4.2	1 57.6	-21 19
	W	152	$\mu$ Sagittarii	4.0	18 10.8	-21 4

$\phi$	S		z		$A_E$		$A_W$		dz	$dA_E$	$dA_W$	Var. for $\Delta\phi = +10'$		
	<sup>h</sup>	<sup>m</sup>	<sup>°</sup>	<sup>'</sup>	<sup>°</sup>	<sup>'</sup>	<sup>°</sup>	<sup>'</sup>				$\Delta z$	$\Delta A$	E
+0	22	4.3	61	17	294	29	65	48	-68	+17	-	+4.1	+5.0	-
1		4.3	61	42	294	59	65	18	-68	+19	-	+4.2	+4.9	-
2		4.4	62	8	295	28	64	50	-68	+20	-	+4.3	+4.8	-
3		4.4	62	34	295	56	64	21	-68	+22	-	+4.4	+4.7	-
4		4.4	63	0	296	24	63	53	-67	+23	-	+4.4	+4.6	-
5		4.4	63	27	296	51	63	26	-67	+24	-	+4.5	+4.5	-
6		4.4	63	54	297	18	63	0	-66	+25	-	+4.5	+4.4	-
7		4.4	64	22	297	44	62	34	-66	+26	-	+4.6	+4.3	-
8		4.4	64	49	298	9	62	9	-66	+27	-	+4.7	+4.2	-
9		4.4	65	18	298	33	61	44	-65	+29	-	+4.8	+4.1	-
10		4.4	65	47	298	57	61	20	-65	+30	-	+4.8	+4.0	-
11		4.4	66	16	299	21	60	57	-64	+31	-	+4.9	+3.9	-
12		4.5	66	45	299	44	60	34	-64	+32	-	+4.9	+3.7	-
13		4.5	67	15	300	6	60	12	-63	+33	-	+5.0	+3.6	-
14		4.5	67	45	300	27	59	51	-63	+34	-	+5.0	+3.5	-
15		4.5	68	15	300	48	59	30	-62	+35	-	+5.1	+3.4	-
16		4.5	68	46	301	9	59	10	-62	+36	-	+5.2	+3.3	-
17		4.5	69	17	301	28	58	50	-61	+37	-	+5.2	+3.2	-
18		4.5	69	48	301	47	58	31	-60	+37	-	+5.3	+3.1	-
19		4.5	70	20	302	6	58	13	-60	+38	-	+5.3	+3.0	-
+20	22	4.5	70	52	302	24	57	55	-59	+39	-	+5.3	+2.9	-

Annual Precessions of S, z,  $A_E$ , and  $A_W$ .

$\phi$	$\delta S$	$\delta z$	$\delta A_E$	$\delta A_W$
+0	m	'	'	'
+0	+0.05	-0.1	-0.3	0.0
5	0.05	0.1	0.3	0.0
10	0.05	0.1	0.3	0.0
15	0.05	0.2	0.3	-0.1
+20	+0.05	-0.2	-0.3	-0.1

DATA REQUIRED FOR OBSERVATION.

		No.	Star	Mag.	$\alpha_{1950}$	$\delta_{1950}$
					<sup>h</sup> <sup>m</sup>	<sup>°</sup> <sup>'</sup>
Pair No. 184	E	10	$\eta$ Piscium	3.7	1 28.8	+15 5
	W	157	$\epsilon$ Aquilæ	4.2	18 57.4	+15 0

$\phi$	S		z		$A_E$		$A_W$		dz	$dA_E$	$dA_W$	Var. for $\Delta\phi = +10'$		
	<sup>h</sup>	<sup>m</sup>	<sup>°</sup>	<sup>'</sup>	<sup>°</sup>	<sup>'</sup>	<sup>°</sup>	<sup>'</sup>				$\Delta z$	$\Delta A$	E
+0	22	13.1	51	13	250	30	109	23	-71	-21	+	-3.3	+7.6	-
1		13.1	50	53	251	15	108	37	-71	-19	+	-3.2	+7.7	-
2		13.1	50	34	252	2	107	51	-71	-17	+	-3.1	+7.8	-
3		13.1	50	16	252	49	107	4	-72	-15	+	-2.9	+7.9	-
4		13.1	49	59	253	37	106	16	-72	-13	+	-2.8	+8.1	-
5		13.1	49	42	254	26	105	27	-72	-11	+	-2.7	+8.2	-
6		13.1	49	27	255	15	104	38	-72	-9	+	-2.5	+8.3	-
7		13.1	49	12	256	5	103	48	-72	-7	+	-2.4	+8.4	-
8		13.1	48	58	256	56	102	58	-72	-4	+	-2.3	+8.5	-
9		13.1	48	45	257	47	102	6	-72	-2	+	-2.1	+8.6	-
10		13.1	48	33	258	39	101	14	-72	0		-2.0	+8.7	-
11		13.1	48	21	259	31	100	22	-72	+2	-	-1.8	+8.7	-
12		13.1	48	11	260	23	99	29	-72	+5	-	-1.7	+8.8	-
13		13.1	48	2	261	17	98	36	-72	+7	-	-1.5	+8.9	-
14		13.1	47	53	262	10	97	43	-72	+9	-	-1.4	+9.0	-
15		13.1	47	45	263	4	96	49	-72	+12	-	-1.2	+9.0	-
16		13.1	47	39	263	58	95	54	-72	+14	-	-1.0	+9.1	-
17		13.1	47	33	264	53	95	0	-71	+16	-	-0.9	+9.1	-
18		13.0	47	28	265	48	94	5	-71	+19	-	-0.7	+9.1	-
19		13.0	47	24	266	42	93	10	-71	+21	-	-0.6	+9.2	-
+20	22	13.0	47	21	267	38	92	15	-70	+23	-	-0.4	+9.2	-

Annual Precessions of S, z,  $A_E$ , and  $A_W$ .

$\phi$	$\delta S$	$\delta z$	$\delta A_E$	$\delta A_W$
+0	m	'	'	'
+0	+0.05	+0.1	-0.4	+0.1
5	0.05	0.1	0.4	0.1
10	0.05	+0.1	0.4	0.1
15	0.05	0.0	0.4	0.1
+20	+0.05	0.0	-0.4	+0.1



TABLE II.

	No.	Star	Mag.	$\alpha_{1950}$	$\delta_{1950}$
				<sup>h</sup> <sup>m</sup>	<sup>°</sup> <sup>'</sup>
Pair No. 185	E 15	$\beta$ Arietis	2.7	1 51.9	+20 34
	W 155	110 Herculis	4.3	18 43.5	+20 30

$\phi$	S		z		$A_E$		$A_W$		dz	$dA_E$	$dA_W$	Var. for $\Delta\phi = +10'$			
	<sup>h</sup>	<sup>m</sup>	<sup>°</sup>	<sup>'</sup>	<sup>°</sup>	<sup>'</sup>	<sup>°</sup>	<sup>'</sup>				$\Delta z$	$\Delta A$	E	W
+0	22	17.7	56	45	245	10	114	45	-68	-	21	+	-4.2	+ 6.0	-
1		17.7	56	21	245	46	114	9	-68	-	20	+	-4.1	+ 6.1	-
2		17.7	55	56	246	23	113	32	-69	-	18	+	-4.0	+ 6.2	-
3		17.7	55	33	247	1	112	55	-69	-	17	+	-3.9	+ 6.3	-
4		17.7	55	10	247	39	112	16	-69	-	15	+	-3.8	+ 6.4	-
5		17.7	54	47	248	18	111	37	-69	-	13	+	-3.7	+ 6.6	-
6		17.7	54	25	248	58	110	57	-70	-	12	+	-3.6	+ 6.7	-
7		17.7	54	4	249	38	110	17	-70	-	10	+	-3.5	+ 6.8	-
8		17.7	53	44	250	19	109	36	-70	-	8	+	-3.4	+ 6.9	-
9		17.7	53	24	251	1	108	54	-70	-	7	+	-3.2	+ 7.0	-
10		17.7	53	5	251	43	108	12	-70	-	5	+	-3.1	+ 7.1	-
11		17.7	52	46	252	27	107	28	-70	-	3	+	-3.0	+ 7.2	-
12		17.7	52	28	253	10	106	45	-70	-	1	+	-2.9	+ 7.4	-
13		17.7	52	12	253	55	106	0	-70	+	1	-	-2.8	+ 7.5	-
14		17.7	51	55	254	40	105	15	-70	+	3	-	-2.6	+ 7.6	-
15		17.7	51	40	255	25	104	30	-70	+	5	-	-2.5	+ 7.7	-
16		17.7	51	25	256	12	103	43	-70	+	7	-	-2.4	+ 7.7	-
17		17.7	51	11	256	58	102	57	-70	+	9	-	-2.2	+ 7.8	-
18		17.7	50	58	257	45	102	9	-70	+	11	-	-2.1	+ 7.9	-
19		17.7	50	46	258	33	101	21	-69	+	13	-	-2.0	+ 8.0	-
+20	22	17.7	50	34	259	22	100	33	-69	+	15	-	-1.9	+ 8.1	-

Annual Precessions of S, z,  $A_E$ , and  $A_W$ .

$\phi$	$\delta S$	$\delta z$	$\delta A_E$	$\delta A_W$
+0	m	'	'	'
5	+0.05	+0.1	-0.3	0.0
10	0.05	0.1	0.3	+0.1
15	0.05	0.1	0.4	0.1
+20	+0.05	+0.1	-0.4	+0.1

	No.	Star	Mag.	$\alpha_{1950}$	$\delta_{1950}$
				<sup>h</sup> <sup>m</sup>	<sup>°</sup> <sup>'</sup>
Pair No. 186	E 26	$\alpha$ Ceti	2.8	2 59.7	+3 54
	W 149	67 Ophiuchi	4.0	17 58.1	+2 56

$\phi$	S		z		$A_E$		$A_W$		dz	$dA_E$	$dA_W$	Var. for $\Delta\phi = +10'$			
	<sup>h</sup>	<sup>m</sup>	<sup>°</sup>	<sup>'</sup>	<sup>°</sup>	<sup>'</sup>	<sup>°</sup>	<sup>'</sup>				$\Delta z$	$\Delta A$	E	W
+0	22	29.0	68	21	265	48	93	9	-75	-	2	+	-0.6	+ 4.0	-
1		28.9	68	18	266	12	92	46	-75		0		-0.6	+ 4.0	-
2		28.9	68	15	266	36	92	22	-75	+	1	-	-0.5	+ 4.0	-
3		28.8	68	12	267	0	91	58	-75	+	3	-	-0.4	+ 4.0	-
4		28.8	68	9	267	24	91	34	-75	+	4	-	-0.4	+ 4.0	-
5		28.8	68	7	267	48	91	10	-75	+	6	-	-0.3	+ 4.0	-
6		28.7	68	6	268	12	90	45	-75	+	7	-	-0.2	+ 4.0	-
7		28.7	68	5	268	36	90	21	-75	+	9	-	-0.2	+ 4.0	-
8		28.7	68	4	269	0	89	57	-74	+	10	-	-0.1	+ 4.0	-
9		28.6	68	4	269	24	89	33	-74	+	12	-	0.0	+ 4.0	-
10		28.6	68	4	269	48	89	8	-74	+	13	-	+0.1	+ 4.0	-
11		28.5	68	4	270	12	88	44	-74	+	15	-	+0.1	+ 4.0	-
12		28.5	68	5	270	36	88	20	-73	+	16	-	+0.2	+ 4.0	-
13		28.5	68	7	271	0	87	56	-73	+	18	-	+0.3	+ 4.0	-
14		28.4	68	9	271	24	87	31	-73	+	19	-	+0.4	+ 4.0	-
15		28.4	68	11	271	48	87	7	-72	+	21	-	+0.4	+ 4.0	-
16		28.4	68	14	272	12	86	43	-72	+	22	-	+0.5	+ 4.0	-
17		28.3	68	17	272	36	86	19	-72	+	24	-	+0.5	+ 4.0	-
18		28.3	68	20	272	59	85	55	-71	+	25	-	+0.6	+ 3.9	-
19		28.2	68	24	273	23	85	31	-71	+	27	-	+0.7	+ 3.9	-
+20	22	28.2	68	28	273	47	85	7	-70	+	28	-	+0.7	+ 3.9	-

Annual Precessions of S, z,  $A_E$ , and  $A_W$ .

$\phi$	$\delta S$	$\delta z$	$\delta A_E$	$\delta A_W$
+0	m	'	'	'
5	+0.05	0.0	-0.3	0.0
10	0.05	0.0	0.3	0.0
15	0.05	0.0	0.3	0.0
+20	+0.05	0.0	-0.3	0.0



TABLE II.

Pair No. 187  
 E 16  $\nu$  Ceti 4.2  $\alpha_{1950}$   $\delta_{1950}$   
 W 160  $\pi$  Sagittarii 3.0 19 6.8 -21 6

$\phi$	S		z		$A_E$		$A_W$		dz	$dA_E$	$dA_W$	Var. for $\Delta\phi = +10'$		
	h	m	°	'	°	'	°	'				$\Delta z$	$\Delta A$	E
+0	22	32.4	54	58	296	22	63	55	-67	+24	-	+4.4	+6.3	-
1		32.4	55	24	296	59	63	18	-67	+26	-	+4.5	+6.2	-
2		32.4	55	52	297	35	62	41	-67	+27	-	+4.6	+6.0	-
3		32.4	56	20	298	11	62	5	-66	+28	-	+4.7	+5.9	-
4		32.4	56	48	298	46	61	30	-66	+30	-	+4.8	+5.7	-
5		32.4	57	17	299	20	60	56	-65	+31	-	+4.9	+5.6	-
6		32.4	57	47	299	53	60	23	-65	+32	-	+5.0	+5.5	-
7		32.4	58	17	300	26	59	51	-64	+33	-	+5.0	+5.3	-
8		32.4	58	47	300	57	59	19	-64	+34	-	+5.1	+5.2	-
9		32.4	59	18	301	28	58	48	-63	+35	-	+5.2	+5.1	-
10		32.5	59	50	301	58	58	18	-62	+36	-	+5.3	+5.0	-
11		32.5	60	21	302	28	57	49	-62	+37	-	+5.3	+4.8	-
12		32.5	60	54	302	56	57	21	-61	+38	-	+5.4	+4.7	-
13		32.5	61	26	303	24	56	53	-61	+39	-	+5.5	+4.6	-
14		32.5	61	59	303	51	56	26	-60	+40	-	+5.6	+4.4	-
15		32.5	62	33	304	17	56	0	-60	+41	-	+5.6	+4.3	-
16		32.5	63	7	304	43	55	35	-59	+42	-	+5.7	+4.2	-
17		32.5	63	41	305	7	55	10	-58	+43	-	+5.7	+4.1	-
18		32.5	64	16	305	31	54	46	-58	+44	-	+5.8	+3.9	-
19		32.5	64	51	305	55	54	23	-57	+45	-	+5.9	+3.8	-
+20	22	32.6	65	26	306	17	54	0	-57	+45	-	+5.9	+3.7	-

Annual Precessions of S, z,  $A_E$ , and  $A_W$ .

$\phi$	$\delta S$	$\delta z$	$\delta A_E$	$\delta A_W$
0	m	'	'	'
+0	+0.05	-0.1	-0.3	+0.1
5	0.05	0.2	0.3	+0.1
10	0.05	0.2	0.3	0.0
15	0.05	0.2	0.3	0.0
+20	+0.05	-0.2	-0.3	0.0

Pair No. 188  
 E 14  $\xi$  Piscium 4.8  $\alpha_{1950}$   $\delta_{1950}$   
 W 161  $\delta$  Aquilæ 3.4 19 23.0 +3 1

$\phi$	S		z		$A_E$		$A_W$		dz	$dA_E$	$dA_W$	Var. for $\Delta\phi = +10'$		
	h	m	°	'	°	'	°	'				$\Delta z$	$\Delta A$	E
+0	22	37.0	49	11	266	7	93	59	-75	-5	+	-0.7	+8.6	-
1		37.0	49	8	266	59	93	7	-75	-2	+	-0.5	+8.6	-
2		37.0	49	5	267	50	92	15	-75	0	-	-0.4	+8.6	-
3		37.0	49	3	268	42	91	24	-75	+3	-	-0.2	+8.7	-
4		37.0	49	2	269	34	90	31	-75	+5	-	-0.1	+8.7	-
5		37.0	49	2	270	27	89	39	-75	+7	-	+0.1	+8.7	-
6		37.0	49	3	271	19	88	47	-75	+10	-	+0.2	+8.7	-
7		37.0	49	5	272	11	87	55	-74	+12	-	+0.4	+8.7	-
8		37.0	49	7	273	3	87	3	-74	+14	-	+0.5	+8.6	-
9		37.0	49	11	273	54	86	12	-74	+16	-	+0.7	+8.6	-
10		37.0	49	16	274	46	85	20	-74	+19	-	+0.8	+8.6	-
11		37.0	49	21	275	37	84	29	-73	+21	-	+1.0	+8.6	-
12		37.0	49	27	276	29	83	37	-73	+23	-	+1.1	+8.5	-
13		37.0	49	34	277	19	82	47	-72	+25	-	+1.3	+8.4	-
14		37.0	49	42	278	10	81	56	-72	+27	-	+1.4	+8.4	-
15		37.0	49	51	279	0	81	6	-71	+29	-	+1.6	+8.3	-
16		37.0	50	1	279	50	80	16	-71	+32	-	+1.7	+8.3	-
17		37.0	50	12	280	39	79	27	-70	+34	-	+1.8	+8.2	-
18		37.0	50	23	281	28	78	38	-70	+35	-	+2.0	+8.1	-
19		37.0	50	35	282	17	77	50	-69	+37	-	+2.1	+8.0	-
+20	22	37.0	50	49	283	5	77	2	-68	+39	-	+2.3	+7.9	-

Annual Precessions of S, z,  $A_E$ , and  $A_W$ .

$\phi$	$\delta S$	$\delta z$	$\delta A_E$	$\delta A_W$
0	m	'	'	'
+0	+0.05	0.0	-0.4	+0.2
5	0.05	0.0	0.4	0.2
10	0.05	0.0	0.4	0.2
15	0.05	-0.1	0.4	0.2
+20	+0.05	-0.1	-0.4	+0.1



TABLE II.

Pair No. 189  
 E 27 o Tauri 3.8  $\alpha_{1950}$   $\delta_{1950}$   
 $3^{\text{h}} 22.1^{\text{m}}$   $+8^{\circ} 51'$   
 W 150 72 Ophiuchi 3.7 18 5.0  $+9^{\circ} 33'$

$\varphi$	S		z		$A_E$		$A_W$		dz	$dA_E$	$dA_W$	Var. for $\Delta\varphi = +10'$			
	h	m	°	'	°	'	°	'				$\Delta z$	$\Delta A$	E	W
+0	22	43.5	70	32	260	36	100	9	-74	-	5	+	-1.7	+3.5	-
1		43.5	70	22	260	57	99	48	-74	-	3	+	-1.6	+3.5	-
2		43.5	70	12	261	19	99	26	-74	-	2	+	-1.6	+3.6	-
3		43.6	70	3	261	40	99	5	-74	0			-1.5	+3.6	-
4		43.6	69	54	262	2	98	43	-74	+	1	-	-1.5	+3.6	-
5		43.6	69	46	262	24	98	22	-74	+	3	-	-1.4	+3.6	-
6		43.6	69	38	262	46	98	0	-74	+	4	-	-1.3	+3.7	-
7		43.7	69	30	263	8	97	37	-74	+	6	-	-1.3	+3.7	-
8		43.7	69	22	263	30	97	15	-74	+	7	-	-1.2	+3.8	-
9		43.7	69	15	263	53	96	53	-74	+	9	-	-1.1	+3.8	-
10		43.7	69	9	264	15	96	30	-73	+	10	-	-1.1	+3.8	-
11		43.8	69	3	264	38	96	7	-73	+	12	-	-1.0	+3.8	-
12		43.8	68	57	265	1	95	45	-73	+	13	-	-0.9	+3.9	-
13		43.8	68	51	265	25	95	22	-73	+	14	-	-0.8	+3.9	-
14		43.8	68	46	265	48	94	59	-73	+	16	-	-0.8	+3.9	-
15		43.9	68	42	266	11	94	35	-72	+	17	-	-0.7	+3.9	-
16		43.9	68	38	266	35	94	12	-72	+	19	-	-0.7	+3.9	-
17		43.9	68	34	266	58	93	49	-72	+	20	-	-0.6	+3.9	-
18		44.0	68	30	267	22	93	25	-71	+	22	-	-0.5	+4.0	-
19		44.0	68	27	267	46	93	2	-71	+	23	-	-0.5	+4.0	-
+20	22	44.0	68	25	268	9	92	38	-70	+	25	-	-0.4	+4.0	-

Annual Precessions of S, z,  $A_E$ , and  $A_W$ .

$\varphi$	$\delta S$	$\delta z$	$\delta A_E$	$\delta A_W$
+0	+0.05	+0.1	-0.2	0.0
5	0.05	0.0	0.2	0.0
10	0.05	0.0	0.2	0.0
15	0.05	0.0	0.2	0.0
+20	+0.05	0.0	-0.3	0.0

DATA REQUIRED FOR OBSERVATION.

Pair No. 190  
 E 15  $\beta$  Arietis 2.7  $\alpha_{1950}$   $\delta_{1950}$   
 $1^{\text{h}} 51.9^{\text{m}}$   $+20^{\circ} 34'$   
 W 168  $\gamma$  Sagittae 3.7 19 56.5  $+19^{\circ} 21'$

$\varphi$	S		z		$A_E$		$A_W$		dz	$dA_E$	$dA_W$	Var. for $\Delta\varphi = +10'$			
	h	m	°	'	°	'	°	'				$\Delta z$	$\Delta A$	E	W
+0	22	55.1	48	23	241	58	116	18	-67	-	31	+	-4.6	+7.9	-
1		55.0	47	56	242	46	115	30	-67	-	30	+	-4.4	+8.1	-
2		55.0	47	30	243	35	114	41	-68	-	28	+	-4.3	+8.3	-
3		54.9	47	4	244	26	113	51	-68	-	26	+	-4.2	+8.4	-
4		54.9	46	40	245	17	113	0	-68	-	24	+	-4.0	+8.6	-
5		54.8	46	16	246	9	112	7	-69	-	22	+	-3.9	+8.8	-
6		54.7	45	53	247	2	111	14	-69	-	20	+	-3.8	+9.0	-
7		54.7	45	31	247	57	110	19	-69	-	18	+	-3.6	+9.1	-
8		54.6	45	9	248	52	109	24	-70	-	16	+	-3.5	+9.3	-
9		54.6	44	49	249	48	108	27	-70	-	14	+	-3.3	+9.5	-
10		54.5	44	30	250	45	107	29	-70	-	11	+	-3.2	+9.6	-
11		54.4	44	11	251	44	106	31	-70	-	9	+	-3.0	+9.8	-
12		54.4	43	54	252	43	105	31	-70	-	6	+	-2.8	+9.9	-
13		54.3	43	37	253	43	104	31	-70	-	4	+	-2.7	+10.1	-
14		54.2	43	22	254	44	103	30	-70	-	1	+	-2.5	+10.2	-
15		54.2	43	8	255	46	102	27	-70	+	1	-	-2.3	+10.3	-
16		54.1	42	54	256	48	101	24	-70	+	4	-	-2.1	+10.5	-
17		54.0	42	42	257	51	100	21	-70	+	7	-	-1.9	+10.6	-
18		54.0	42	31	258	55	99	16	-70	+	9	-	-1.8	+10.7	-
19		53.9	42	21	259	59	98	11	-70	+	12	-	-1.6	+10.8	-
+20	22	53.8	42	12	261	4	97	6	-70	+	15	-	-1.4	+10.9	-

Annual Precessions of S, z,  $A_E$ , and  $A_W$ .

$\varphi$	$\delta S$	$\delta z$	$\delta A_E$	$\delta A_W$
+0	+0.05	+0.2	-0.4	+0.2
5	0.05	0.1	0.4	0.2
10	0.05	0.1	0.4	0.2
15	0.05	+0.1	0.4	0.2
+20	+0.05	0.0	-0.5	+0.3



TABLE II.

	No.	Star	Mag.	$\alpha_{1950}$	$\delta_{1950}$
Pair No. 191	E 10	$\eta$ Piscium	3.7	1 <sup>h</sup> 28.8 <sup>m</sup>	+15° 5'
	W 172	$\beta$ Delphini	3.7	20 35.2	+14 25

$\varphi$	S		z		$A_E$		$A_W$		dz	$dA_E$	$dA_W$	Var. for $\Delta\varphi = +10'$			
	h	m	°	'	°	'	°	'				$\Delta z$	$\Delta A$	E	W
+0	23	2.5	39	44	245	58	112	55	-69	-	37	+	-4.0	+ 11.0	-
1		2.4	39	21	247	5	111	48	-69	-	35	+	-3.8	+ 11.3	-
2		2.4	38	59	248	13	110	40	-70	-	32	+	-3.6	+ 11.5	-
3		2.4	38	37	249	23	109	30	-70	-	29	+	-3.4	+ 11.7	-
4		2.3	38	17	250	34	108	19	-71	-	26	+	-3.2	+ 12.0	-
5		2.3	37	59	251	47	107	6	-71	-	23	+	-3.0	+ 12.2	-
6		2.2	37	41	253	1	105	52	-72	-	20	+	-2.8	+ 12.4	-
7		2.2	37	25	254	16	104	37	-72	-	17	+	-2.6	+ 12.6	-
8		2.2	37	10	255	32	103	20	-72	-	14	+	-2.4	+ 12.8	-
9		2.1	36	56	256	49	102	3	-72	-	11	+	-2.2	+ 13.0	-
10		2.1	36	43	258	8	100	45	-72	-	7	+	-2.0	+ 13.1	-
11		2.0	36	32	259	27	99	25	-73	-	3	+	-1.7	+ 13.3	-
12		2.0	36	23	260	47	98	5	-73	-	0		-1.5	+ 13.4	-
13		2.0	36	14	262	7	96	44	-73	+	4	-	-1.3	+ 13.5	-
14		1.9	36	7	263	29	95	22	-72	+	8	-	-1.0	+ 13.6	-
15		1.9	36	2	264	51	94	0	-72	+	11	-	-0.8	+ 13.7	-
16		1.8	35	58	266	13	92	38	-72	+	15	-	-0.6	+ 13.7	-
17		1.8	35	55	267	35	91	15	-72	+	19	-	-0.3	+ 13.7	-
18		1.7	35	54	268	58	89	52	-71	+	23	-	-0.1	+ 13.8	-
19		1.7	35	54	270	20	88	29	-71	+	26	-	+0.2	+ 13.8	-
+20	23	1.7	35	56	271	43	87	6	-70	+	30	-	+0.4	+ 13.8	-

Annual Precessions of S, z,  $A_E$ , and  $A_W$ .

$\varphi$	$\delta S$	$\delta z$	$\delta A_E$	$\delta A_W$
+0	m	'	'	'
5	+0.05	+0.1	-0.4	+0.3
10	0.05	0.1	0.5	0.3
15	0.05	+0.1	0.5	0.4
+20	+0.05	0.0	0.5	0.4

DATA REQUIRED FOR OBSERVATION.

	No.	Star	Mag.	$\alpha_{1950}$	$\delta_{1950}$
Pair No. 192	E 24	41 Arietis	3.7	2 <sup>h</sup> 47.0 <sup>m</sup>	+27° 3'
	W 162	$\beta^1$ Cygni	3.2	19 28.7	+27 51

$\varphi$	S		z		$A_E$		$A_W$		dz	$dA_E$	$dA_W$	Var. for $\Delta\varphi = +10'$			
	h	m	°	'	°	'	°	'				$\Delta z$	$\Delta A$	E	W
+0	23	7.3	59	45	238	14	122	44	-63	-	24	+	-5.3	+ 4.9	-
1		7.3	59	14	238	44	122	15	-64	-	23	+	-5.3	+ 5.1	-
2		7.4	58	42	239	15	121	44	-64	-	22	+	-5.2	+ 5.2	-
3		7.4	58	11	239	47	121	12	-64	-	20	+	-5.1	+ 5.3	-
4		7.4	57	41	240	19	120	40	-65	-	19	+	-5.0	+ 5.5	-
5		7.5	57	11	240	52	120	7	-65	-	18	+	-4.9	+ 5.6	-
6		7.5	56	42	241	26	119	33	-65	-	17	+	-4.9	+ 5.8	-
7		7.5	56	13	242	1	118	58	-66	-	15	+	-4.8	+ 5.9	-
8		7.6	55	44	242	37	118	22	-66	-	14	+	-4.7	+ 6.0	-
9		7.6	55	17	243	14	117	46	-66	-	12	+	-4.6	+ 6.2	-
10		7.6	54	49	243	51	117	8	-66	-	11	+	-4.5	+ 6.3	-
11		7.7	54	23	244	30	116	30	-66	-	9	+	-4.4	+ 6.5	-
12		7.7	53	57	245	9	115	51	-66	-	8	+	-4.3	+ 6.6	-
13		7.7	53	31	245	49	115	12	-66	-	6	+	-4.2	+ 6.7	-
14		7.8	53	7	246	29	114	31	-66	-	5	+	-4.1	+ 6.9	-
15		7.8	52	43	247	11	113	50	-66	-	3	+	-4.0	+ 7.0	-
16		7.8	52	19	247	54	113	7	-66	-	1	+	-3.8	+ 7.2	-
17		7.9	51	56	248	37	112	24	-66	+	1	-	-3.7	+ 7.3	-
18		7.9	51	34	249	21	111	41	-66	+	2	-	-3.6	+ 7.4	-
19		8.0	51	13	250	6	110	56	-66	+	4	-	-3.5	+ 7.6	-
+20	23	8.0	50	53	250	52	110	11	-66	+	6	-	-3.4	+ 7.7	-

Annual Precessions of S, z,  $A_E$ , and  $A_W$ .

$\varphi$	$\delta S$	$\delta z$	$\delta A_E$	$\delta A_W$
+0	m	'	'	'
5	+0.05	+0.2	-0.2	+0.1
10	0.05	0.2	0.3	0.1
15	0.05	0.2	0.3	0.2
+20	+0.05	+0.1	-0.3	+0.2



TABLE II.

	No.	Star	Mag.	$\alpha_{1950}$	$\delta_{1950}$
Pair No. 193	E 23	$\mu$ Ceti	4.4	2 42.2	+ 9 54
	W 163	$\gamma$ Aquilæ	2.8	19 43.9	+10 29

$\varphi$	S	z	$A_E$	$A_W$	dz	$dA_E$	$dA_W$	Var. for $\Delta\varphi = +10'$			
								$\Delta z$	$\Delta A$		
+ 0	h m ° /	° /	° /	° /	° /	° /	° /	° /	° /	° /	° /
1	23 12.9 53 36	257 40	103 4	-73	- 13 +	-2.2	+ 7.2 -				
2	12.9 53 23	258 23	102 21	-73	- 11 +	-2.1	+ 7.3 -				
3	13.0 53 11	259 7	101 37	-74	- 9 +	-2.0	+ 7.3 -				
4	13.0 53 0	259 51	100 53	-74	- 7 +	-1.8	+ 7.4 -				
5	13.0 52 49	260 36	100 9	-74	- 5 +	-1.7	+ 7.5 -				
6	13.0 52 39	261 21	99 24	-74	- 3 +	-1.6	+ 7.5 -				
7	13.1 52 30	262 7	98 38	-74	- 1 +	-1.4	+ 7.6 -				
8	13.1 52 22	262 52	97 53	-74	+ 2 -	-1.3	+ 7.7 -				
9	13.1 52 15	263 38	97 7	-74	+ 4 -	-1.2	+ 7.7 -				
10	13.1 52 8	264 25	96 20	-74	+ 6 -	-1.0	+ 7.7 -				
11	13.2 52 2	265 11	95 34	-74	+ 8 -	-0.9	+ 7.8 -				
12	13.2 51 57	265 58	94 47	-73	+ 10 -	-0.8	+ 7.8 -				
13	13.2 51 53	266 45	94 0	-73	+ 12 -	-0.6	+ 7.8 -				
14	13.2 51 50	267 32	93 13	-73	+ 14 -	-0.5	+ 7.9 -				
15	13.3 51 47	268 19	92 26	-73	+ 16 -	-0.4	+ 7.9 -				
16	13.3 51 45	269 7	91 39	-72	+ 18 -	-0.2	+ 7.9 -				
17	13.3 51 44	269 54	90 52	-72	+ 20 -	-0.1	+ 7.9 -				
18	13.4 51 44	270 42	90 5	-72	+ 22 -	+0.1	+ 7.9 -				
19	13.4 51 45	271 29	89 18	-71	+ 24 -	+0.2	+ 7.9 -				
20	13.4 51 47	272 16	88 31	-71	+ 26 -	+0.3	+ 7.9 -				
+20	23 13.4 51 49	273 4	87 44	-70	+ 28 -	+0.5	+ 7.9 -				

Annual Precessions of S, z,  $A_E$ , and  $A_W$ .

$\varphi$	$\delta S$	$\delta z$	$\delta A_E$	$\delta A_W$
0	m	° /	° /	° /
+ 0	+0.05	+0.1	-0.3	+0.2
5	0.05	+0.1	0.3	0.2
10	0.05	0.0	0.3	0.2
15	0.05	0.0	0.3	0.2
+20	+0.05	0.0	-0.3	+0.2

DATA REQUIRED FOR OBSERVATION.

	No.	Star	Mag.	$\alpha_{1950}$	$\delta_{1950}$
Pair No. 194	E 12	$\zeta$ Ceti	3.9	1 49.0	-10 35
	W 174	$\epsilon$ Aquarii	3.8	20 45.0	- 9 41

$\varphi$	S	z	$A_E$	$A_W$	dz	$dA_E$	$dA_W$	Var. for $\Delta\varphi = +10'$			
								$\Delta z$	$\Delta A$		
+ 0	h m ° /	° /	° /	° /	° /	° /	° /	° /	° /	° /	° /
1	23 17.4 39 44	286 42	71 46	-72	+ 26 -	+2.8	+ 11.6 -				
2	17.4 40 1	287 51	73 37	-72	+ 29 -	+2.9	+ 11.4 -				
3	17.5 40 19	288 59	72 29	-71	+ 32 -	+3.1	+ 11.2 -				
4	17.5 40 38	290 5	71 23	-71	+ 34 -	+3.3	+ 11.0 -				
5	17.6 40 59	291 11	70 18	-70	+ 37 -	+3.5	+ 10.8 -				
6	17.6 41 20	292 15	69 14	-69	+ 39 -	+3.7	+ 10.6 -				
7	17.7 41 43	293 18	68 11	-69	+ 41 -	+3.8	+ 10.4 -				
8	17.7 42 6	294 19	67 10	-68	+ 43 -	+4.0	+ 10.2 -				
9	17.8 42 31	295 19	66 9	-67	+ 45 -	+4.2	+ 9.9 -				
10	17.9 42 56	296 18	65 11	-67	+ 47 -	+4.3	+ 9.7 -				
11	17.9 43 23	297 16	64 13	-66	+ 49 -	+4.5	+ 9.5 -				
12	18.0 43 50	298 12	63 17	-65	+ 51 -	+4.6	+ 9.3 -				
13	18.0 44 18	299 7	62 23	-64	+ 52 -	+4.7	+ 9.0 -				
14	18.1 44 47	300 1	61 29	-64	+ 54 -	+4.9	+ 8.8 -				
15	18.1 45 17	300 53	60 37	-63	+ 55 -	+5.0	+ 8.6 -				
16	18.2 45 47	301 44	59 47	-62	+ 57 -	+5.2	+ 8.4 -				
17	18.2 46 18	302 34	58 58	-61	+ 58 -	+5.3	+ 8.2 -				
18	18.3 46 50	303 22	58 10	-60	+ 59 -	+5.4	+ 8.0 -				
19	18.4 47 23	304 9	57 23	-59	+ 60 -	+5.5	+ 7.7 -				
20	18.4 47 56	304 55	56 38	-58	+ 61 -	+5.6	+ 7.5 -				
+20	23 18.5 48 30	305 39	55 54	-57	+ 62 -	+5.7	+ 7.3 -				

Annual Precessions of S, z,  $A_E$ , and  $A_W$ .

$\varphi$	$\delta S$	$\delta z$	$\delta A_E$	$\delta A_W$
0	m	° /	° /	° /
+ 0	+0.05	-0.1	-0.5	+0.3
5	0.05	0.1	0.4	0.3
10	0.05	0.2	0.4	0.3
15	0.05	0.2	0.3	0.2
+20	+0.05	-0.2	-0.3	+0.2



TABLE II.

Pair No. 195  
 E 20  $\delta$  Ceti 4.0  $\alpha_{1950}$   $\delta_{1950}$   
 W 169  $\theta$  Aquilæ 3.4 20 8.7  $+0^{\circ} 7'$   
 $-0^{\circ} 58'$

$\varphi$	S		z		$A_E$		$A_W$		dz	$dA_E$	$dA_W$	Var. for $\Delta\varphi = +10'$				
	h	m	°	'	°	'	°	'				$\Delta z$	E	W		
+0	23	22.8	49	9	269	51	88	43	-75	+	1	-	+0.1	+	8.7	-
1		22.8	49	10	270	43	87	51	-75	+	3	-	+0.3	+	8.6	-
2		22.7	49	12	271	34	86	59	-75	+	5	-	+0.4	+	8.6	-
3		22.7	49	15	272	26	86	7	-75	+	8	-	+0.6	+	8.6	-
4		22.6	49	19	273	17	85	16	-75	+	10	-	+0.7	+	8.6	-
5		22.6	49	23	274	9	84	24	-75	+	12	-	+0.8	+	8.5	-
6		22.5	49	29	275	0	83	33	-74	+	15	-	+1.0	+	8.5	-
7		22.5	49	35	275	51	82	42	-74	+	17	-	+1.1	+	8.4	-
8		22.4	49	43	276	41	81	51	-74	+	19	-	+1.3	+	8.4	-
9		22.3	49	51	277	31	81	1	-73	+	21	-	+1.4	+	8.3	-
10		22.3	50	0	278	21	80	11	-73	+	23	-	+1.6	+	8.3	-
11		22.2	50	10	279	10	79	21	-72	+	25	-	+1.7	+	8.2	-
12		22.2	50	20	279	59	78	32	-72	+	27	-	+1.9	+	8.1	-
13		22.1	50	32	280	48	77	43	-71	+	29	-	+2.0	+	8.0	-
14		22.1	50	44	281	36	76	55	-71	+	31	-	+2.1	+	8.0	-
15		22.0	50	58	282	23	76	7	-70	+	33	-	+2.3	+	7.9	-
16		22.0	51	12	283	10	75	20	-70	+	35	-	+2.4	+	7.8	-
17		21.9	51	27	283	56	74	33	-69	+	37	-	+2.5	+	7.7	-
18		21.9	51	42	284	42	73	47	-69	+	39	-	+2.7	+	7.6	-
19		21.8	51	58	285	27	73	1	-68	+	41	-	+2.8	+	7.5	-
+20	23	21.8	52	16	286	12	72	16	-67	+	42	-	+2.9	+	7.4	-

Annual Precessions of S, z,  $A_E$ , and  $A_W$ .

$\varphi$	$\delta S$	$\delta z$	$\delta A_E$	$\delta A_W$
0	m	'	'	'
+0	+0.05	0.0	-0.3	+0.2
5	0.05	0.0	0.3	0.2
10	0.05	-0.1	0.3	0.2
15	0.05	0.1	0.3	0.2
+20	+0.05	-0.1	-0.3	+0.2

DATA REQUIRED FOR OBSERVATION.

Pair No. 196  
 E 22  $\pi$  Ceti 4.4  $\alpha_{1950}$   $\delta_{1950}$   
 W 170  $\beta$  Capric. 3.3 20 18.2  $-14^{\circ} 4'$   
 $-14^{\circ} 56'$

$\varphi$	S		z		$A_E$		$A_W$		dz	$dA_E$	$dA_W$	Var. for $\Delta\varphi = +10'$				
	h	m	°	'	°	'	°	'				$\Delta z$	E	W		
+0	23	29.6	50	10	288	27	70	23	-71	+	21	-	+3.3	+	7.9	-
1		29.5	50	30	289	14	69	36	-71	+	23	-	+3.4	+	7.8	-
2		29.5	50	50	290	0	68	50	-70	+	25	-	+3.5	+	7.6	-
3		29.4	51	12	290	45	68	4	-70	+	27	-	+3.6	+	7.5	-
4		29.4	51	34	291	30	67	20	-69	+	28	-	+3.8	+	7.3	-
5		29.4	51	57	292	14	66	36	-69	+	30	-	+3.9	+	7.2	-
6		29.3	52	20	292	56	65	53	-68	+	32	-	+4.0	+	7.1	-
7		29.3	52	45	293	38	65	11	-68	+	33	-	+4.1	+	6.9	-
8		29.2	53	10	294	19	64	30	-67	+	35	-	+4.2	+	6.8	-
9		29.2	53	35	295	0	63	49	-67	+	36	-	+4.3	+	6.6	-
10		29.2	54	1	295	39	63	10	-66	+	37	-	+4.4	+	6.5	-
11		29.1	54	28	296	18	62	31	-65	+	39	-	+4.5	+	6.3	-
12		29.1	54	56	296	55	61	53	-65	+	40	-	+4.6	+	6.2	-
13		29.0	55	24	297	32	61	16	-64	+	41	-	+4.7	+	6.1	-
14		29.0	55	52	298	8	60	40	-64	+	43	-	+4.8	+	5.9	-
15		28.9	56	22	298	43	60	4	-63	+	44	-	+4.9	+	5.8	-
16		28.9	56	51	299	17	59	30	-62	+	45	-	+5.0	+	5.6	-
17		28.8	57	21	299	51	58	56	-62	+	46	-	+5.1	+	5.5	-
18		28.8	57	52	300	23	58	23	-61	+	47	-	+5.1	+	5.4	-
19		28.8	58	23	300	55	57	51	-60	+	48	-	+5.2	+	5.2	-
+20	23	28.7	58	55	301	26	57	20	-59	+	49	-	+5.3	+	5.1	-

Annual Precessions of S, z,  $A_E$ , and  $A_W$ .

$\varphi$	$\delta S$	$\delta z$	$\delta A_E$	$\delta A_W$
0	m	'	'	'
+0	+0.05	-0.1	-0.3	+0.2
5	0.05	0.1	0.3	0.2
10	0.05	0.2	0.3	0.2
15	0.05	0.2	0.2	0.1
+20	+0.05	-0.2	-0.2	+0.1



TABLE II.

		No.	Star	Mag.	$\alpha_{1950}$	$\delta_{1950}$
Pair No. 197	E	28	$\xi$ Tauri	3.8	3 24.5	+ 9 34
	W	163	$\gamma$ Aquilæ	2.8	19 43.9	+10 29

$\varphi$	S		z		$A_E$		$A_W$		dz	d $A_E$	d $A_W$	Var. for $\Delta\varphi = +10'$			
	h	m	°	'	°	'	°	'				$\Delta z$	E	W	
+ 0	23	34.0	58	44	258	48	102	18	-73	-	10	+	-2.0	+ 6.0	-
1		34.0	58	32	259	24	101	42	-74	-	8	+	-1.9	+ 6.0	-
2		34.0	58	21	260	0	101	6	-74	-	6	+	-1.8	+ 6.1	-
3		34.1	58	11	260	37	100	29	-74	-	4	+	-1.7	+ 6.1	-
4		34.1	58	0	261	14	99	53	-74	-	3	+	-1.6	+ 6.2	-
5		34.2	57	51	261	51	99	16	-74	-	1	+	-1.5	+ 6.2	-
6		34.2	57	42	262	28	98	38	-74	+	1	-	-1.4	+ 6.3	-
7		34.2	57	34	263	6	98	1	-74	+	3	-	-1.3	+ 6.3	-
8		34.3	57	27	263	44	97	23	-74	+	5	-	-1.2	+ 6.3	-
9		34.3	57	20	264	22	96	45	-74	+	7	-	-1.1	+ 6.4	-
10		34.4	57	14	265	1	96	7	-73	+	8	-	-1.0	+ 6.4	-
11		34.4	57	8	265	39	95	28	-73	+	10	-	-0.9	+ 6.5	-
12		34.4	57	3	266	18	94	50	-73	+	12	-	-0.7	+ 6.5	-
13		34.5	56	59	266	57	94	11	-73	+	14	-	-0.6	+ 6.5	-
14		34.5	56	56	267	36	93	32	-73	+	16	-	-0.5	+ 6.5	-
15		34.6	56	53	268	15	92	53	-72	+	18	-	-0.4	+ 6.5	-
16		34.6	56	51	268	55	92	14	-72	+	19	-	-0.3	+ 6.6	-
17		34.6	56	50	269	34	91	35	-72	+	21	-	-0.2	+ 6.6	-
18		34.7	56	49	270	14	90	56	-71	+	23	-	-0.1	+ 6.6	-
19		34.7	56	49	270	53	90	17	-71	+	25	-	0.0	+ 6.6	-
+20	23	34.8	56	50	271	32	89	38	-70	+	27	-	+0.1	+ 6.6	-

Annual Precessions of S, z,  $A_E$ , and  $A_W$ .

$\varphi$	$\delta S$	$\delta z$	$\delta A_E$	$\delta A_W$
0	m	'	'	'
+ 0	+0.05	+0.1	-0.2	+0.2
5	0.05	+0.1	0.3	0.2
10	0.05	0.0	0.3	0.2
15	0.05	0.0	0.3	0.2
+20	+0.05	0.0	-0.3	+0.2

DATA REQUIRED FOR OBSERVATION.

		No.	Star	Mag.	$\alpha_{1950}$	$\delta_{1950}$
Pair No. 198	E	28	$\xi$ Tauri	3.8	3 24.5	+ 9 34
	W	165	$\alpha$ Aquilæ	0.9	19 48.3	+ 8 44

$\varphi$	S		z		$A_E$		$A_W$		dz	d $A_E$	d $A_W$	Var. for $\Delta\varphi = +10'$			
	h	m	°	'	°	'	°	'				$\Delta z$	E	W	
+ 0	23	36.6	58	6	258	43	100	18	-74	-	9	+	-1.9	+ 6.1	-
1		36.5	57	55	259	20	99	41	-74	-	7	+	-1.8	+ 6.2	-
2		36.5	57	45	259	57	99	4	-74	-	5	+	-1.7	+ 6.2	-
3		36.5	57	35	260	34	98	27	-74	-	4	+	-1.6	+ 6.3	-
4		36.4	57	26	261	12	97	49	-74	-	2	+	-1.4	+ 6.3	-
5		36.4	57	18	261	50	97	11	-74		0		-1.3	+ 6.4	-
6		36.4	57	10	262	29	96	32	-74	+	2	-	-1.2	+ 6.4	-
7		36.3	57	3	263	7	95	54	-74	+	4	-	-1.1	+ 6.4	-
8		36.3	56	57	263	46	95	15	-74	+	6	-	-1.0	+ 6.5	-
9		36.3	56	51	264	25	94	36	-74	+	7	-	-0.9	+ 6.5	-
10		36.2	56	46	265	4	93	57	-74	+	9	-	-0.8	+ 6.5	-
11		36.2	56	42	265	43	93	17	-73	+	11	-	-0.7	+ 6.5	-
12		36.2	56	38	266	22	92	38	-73	+	13	-	-0.5	+ 6.6	-
13		36.1	56	35	267	1	91	58	-73	+	15	-	-0.4	+ 6.6	-
14		36.1	56	33	267	41	91	19	-73	+	17	-	-0.3	+ 6.6	-
15		36.0	56	32	268	20	90	39	-72	+	19	-	-0.2	+ 6.6	-
16		36.0	56	31	269	0	89	59	-72	+	21	-	-0.1	+ 6.6	-
17		36.0	56	31	269	39	89	19	-72	+	22	-	0.0	+ 6.6	-
18		35.9	56	31	270	19	88	39	-71	+	24	-	+0.1	+ 6.6	-
19		35.9	56	32	270	58	87	59	-71	+	26	-	+0.3	+ 6.6	-
+20	23	35.9	56	34	271	38	87	19	-70	+	28	-	+0.4	+ 6.6	-

Annual Precessions of S, z,  $A_E$ , and  $A_W$ .

$\varphi$	$\delta S$	$\delta z$	$\delta A_E$	$\delta A_W$
0	m	'	'	'
+ 0	+0.05	+0.1	-0.2	+0.2
5	0.05	0.0	0.3	0.2
10	0.05	0.0	0.3	0.2
15	0.05	0.0	0.3	0.2
+20	+0.05	0.0	-0.3	+0.2



TABLE II.

	No.	Star	Mag.	$\alpha_{1950}$	$\delta_{1950}$
				<sup>h</sup> <sup>m</sup>	<sup>°</sup> <sup>'</sup>
Pair No. 199	E 25	$\eta$ Eridani	4.1	2 54.0	-9 6
	W 174	$\epsilon$ Aquarii	3.8	20 45.0	-9 41

$\phi$	S		z		$A_E$		$A_W$		dz	$dA_E$	$dA_W$	Var. for $\Delta\phi = +10'$		
	<sup>h</sup>	<sup>m</sup>	<sup>°</sup>	<sup>'</sup>	<sup>°</sup>	<sup>'</sup>	<sup>°</sup>	<sup>'</sup>				$\Delta z$	$\Delta A$	E
+0	23	49.3	47	28	282	23	76	49	-73	+16	-	+2.2	+9.0	-
1		49.3	47	42	283	16	75	55	-73	+18	-	+2.4	+8.8	-
2		49.2	47	57	284	9	75	2	-73	+20	-	+2.5	+8.7	-
3		49.2	48	12	285	1	74	10	-72	+23	-	+2.7	+8.6	-
4		49.2	48	28	285	52	73	19	-72	+25	-	+2.8	+8.5	-
5		49.2	48	46	286	43	72	28	-71	+27	-	+3.0	+8.4	-
6		49.1	49	4	287	33	71	38	-71	+29	-	+3.1	+8.2	-
7		49.1	49	23	288	22	70	49	-70	+30	-	+3.2	+8.1	-
8		49.1	49	42	289	10	70	1	-70	+32	-	+3.3	+8.0	-
9		49.0	50	3	289	58	69	13	-69	+34	-	+3.5	+7.8	-
10		49.0	50	24	290	44	68	26	-69	+36	-	+3.6	+7.7	-
11		49.0	50	46	291	30	67	41	-68	+37	-	+3.7	+7.6	-
12		49.0	51	9	292	15	66	55	-68	+39	-	+3.9	+7.4	-
13		48.9	51	32	292	59	66	11	-67	+41	-	+4.0	+7.3	-
14		48.9	51	57	293	42	65	28	-66	+42	-	+4.1	+7.1	-
15		48.9	52	21	294	25	64	45	-66	+44	-	+4.2	+7.0	-
16		48.8	52	47	295	6	64	3	-65	+45	-	+4.3	+6.8	-
17		48.8	53	13	295	47	63	23	-64	+46	-	+4.4	+6.7	-
18		48.8	53	40	296	26	62	43	-63	+48	-	+4.5	+6.5	-
19		48.7	54	7	297	5	62	4	-63	+49	-	+4.6	+6.4	-
+20	23	48.7	54	35	297	43	61	25	-62	+50	-	+4.7	+6.2	-

Annual Precessions of S, z,  $A_E$ , and  $A_W$ .

$\phi$	$\delta S$	$\delta z$	$\delta A_E$	$\delta A_W$
+0	+0.05	-0.1	-0.3	+0.3
5	0.05	0.1	0.3	0.3
10	0.05	0.1	0.3	0.2
15	0.05	0.1	0.3	0.2
+20	+0.05	-0.2	-0.2	+0.2

DATA REQUIRED FOR OBSERVATION.

	No.	Star	Mag.	$\alpha_{1950}$	$\delta_{1950}$
				<sup>h</sup> <sup>m</sup>	<sup>°</sup> <sup>'</sup>
Pair No. 200	E 36	$\nu$ Tauri	3.9	4 0.5	+5 51
	W 167	$\beta$ Aquilæ	3.9	19 52.9	+6 17

$\phi$	S		z		$A_E$		$A_W$		dz	$dA_E$	$dA_W$	Var. for $\Delta\phi = +10'$			
	<sup>h</sup>	<sup>m</sup>	<sup>°</sup>	<sup>'</sup>	<sup>°</sup>	<sup>'</sup>	<sup>°</sup>	<sup>'</sup>				$\Delta z$	$\Delta A$	E	W
+0	23	56.6	61	45	263	21	97	8	-74	-	5	+	-1.2	+5.3	-
1		56.7	61	38	263	53	96	36	-75	-	3	+	-1.1	+5.4	-
2		56.7	61	32	264	26	96	4	-75	-	2	+	-1.0	+5.4	-
3		56.7	61	26	264	58	95	31	-75	0			-0.9	+5.4	-
4		56.7	61	21	265	31	94	59	-75	+	2	-	-0.8	+5.5	-
5		56.7	61	16	266	4	94	26	-75	+	4	-	-0.7	+5.5	-
6		56.7	61	12	266	36	93	53	-75	+	5	-	-0.6	+5.5	-
7		56.8	61	9	267	9	93	20	-74	+	7	-	-0.5	+5.5	-
8		56.8	61	6	267	42	92	47	-74	+	9	-	-0.4	+5.5	-
9		56.8	61	3	268	16	92	14	-74	+	10	-	-0.4	+5.5	-
10		56.8	61	2	268	49	91	41	-74	+	12	-	-0.3	+5.5	-
11		56.8	61	0	269	22	91	8	-74	+	14	-	-0.2	+5.6	-
12		56.8	61	0	269	55	90	35	-73	+	15	-	-0.1	+5.6	-
13		56.9	61	0	270	29	90	1	-73	+	17	-	0.0	+5.6	-
14		56.9	61	0	271	2	89	28	-73	+	19	-	+0.1	+5.6	-
15		56.9	61	1	271	35	88	55	-72	+	20	-	+0.2	+5.6	-
16		56.9	61	3	272	9	88	22	-72	+	22	-	+0.3	+5.5	-
17		56.9	61	5	272	42	87	49	-72	+	24	-	+0.4	+5.5	-
18		57.0	61	8	273	15	87	16	-71	+	25	-	+0.5	+5.5	-
19		57.0	61	12	273	48	86	43	-71	+	27	-	+0.6	+5.5	-
+20	23	57.0	61	16	274	21	86	10	-70	+	29	-	+0.7	+5.5	-

Annual Precessions of S, z,  $A_E$ , and  $A_W$ .

$\phi$	$\delta S$	$\delta z$	$\delta A_E$	$\delta A_W$
+0	+0.05	0.0	-0.2	+0.2
5	0.05	0.0	0.2	0.2
10	0.05	0.0	0.2	0.2
15	0.05	0.0	0.2	0.2
+20	+0.05	0.0	-0.2	+0.2



TABLE III.

The Value of  $\sigma(x^s) = \log \frac{x^s \sin 1^s}{\sin x^s}$   
in Units of Fifth Decimal.

log(x <sup>s</sup> )	σ (x <sup>s</sup> )	log(x <sup>s</sup> )	σ (x <sup>s</sup> )	log(x <sup>s</sup> )	σ (x <sup>s</sup> )
1.50	0.0	2.40	2.4	2.70	9.6
1.60	0.1	2.41	2.5	2.71	10.1
1.70	0.1	2.42	2.6	2.72	10.5
1.80	0.2	2.43	2.8	2.73	11.0
1.90	0.3	2.44	2.9	2.74	11.6
2.00	0.4	2.45	3.0	2.75	12.1
2.02	0.4	2.46	3.2	2.76	12.7
2.04	0.5	2.47	3.3	2.77	13.3
2.06	0.5	2.48	3.5	2.78	13.9
2.08	0.6	2.49	3.6	2.79	14.6
2.10	0.6	2.50	3.8	2.80	15.2
2.12	0.7	2.51	4.0	2.81	15.9
2.14	0.7	2.52	4.2	2.82	16.7
2.16	0.8	2.53	4.4	2.83	17.5
2.18	0.9	2.54	4.6	2.84	18.3
2.20	1.0	2.55	4.8	2.85	19.2
2.22	1.1	2.56	5.0	2.86	20.1
2.24	1.2	2.57	5.3	2.87	21.0
2.26	1.3	2.58	5.5	2.88	22.0
2.28	1.4	2.59	5.8	2.89	23.1
2.30	1.5	2.60	6.1	2.90	24.2
2.31	1.6	2.61	6.4	2.91	25.3
2.32	1.7	2.62	6.6	2.92	26.5
2.33	1.8	2.63	7.0	2.93	27.7
2.34	1.8	2.64	7.3	2.94	29.0
2.35	1.9	2.65	7.6	2.95	30.4
2.36	2.0	2.66	8.0	2.96	31.8
2.37	2.1	2.67	8.4	2.97	33.3
2.38	2.2	2.68	8.8	2.98	34.9
2.39	2.3	2.69	9.2	2.99	36.6
2.40	2.4	2.70	9.6	3.00	38.3

昭和 15 年 2 月 26 日 印刷

昭和 15 年 2 月 29 日 發行

發行者 水路部

東京市京橋區築地 5 丁目

印刷者 水路部

東京市京橋區築地 5 丁目

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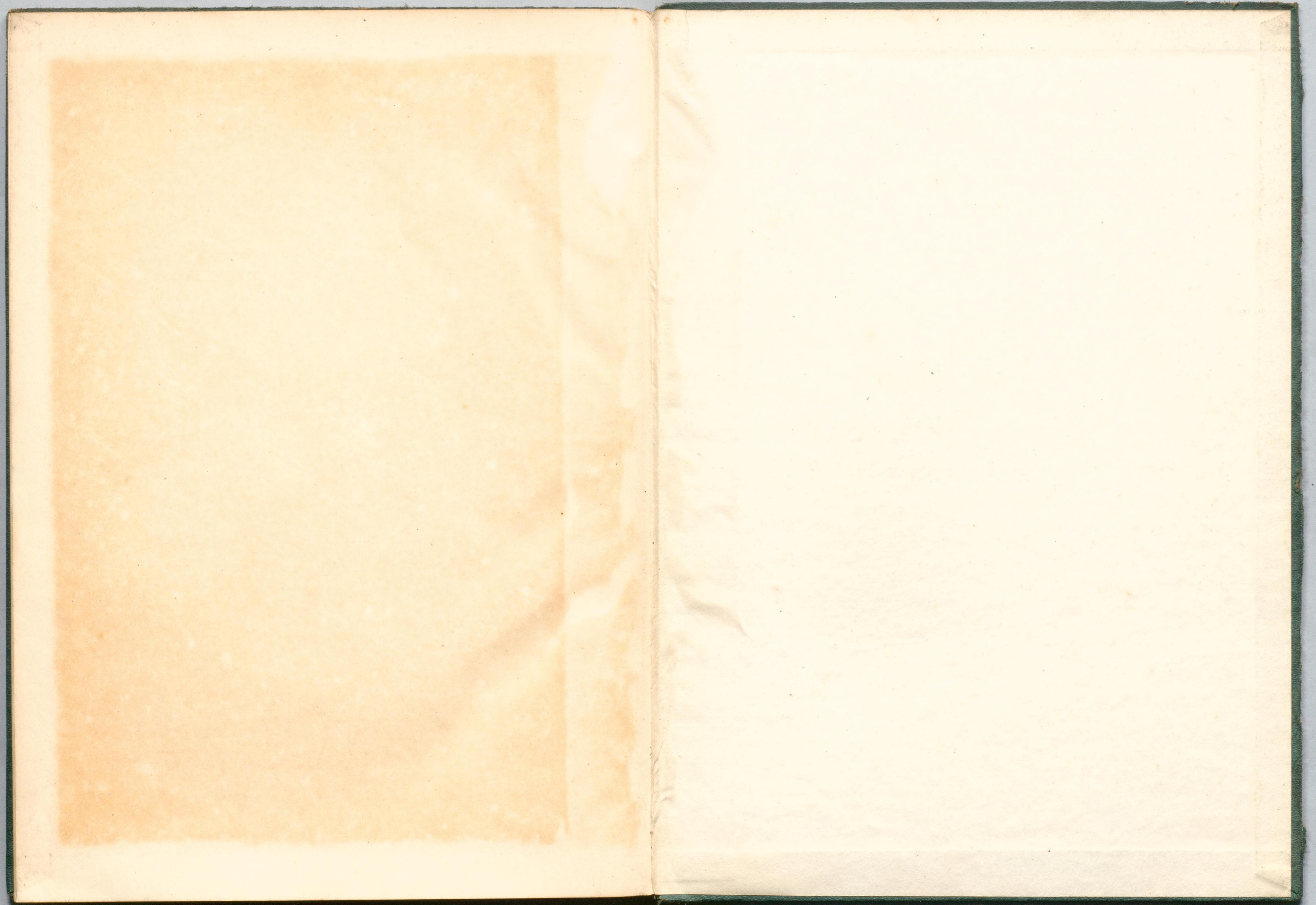
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