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COMMUNICATIONS FROM THE OBSERVATORY AT LEIDEN

Photographic measures of double stars on plates taken, mainly by W. H. VAN DEN BOS,
with the 67 cm visual refractor of the Union Observatory at Johannesburg,
collected by *Ejnar Hertzsprung*.

The following occasional photographic measures of double stars on plates taken with the 67 cm visual refractor of the Union Observatory at Johannesburg were begun in 1926. In later years this kind of work has in Johannesburg merely been confined to the photography of α Centauri and a few other double stars within reach at about the same time.

The plates used were of the erythrosinesilver kind

and they have been exposed behind a yellow filter K₃. Including the zenithal refraction the scale is $1 \text{ mm} = 18''\cdot9089 + 17\cdot3 (47 - r_f) + 75 (15^\circ - T)$, where r_f is the focal reading and T the temperature in centigrades. For the elimination of the magnitude equation four different gratings were used with a difference between the spectra of the first order and the central image of respectively 1, 2, 3 and 4

	date	$\Delta\alpha \cos \delta$	$\Delta\delta$	$\cdot 01 / (\text{m.e.})^2$	m.e.	ρ	ϑ epoch	ϑ 2000
β Tuca	1934·871	+ 4"883	- 26"629	73	\pm "012	27"073	169°61	169°71
ADS 806	34·851	- 3"719	- 5"218	44	15	6"408	215°48	215°57
p Erid	30·933	- 4"599	- 8"182	49	14	9"386	209°34	209°63
"	34·862	- 4"474	- 8"467	114	9	9"576	207°85	208°13
ADS 1507	35·771	- "016	+ 8"081	20	22	8"081	359°89	360°06
ϑ Erid	30·949	+ 8"194	+ "439	18	24	8"206	86°93	87°21
f Erid	35·020	- 3"845	- 6"665	95	10	7"695	209°98	210°36
Rmk 4	34·873	- 5"278	- 3"063	84	11	6"102	239°87	240°48
ADS 3297	36·110	+ 3"033	+ "364	28	19	3"055	276°84	277°19
h 3673	36·099	+ 9"325	+ 4"116	17	24	10"193	66°18	67°72
Δ 18	36·105	+ 10"368	+ 6"520	45	15	12"248	57°84	58°41
ADS 5986	31·234	- "948	+ 3"825	54	14	3"941	346°09	346°48
Rmk 6	30·947	+ 3"537	+ 8"798	21	22	9"482	21°90	22°49
ADS 6255	31·250	- 6"592	+ 7"370	73	12	9"888	318°19	318°58
ADS 6381	31·259	+ "429	+ 2"714	61	13	2"748	8°98	9°33
h 4009	31·250	- 6"137	+ 7"209	28	19	9"467	319°59	319°99
h 4028	31·324	+ 12"011	+ 11"210	67	12	16"429	46°98	47°49
ADS 6650	31·218	+ 5"297	+ 1"485	140	8	5"501	105°66	106°00
"	33·331	+ 5"438	- 1"472	28	19	5"632	105°15	105°47
h 4093	31·225	+ 6"740	- 4"463	75	12	8"084	123°51	123°91
h 4166	31·296	+ 6"277	- 12"190	132	9	13"711	152°76	153°08
h 4188	31·846	- 2"543	+ "556	124	9	2"603	282°33	282°68
ADS 7352	32·647	- 1"219	+ 1"448	139	8	1"893	319°91	320°15
ADS 7380	32·244	- "893	+ 2"241	102	10	2"412	338°27	338°51
R 123	33·334	+ 1"048	+ 1"565	27	19	1"883	33°81	34°23
h 4232	31·322	- 9"195	+ 5"763	85	11	10"852	302°08	302°49
h 4249	31·319	+ 3"598	- 2"349	111	9	4"297	123°14	123°39
ADS 7644	36·111	- 1"716	+ "756	27	19	1"875	293°78	293°96
ADS 7724	32·434	+ 3"573	- 1"967	229	7	4"079	118°83	119°02
h 4306	32·291	- 1"489	+ 1"473	86	11	2"094	314°69	315°07

	date	$\Delta\alpha \cos \delta$	$\Delta\delta$	$\sigma_{01}/(\text{m.e.})^2$	m.e.	ρ	\mathcal{S} epoch	\mathcal{S} 2000
Rmk 13	1931'284	+ 7'023	- 1'459	79	\pm 011	7'173	101'66	101'95
"	31'234	- 6'480	- 36'265	12	29	36'839	190'13	190'42
h 4324	33'334	- 7'485	- 3'503	12	29	8'264	244'92	245'13
Δ 88	31'464	- 8'363	- 10'589	257	6	13'493	218'30	218'51
h 4335	29'252	- 4'993	- 6'150	16	25	7'922	219'07	219'50
Δ 94	31'281	+ 5'127	+ 13'589	86	11	14'524	20'67	20'93
ADS 7930	34'527	- 2'022	- 6'441	79	11	6'751	197'43	197'55
ADS 8025	31'893	+ 9'976	+ 2'706	276	6	2'877	19'83	19'94
R 165	31'067	+ 2'990	+ 1'390	286	6	3'297	65'07	65'18
h 4423	31'948	- 2'252	+ 1'890	151	8	2'260	274'80	274'90
ADS 8162	31'366	+ 14'497	- 24'898	117	9	28'811	149'79	149'85
ADS 8202	31'746	- 4'611	- 7'897	373	5	9'145	210'28	210'34
Hwe 70	32'188	+ 3'207	- 7'991	115	9	3'303	103'86	103'90
Δ 116	32'458	- 19'100	- 2'574	23	21	19'273	262'32	262'33
ADS 8361	31'217	- 8'998	- 3'502	170	8	3'615	194'38	194'39
Rmk 14	32'414	- 2'616	+ 1'244	20	22	2'897	244'57	244'54
ADS 8477	31'818	- 7'256	+ 8'74	92	10	7'308	276'87	276'85
ADS 8505	31'822	- 5'570	- 19'272	86	11	20'061	196'12	196'09
Brs 8	31'223	- 2'297	+ 4'794	243	6	5'316	334'40	334'33
α Crucis	29'851	+ 4'105	- 2'058	183	7	4'592	116'63	116'53
"	32'176	+ 4'088	- 2'024	325	6	4'562	116'34	116'25
"	37'523	+ 4'064	- 1'983	108	10	4'522	116'01	115'93
ADS 8606	31'330	- 2'135	- 1'140	47	15	2'420	241'90	241'84
ADS 8627	32'245	- 4'436	+ 3'422	254	6	5'603	307'65	307'58
ADS 8630	29'465	- 3'823	+ 4'506	124	9	5'909	319'68	319'62
"	31'252	- 3'846	+ 4'448	246	6	5'880	319'15	319'08
"	32'440	- 3'864	+ 4'411	329	6	5'864	318'78	318'72
"	33'330	- 3'871	+ 4'374	101	10	5'841	318'49	318'43
"	35'355	- 3'910	+ 4'310	63	13	5'819	317'79	317'72
ADS 8786	31'328	+ 1'30	+ 7'194	107	10	7'195	1'04	'93
ADS 8824	31'864	+ 2'948	+ 4'401	125	9	5'297	33'82	33'69
ADS 8883	31'730	+ 25'814	+ 6'796	69	12	26'694	75'25	75'12
h 4590	31'332	+ 16'168	- 15'462	60	13	22'371	133'72	133'05
ADS 8966	31'913	- 1'967	- 9'912	197	7	10'105	191'22	191'05
ADS 8972	31'330	+ 1'755	+ 2'027	61	13	2'681	40'89	40'73
Δ 141	32'406	+ 1'510	- 5'083	10	32	5'303	163'46	163'18
h 4608	30'876	- 1'118	- 4'231	237	6	4'233	181'60	181'40
Cp 61	32'461	+ 23'048	- 19'991	18	24	30'510	130'94	130'68
Δ 148	31'325	+ 7'541	- 2'499	156	8	7'944	108'34	108'12
HN 51	31'314	- 1'421	- 14'816	61	13	14'884	185'48	185'27
Δ 159	31'322	+ 3'227	- 8'755	73	12	9'331	159'77	159'35
ADS 9237	31'293	+ 8'880	- 5'520	122	9	5'590	170'94	170'72
ADS 9247	31'882	- 1'184	- 6'181	122	9	6'293	190'84	190'62
α Cent	26'373	- 7'627	- 5'737	96	10	9'544	233'05	232'52
"	29'354	- 6'467	- 3'364	251	6	7'290	242'52	242'01
"	30'292	- 6'072	- 2'602	114	9	6'606	246'80	246'30
"	31'277	- 5'645	- 1'786	210	7	5'921	252'44	251'95
"	32'429	- 5'131	- 8'51	215	7	5'201	260'58	260'10
"	33'329	- 4'722	- 9'099	156	8	4'723	268'80	268'32
"	34'578	- 4'120	+ 9'20	262	6	4'221	282'59	282'12
"	35'381	- 3'727	+ 1'580	170	8	4'048	292'97	292'51
"	36'549	- 3'139	+ 2'529	230	7	4'031	308'86	308'40
"	37'517	- 2'648	+ 3'318	141	8	4'245	321'41	320'96
"	39'510	- 1'601	+ 4'910	85	11	5'164	341'94	341'50
Δ 168	32'423	- 2'158	- 5'324	33	17	5'745	202'06	201'64

	date	$\Delta\alpha \cos \delta$	$\Delta\delta$	$\cdot\text{oi}/(\text{m.e.})^2$	m.e.	ρ	\mathcal{S} epoch	\mathcal{S} 2000
ADS 9375	1931'355	+ 6"938	- 5"320	75	\pm "012	8"743	127°48	127°20
ADS 9413	31'286	+ 1'669	+ 3'702	239	6	4'061	24'27	23'99
"	32'452	+ 1'544	+ 3'932	57	13	4'224	21'44	21'17
"	33'334	+ 1'462	+ 4'082	33	17	4'336	19'71	19'44
"	34'571	+ 1'344	+ 4'296	31	18	4'501	17'37	17'11
"	35'333	+ 1'286	+ 4'478	22	21	4'659	16'02	15'77
"	36'545	+ 1'137	+ 4'622	19	23	4'760	13'82	13'57
ADS 9446	31'319	- 17'201	+ 9'442	170	8	19'622	298'76	298'48
ADS 9488	32'447	+ 4'652	+ 5'969	29	19	7'568	37'93	37'63
π Lupi	35'549	+ 1'353	+ 2'287	24	20	1'383	78'02	77'65
Δ 177	31'899	+ 15'827	- 21'614	153	8	26'789	143'79	143'36
ADS 9535	31'366	+ 4'163	+ 23'677	30	18	24'040	9'97	9'67
ADS 9689	32'412	- 7'956	+ 4'574	39	16	9'177	299'90	299'57
ADS 9728	31'483	- 1'789	- 11'732	305	6	11'868	188'67	188'36
Rmk 20	30'293	+ 961	- 1'717	50	14	1'968	150'76	149'99
Δ 192	38'030	+ 20'638	- 27'846	17	24	34'660	143'46	143'10
Δ 195	36'548	+ 1'985	+ 11'760	23	21	11'926	9'58	9'11
Δ 196	37'629	+ 7'865	+ 6'824	123	9	10'413	49'05	48'70
Hwe 82	32'741	- 675	+ 2'558	42	15	2'646	345'22	344'83
ADS 9909	31'942	+ 6'374	+ 4'052	292	6	7'553	57'56	57'22
"	31'865	+ 307	+ 979	128	9	1'026	17'41	17'07
ADS 9910	31'865	+ 11'214	- 1'977	239	6	11'387	100'00	99'66
Δ 199	36'548	- 3'452	- 43'994	23	21	44'129	184'49	184'09
Brs 11	34'586	+ 7'723	+ 687	71	12	7'753	84'92	84'54
ADS 10074	31'311	- 3'004	+ 254	400	5	3'015	274'82	274'43
"	35'628	- 2'996	+ 234	59	13	3'005	274'47	274'10
h 4901	30'391	+ 2'150	- 1'813	84	11	2'812	130'14	129'42
ADS 10417	30'298	+ 1'186	- 4'231	43	15	4'235	177'48	177'06
"	31'211	+ 237	- 4'234	110	10	4'241	176'80	176'38
"	32'445	+ 257	- 4'236	46	15	4'244	176'53	176'12
"	34'572	+ 364	- 4'230	35	17	4'246	175'08	174'68
"	35'333	+ 366	- 4'271	35	17	4'287	175'10	174'71
"	36'546	+ 429	- 4'263	49	14	4'285	174'25	173'87
"	37'515	+ 460	- 4'245	92	10	4'270	173'82	173'44
Brs 13	31'287	- 1'141	- 3'569	169	8	3'747	197'73	197'18
"	32'439	- 1'325	- 3'609	97	10	3'845	200'16	199'62
ADS 10750	31'598	+ 20'552	- 1'212	59	13	20'588	93'38	92'99
ADS 10771	31'309	+ 5'990	+ 13'159	49	14	14'458	24'48	24'08
ADS 11005	32'011	- 2'033	- 1'190	175	8	2'042	264'66	264'28
ADS 11046	31'265	+ 5'612	- 3'535	294	6	6'633	122'21	121'82
"	32'436	+ 5'706	- 3'464	133	9	6'675	121'26	120'88
Δ 222	36'546	- 498	+ 21'376	51	14	21'382	358'66	358'22
Brs 14	35'004	- 12'501	+ 2'510	103	10	12'750	281'35	280'91
γ Cor A	30'298	- 2'287	- 673	52	14	2'384	253'60	253'14
"	31'293	- 2'263	- 750	162	8	2'384	251'66	251'20
"	32'424	- 2'256	- 810	201	7	2'397	250'25	249'80
"	34'584	- 2'223	- 946	95	10	2'416	246'95	246'51
h 5094	34'591	- 5'637	- 19'615	14	27	20'409	196'03	195'62
Stn 64	32'412	- 1'947	+ 1'146	33	17	2'259	300'48	300'11
Gls 259	32'406	+ 1'484	- 3'251	79	11	3'574	155'46	155'07
Jc 18	32'412	- 3'100	- 3'128	18	24	4'404	224'74	224'35
ADS 14556	35'603	- 1'715	- 2'110	39	16	2'719	219'10	218'85
h 5246	32'406	+ 2'719	- 2'080	96	10	3'423	127'42	126'97
ADS 15971	34'859	- 2'303	+ 969	101	10	2'499	292'82	292'68
"	35'550	- 2'322	+ 929	63	13	2'501	291'81	291'66