

KG
11366
120

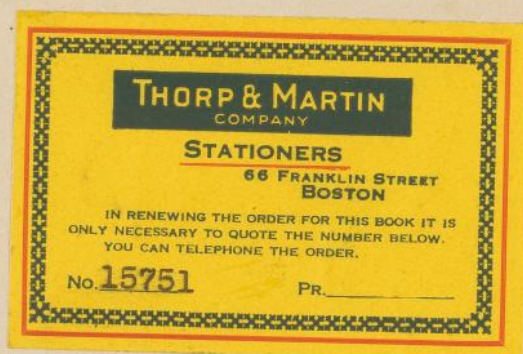
35

Temperatures

Sp cF p 60.

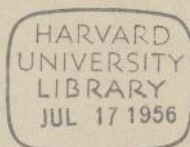
Tor. Abs.

KG 11366.120





KG 11366.120



Standard A0 backgrounds

C19098 Vega.

	1	3	5	Sum	Mean	Mean-5	1-Mean	Mean
β	420	356	266	1036	345	85	75	80
γ	512	455	342	1309	436	94	76	85
δ	485	455	332	1272	424	92	61	76
ϵ	485	420	297	1204	401	104	84	94
ζ	⁵⁵ ~~400~~	400	280	1135	378	98	71	88
η	400	368	242	1010	337	95	63	79
θ	332	287	186	805	268	82	64	73
ι	280	230	121	631	210	89	70	78
κ	218	173	72	463	154	82	64	73
λ	180	133	38	351	117	79	63	71
μ	146	97	41?	284	[095]	? 54	51	52
ν	144	72						
ξ	90	54						

$$\begin{array}{r} 1849 \\ 77 \\ \hline \end{array}$$

Mean

345

436

424

(401)

(378)

337

268

210

154

117

(95)

C-19087 B Orionis

	1	3	5	Σ	Mean	Mean-1	5Mean	Mean
β_1	158	215	309	674	225	75	84	80
β_2	-	177	248					
β_3	-	177	247					
β_4	-	177	252					
β_5	-	177	268					
β_6	-	188	268					
4	158	198	283	631	210	60	73	67
2	164	238	305	699	233	69	62	66
K	177	252	328	757	252	75	76	76
3	208	283	359	850	283	75	76	76
5	242	309	385	936	312	70	73	72
7	287	340	414	1041	347	60	67	[64]
0	298	375	451	1124	375	76	76	76
C	324	393	504	1221	407	83	97	[90]
K	340	414	487	1241	414	74	73	74
λ	359	428	504	1291	430	71	74	72
μ	312	397						<u>814</u>
V	382	461						74
3	400	467						
0	419							

Mean Vega

225

210

233

252

283

312

(347)

375

(407)

414

430

C-19108 Vega

	1	3	2	Σ	Mean	1-Mean	Mean-2	Mean
β	584	518	466	1568	523	61	057	59
δ	652?	584	535	1771	590	62	55	58
δ	652?	566	524	1742	581	72	57	64
ε	626	535	491	1652	551	75	60	68
κ	608	518	471	1597	532	76	61	68
ζ	575	486	435	1496	499	76	64	70
η	578	~~424~~ 518	368	1310	437	81	69	75
θ	457	~~364~~ ~~457~~ 310	296	1117	372	85	76	80
ι	418	~~274~~ ~~310~~ 238	238	966	322	96	84	86
κ	375	~~274~~ ~~310~~ 238	184	833	278	97	94	96
λ	347	~~238~~ ~~310~~ 199						
μ	320	~~199~~ ~~310~~ 50						
ν	301	~~50~~ ~~310~~ 201						

$\frac{724}{72}$

Mean

(523)

(590)

581 $\frac{1}{2}$

551

532

499

487

372

(322)

(278)

C-19104
Vega

	1	2	3	Σ	Mean	Mean -1	Mean -3	
β	61	126	267	394	131	70	76	73
γ	8	61	140	209	069	61	78	66
δ	30	61	160	251	084	54	76	60
ε	48	96	192	336	112	64	80	72
κ	61	110	206	377	126	65	80	72
3	85	148	242	475	158	73	84	78
η	161	219	321	701	234	63	87	75
θ	215	274	384	873	291	76	93	84
ι	256	326	422	1004	335	79	87	83
κ	297	362	462	1121	373	76	89	83
λ	361	390	492	1183	394	93	98	96
μ	349	423						<u>842</u>
ν	379	453						76
ξ	390							

Mean Vega

131

69

(84)

112

126

158

234

291

335

373

(394)

C-19103 - Vega

	1a	1b	2	3	Sum	Mean	Mean σ	1-Mean	Mean
β	598	598	539	402	1539	513	85	111	98
γ	674	665	599	487	1760	583	96	91	93
δ	684	674	596	476	1756	585	109	99	104
ϵ	624	619	541	446	1611	537	91	81	89
ζ	625	599	511	430	1566	522	92	103	97
η	600	576	496	513	1509	536	90	97	94
						~~503~~	~~70~~	~~67~~	~~57~~
θ	524	496	429	319	1272	424	105	100	102
ι	464	439	365	252	1081	360	108	104	106
κ	410	388	316	208	934	311	103	99	101
λ	364	343	273	183	820	273	90	91	90
μ	330	309	248	169	747	239	70	91	80
ν	302	272	226	145	673	223	78	79	78
ξ	265	244	206						
$\omicron$	240	224							
π	184	211							
ρ	220	205							

Vols. 33 + 34

missing

	C19118 Vega							
	1	2	3	Sum	Mean	Mean 5	1-Mean	Mean
β	475	586	556	1617	539	64	47	55
γ	556	664	664	1818	628	72	36	54
δ	538	618	618	1774	591	53	27	40
ϵ	503	618	618	1739	579	76	39	57
κ	476	618	586	1680	560	84	58	71
ζ	441	586	538	1565	521	80	65	72
η	375	519	457	1381	460	85	59	72
θ	320	466	394	1180	393	73	73	73
ι	266	425	347	1038	346	80	79	79
λ	238	394	314	946	315	67	79	73
μ	216	368	294	878	292	76	76	76
ν	192	340	266	798	266	74	74	74
ν		314						

C 19133
Vega

	1	2	3	Σ	Mean	1-M	M-3	
f	637	504	427	1568	523	114	96	..
g	—	598	530	—	—	—	—	..
h	637	560	515	1712	571	66	56	61
Σ	637	545	484	1666	555	82	61	72
K	637	530	462	1629	543	94	81	88
L	598	475	417	1490	497	101	70	86
M	493	414	362	1269	423	70	61	66
N	444	357	292	1093	364	80	72	76
O	401	306	246	953	318	83	72	78
P	367	265	209	836	279	88	70	79
Q	337	225						<u>1606</u>
								Mean 76
R	299	199						
S	269	182						
T	231							

C-19140

Vega

	1	2	3	3				
β	470	288	386	1144	381	93	89	91
γ	—	364	470					
δ	—	304	470					
ϵ	—	334	436					
ζ	—	288	420					
η	470	280	370	1120	373	93	97	95
θ	378	220	304	902	300	80	78	79
ι	320	¹⁶⁴ 214	264	798	⁴⁹ 266	~~85~~ 52	~~71~~ 54	~~78~~ 53
κ	288	128	214	630	210	82	78	80
λ	256	—	170					
μ	288		128					
ν	204		114					

C-19141 Vega

	2	4	3	Sum	mean	mean-5	1-mean	mean
P	333	—	420 ~~108~~	1070	340	74	96	85
r	410	—	—					
s	396	—	503					
z	372	—	440					
R	352	—	430					
3	324	—	384					
η	266	436	318	1020	340	74	96	85
Q	216	372	252	840	280	64	92	78
c	177	342	177	696	232	55	110	82
k	150	312						
λ	—	284						
m		240						

C 19127 - Vega 1 Bk. 30 p. 12

β	1	2	3	~~mean~~ mean	~~mean~~ 5	1-mean	$\bar{m}_{mean}$
B 554	490	394	1438	478	84	76	80
B 665	542	462	1669	556	94	109	101
B 608	530	447	1585	528	81	80	80
E 572	496	416	1484	494	78	78	78
K 572	470	394	1436	478	84	94	89
B 530	442	355	1327	442	87	88	87
B 476	366	290	1132	377	87	99	93
Q 431	314	224	969	323	99	108	103
c A 380	271	174	825	275	101	105	103
K 346	224	112	686	228	116	118	117
A 344	200	94	608	202	108	112	110
u 294	167	85	546	182	97	112	104
v 271	144	68	483	161	93	110	101

 1246

 96

Mean Vega	η Aql	Diff	S Sge	Diff
(478)	311	167	212	216
556	318	238	271	285
(528)	266	262	224	304
(494)	182	312	152	342
478	122	356	122	356

442

377

323

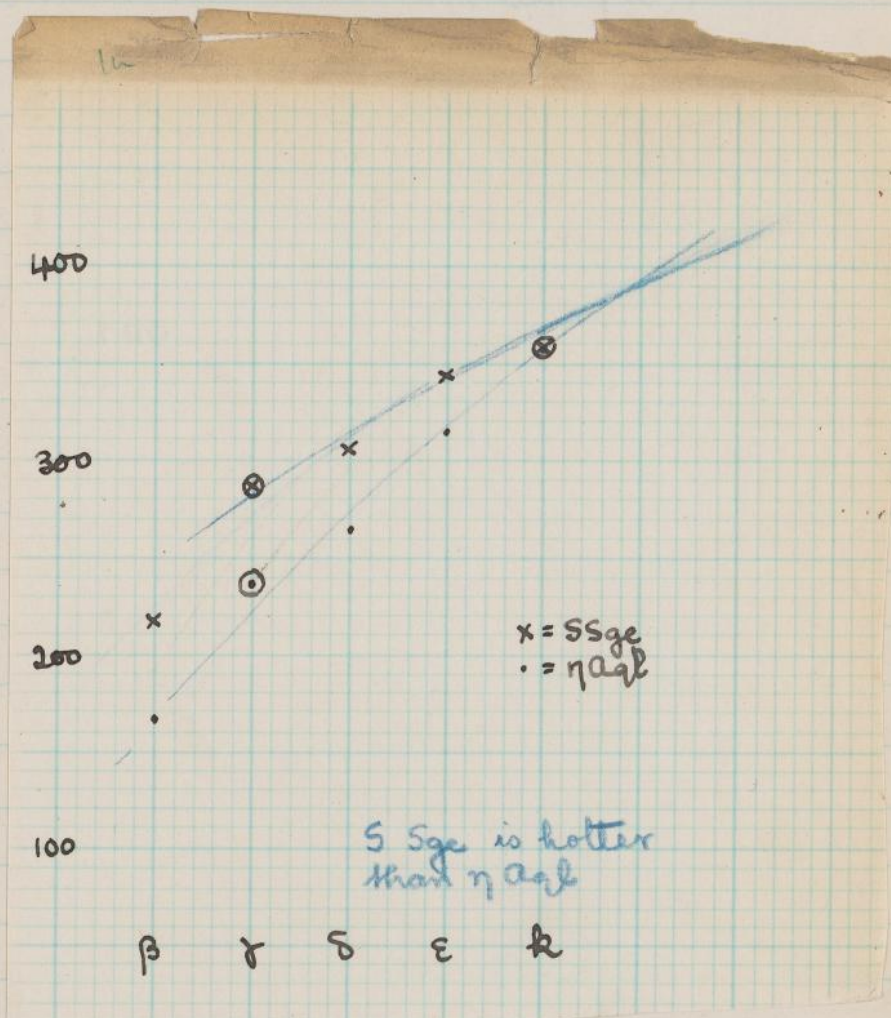
275

(228)

(202)

182

161

Phase 5.317
1.110

Mean Vega	η Aql	Diff	S Sge	Diff
(478)	311	167	212	216
556	318	238	271	285
(528)	266	262	224	304
(494)	182	312	152	342
478	122	356	122	356

442

377

323

275

(228)

(202)

182

161

Phase 5.317
 1.110

1.110

C-19137 Vega

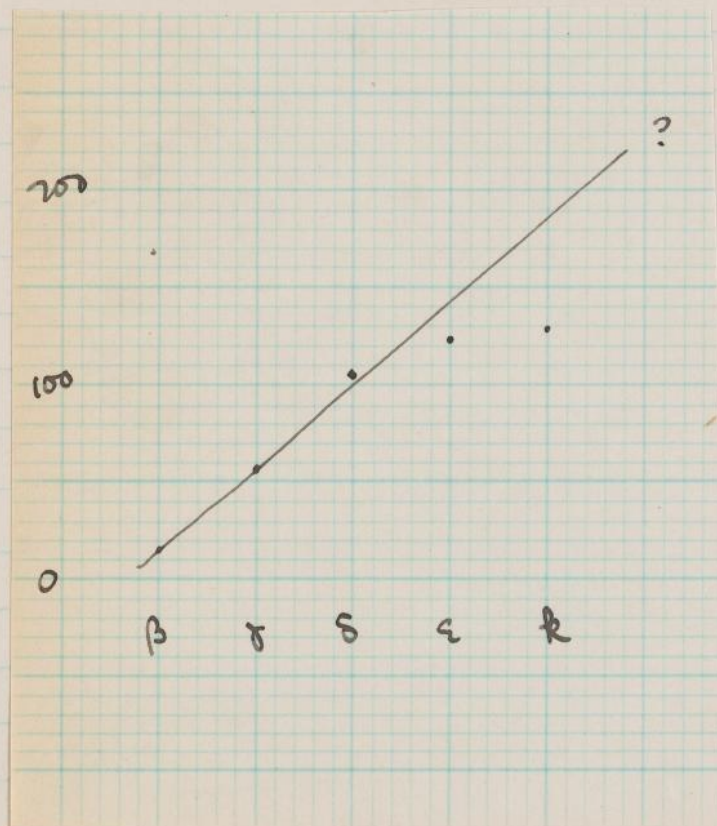
	1	2	3	sum	mean	mean-5	1-mean	mean
β	573	459	384	1416	472	88	101	94
γ	573	526	459	1558	519	60	54	57
δ	573	526	459	1558	519	60	54	57
ϵ	573	550	423	1546	515	92	58	75
κ	573	382	410	1365	455	73	118	95
ζ	526	439	371	1336	445	64	81	72
η	459	371	296	1126	375	79	84	81
θ	410	300	241	951	317	76	93	84
ι	359	255	196	810	270	74	89	81
κ	326	221	139	686	228	89	98	93
λ	287	180	103	570	190	87	87	87
μ	260	151	70	481	160	90	100	95
ν	241	103	47	391	130	83	111	97

C 19160 Vega From Bk 30 p 44

	3	1	2	sum	mean	mean-5	1-mean	mean
β	400	558	483	1441	480	80	78	79
γ	490	651	573	1714	571	81	80	80
δ	483	643	565	1691	563	80	80	80
ϵ	462	613	525	1600	533	71	70	70
ζ	436	592	519	1547	515	79	77	78
η	417	558	477	1442	480	73	78	75
θ	349	501	419	1269	423	74	78	76
ι	300	441	358	1099	366	66	75	70
κ	246	400	309	955	318	72	82	77
λ	227	372	277	876	292	65	80	72
μ		335	227					
ν		300						
ξ		265						

Mean V _{eq}	η Aql	Diff	HD 210221
480	465	15	~~55~~
571	513	58	~~105~~
563	458	105	~~105~~
533	412	121	~~105~~
515	386	129	~~80~~
480			~~65~~
423			~~55~~
366			~~40~~
318			
292			

Phase 0.777



C19161 Vega

	1	2	3	Sum	mean	mean-5	1-mean	mean
β	490	100	396	986	328	228	162	195
γ	570	134	442	1146	382	248	188	218
δ	538	162	430	1130	376	214	162	188
ϵ	504	158	396	1058	352	194	152	173
κ	490	140	382	1012	337	197	153	175
z	461	116	320	897	299	183	162	172
η	382	100	272	754	251	151	131	141
θ	320		220					
ι	272		170					
κ	234		146					
λ	220							
μ	200							
ν	170							

C-19152 Vega.1

~~p~~	2	3	Sum	mean	Mean
B	350	500	850	425	75
8	403	570	973	486	83
8	396	560	950	475	59
E	388	542	930	465	77
K	382	522	904	452	70
3	350	500	850	425	75
n	260	418	678	339	79
0	212	382	594	297	85
c	212	386	548	274	62
X	180	290	470	235	55
A		290			
m		260			
v		240			

C-19179 Vega

	1	2	3
β			
γ			
ϵ			
κ			
ζ			
η			
θ			
ι			
κ			
λ			
μ			
ν			
ξ			
γ			
ϕ			
π			

C-19144 - Vega

	^{12h} 32/ 46	^{32h} 42	2	sum	mean	mean-5	1-mean	mean
p	486	484	408	1378	459	51	27	39
r	620	452	478	1550	518	66	102	84
s	620	452	460	1532	510	58	110	84
t	620	510	426	1556	518	92	102	97
u	~~620~~	484	408	1512	504	96	116	106
v	~~452~~	~~442~~	436	359	1247	415	56	37
w	499	366						46
x	426	297						
y	375	233						
z	334	176						
aa	276	131						
ab	255							

C-19145 - Vega

	3	2	#	Sum	mean	mean-5	1-mean	mean
β	472	392	480	1344	448	56	32	44
γ	550	464	—					
δ	540	452	540	1532	511	59	29	44
ϵ	496	422	496	1414	471	49	25	37
ζ	—	354	445					
η	286	286	550					
	225	225						
ι	225							
κ	196							
λ	164							
μ	140							

C-19146 - Vega

	1	2	Sum	mean			
β	575	403	978	489	86	86	86
γ	658	465	1123	561	96		96
δ	630	440	1070	535	95		
ϵ	586	408	994	497	89		
κ	575	390	965	482	92		
ζ	544	356	900	450	94		
η	460	286	746	373	87		
θ	394	234	628	314	80		
ι	348	206	554	277	71		
κ	308						
π	286						
μ	260						

C-19159 - Vega

	1	3	4	Sum	mean	mean-5	1-mean	mean
β	345	334	421	1100	366	32	55	43
γ	421	421	-	1295	431	39	66	52
δ	406	392	497	1295	431	39	66	52
ϵ	376	345	452	1173	391	46	61	53
ζ	305	315	421	1041	347	44	58	51
η	241	274	376	955	318	44	58	51
θ	241	207	296	744	248	41	48	44
ι	165	165	222	552	184	19	38	28
κ			207					

C-191.53 - V_{292}

	#2	1	sum	mean	mean
B	344	304	648	324	20
r	400	304	704	352	48
s	410	304	704	352	48
z	380	254	644	322	68
3	304	190	494	247	57
n	238	160	398	199	39
Q	205	126	331	165	39
c	160	100	260	130	30
K	126				
A	126				

C 19169 - Vega

	1	2	Sum	mean	mean
β	372	209	581	290	81
γ	440	292	732	366	74
δ	424	276	700	350	74
ϵ	391	240	631	315	75
ζ	365	187	552	276	89
η	324				
θ	253				
ι	192				
κ	156				

C. 19187 - Vega

	1	2	Sum	mean	mean
β	490	376	856	428	52
γ	580	463	1043	521	58
δ	554	463	1007	503	40
ϵ	536	418	954	477	59
ζ	510	407	917	458	51
η	463	365	828	414	49
θ	407	316	723	361	45
ϕ	358	264	612	306	52
χ	316	229	545	272	43
ψ	275	194	469	234	40
ω	254	170	424	212	40
μ	229				
ν	210				
ξ	194				
ζ	194				
η	194				

C - 19183

	1	2	Sum	mean	mean
B	534	368	902	451	83
B	610	456	1066	533	77
B	590	443	1033	516	73
B	534	407	941	470	63
K	534	383	917	458	75
3	488	342	830	415	73
η	411	275	686	343	68
Q	348	202	550	275	73
c	295	140	435	217	77
K	259	120	379	189	69
A	202	114	316	158	44
u	186	80	266	133	53
v	186				
Σ	128				
0	120				

C-19080 - Vega

	1	2	3	Sum	Mean	Mean-5	1-mean	Mean
1	76	208	125	409	136	60	72	66
2	40	145	76	261	87	47	58	52
3	40	164	76	280	93	53	71	62
4	100	208	100	408	136	36	62	49
5	~~100~~	231	145	476	158	58	73	65
6	145	265	184	594	198	53	67	60
7	172	324	250	746	248	76	76	76
8	231	380	304	915	305	74	75	74
9	268	418	345	1031	343	75	75	75
10	307	452	380	1139	379	72	73	72
11	339	487	412	1238	412	73	75	74
12	364		446					
13	387		463					
14	412		472					

C-19131 - Vega

	1	2	3
β			
δ			
σ			
ϵ			
κ			
ζ			
η			
θ			
ι			

C-19136 - Vega

	1	2	3					
B	56	424	490					
δ		523	566					
S		465	566					
E		465	523					
H		444	523					
z	566	390	465	1421	473	83	93	88
η	490	314	390	1194	398	84	92	88
Q	444	246	326	1016	338	92	106	99
L	376	194						
K	338	150						
A	302							
u	263							
v	238							

C-19158 Vega

	1	2	3					
β	601	406	541	1548	516	110	85	97
δ	635	494	620	1749	583	89	52	70
ϵ	658	478	610	1638	546	68	104	86
z	620	446	571	1637	545	99	75	87
k	601	426	559	1586	528	102	73	87
$\bar{z}$	659	385	516	1460	486	101	73	87
η	516	330	446	1292	430	100	86	93
θ	446	272	385	1103	367	95	79	87
i	400	239	336	975	328	89	72	80
π	369		330					
λ	348		292					
μ	313		272					
ν	303		239					

56

C-19176 Vega 1

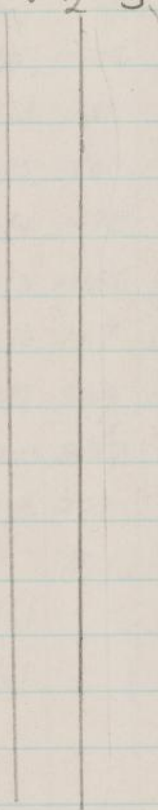
	1	2	3	Sum	Mean	5	Min.	5	Mean	Mean
β	473	390	502	1365	455	65	47	56		
δ	556	473	531	1574	524	51	27	39		
ϵ	531	473	531	1535	511	38	20	29		
ζ	486	434	473	1393	464	30	22	26		
κ	473	413	445	1331	443	30	30	30		
λ	434	390	407	1231	410	20	24	22		
η	382	319	329	1030	343	24	39	31		
θ	327	243	~~250~~	836	278	35	59	47		
χ	295	193	221	709	236	43	59	51		
κ	243	-	161							
λ	221	161								
μ	193	161								
ν	180									
ξ	161									
ϕ	161									
π	120									

58

C-19189

Vega 1

1 2 3



Spectra of Class CF. Measures by BPG

Sp.	Star	Gradient	Plate	Temp.	β	γ	δ	ϵ	κ	Fe	Fe+ [Ratio]	Mr
	v Sgr	-0.69	3278,82	6470								
F0	22 And	-0.87	3421,23	5890	44	48	51	79	78			
	{ Br 711	-0.36	3446	7600								
	{ 140m											
F0	214470	-0.66	3405,14	<u>6560</u>								
	31 Cep			<u>6680</u>								
F5	ϕ Cas	-1.30	3416(2)	5070								
	A Per	-0.90	3416,22	5910								
	41 Cyg	-1.01	3389,98	5650	58	62	70	93	92			
	35 Cyg	-1.19	3404,10	5280	{43 44	{46 46	{50 46	86	90			
	E Aur	-1.27	3446,44	<u>5120</u>	32	39	43	75	73			
				<u>5410</u>								
F8	45 Dra	-1.84	3403,	4260								
	ρ Cas	-2.18	3399,3388	3860	42	56	44	^{94 94} [300][300]	^{18.4} 8.6	^{9.8} 9.8	+0.06	
	γ Cyg	-1.42	3389, "	<u>4860</u>	24	51	46	88	87	^{10.2} 5.2	5.0	-0.02
				<u>4330</u>								
dF8	η Per	-1.00	3443,3444	5670								
Means for normal stars												
F0					49		57	74	76			
F5					41	45	48	81	78			
F8					36	42	45	79	76			

Mr W Mag.

Vic Mag

Hsp

Hsp Mean

Reduced

Old Mean

Fo 2.20 -0.72 -0.63

Fs 2.40 -0.92 -1.13

Fg 2.67 -1.19 -1.75

superfaint

+2.0

+1.8

+0.2

+0.4

superfaint
not a supergiant

-1.1

-0.8

-0.82

-2.7

-2.0

-2.8

-1.35

-3.3 (Gsp, G_u)

-3.8

-2.33

-3.0

-3.2

-1.33
-1.02

3.9

42

$$G = 1.52 - C_2/T$$

1.52	G	Diff	log G ₂	log diff	log T	T
1.52	-0.69	2.21	4.1553	0.3444	3.8109	6470
	-0.87	2.39	4.1553	0.3784	3.7769	5980
	-0.36	1.88	4.1553	0.2742	3.8811	7600
	-0.66	2.18	4.1553	0.3385	3.8168	6560
	-1.30	2.82	4.1553	0.4502	3.7051	5070
	-0.90	2.42	4.1553	0.3838	3.7715	5910
	-1.01	2.53	4.1553	0.4031	3.7522	5650
	-1.19	2.71	4.1553	0.4230	3.7223	5280
	-1.27	2.79	4.1553	0.4456	3.7097	5120
	-1.84	3.36	4.1553	0.5263	3.6290	4260

1.52	-2.18	3.70	4.1553	0.5682	3.5871	3860
	-1.42	2.94	4.1553	0.4683	3.6870	4860
	-1.00	2.52	4.1553	0.4014	3.7539	5670

45 Draconis

F₈ 5.0

γ Lac 2403 -1.48 -0.26 -1.63 -1.71
 " " β " -1.75 -0.29 -1.90 -1.98

-1.84

-1.35

40 Ari

Br 711

CF0

~~H 2446~~
 γ Virgo 3446 -0.59 +0.14 -0.51 -0.36

1.93 V
1.73 V

H δ 214470

CF2

α Lac 2405 -0.89 +0.17 -0.80 -0.78
 " 2414 -0.66 +0.17 -0.57 -0.55

-0.66

31 Cap
0.3
0.5

ϵ Aurigae

cF5 2.3

γ Tring 2416 -1.27 -0.05 -1.29 -1.14
 " 2411 -1.52 -0.06 -1.55 -1.40

-1.27

-2.9 v
-27

 ψ Can.

F5

5.2

α Lac 2416 -1.36 +0.02 -1.35 -1.33
 " " " -1.29 0.00 -1.29 -1.27

-1.30

22 And. F₀

α Lac 2421 -0.90 -0.07 -0.94 -0.92
 " 2423 -0.81 -0.06 -0.84 -0.82

-0.87

A Persei FS

5.5

 α Lac. 3416 - 0.78 - 0.08 - 0.82 - 0.80

" 3422 - 0.99 - 0.08 - 1.03 - 1.01

- 0.90

3.1 } V
3.4 }

35 Cygni cFS

5.2

 γ Lyrae 3404 - 1.81 + 0.05 - 1.14 - 1.22 α Lac. 3410 - 1.33 + 0.28 - 1.18 - 1.16

- 1.19

{ -2.7 } V
-2.7 }

41 Cygni FS

N = -1.0^{4.1} γ Lyrae 3389 - 0.79 - 0.01 - 0.80 - 0.88

" 3398 - 1.16 + 0.18 - 1.06 - 1.14

- 1.01

- 0.82

-0.93 } V
-0.7 }

f Cygni F₈

2.3

f Lyne 3389 -1.20 -0.09 -1.25 -1.33
 " " " -1.32 -0.20 -1.43 -1.51

-1.42

-1.33

-3.3 V
 -3.1

+3.9 O_x Perseus dwarf F₈ ✓

f Ti 3442 -0.99 -0.01 ~~-1.19~~ -1.00 -0.85
 " " 3444 -1.29 -0.00 -1.29 -1.19

-1.00

-3.24
 4.72
 1.48

2.50
 1.48
 1.02

4.4
 4.0 V

f Cass. F₈

4.8

f Lyne 3399 -1.84 +0.07 -1.81 -1.89
 " " 3388 -2.41 -0.04 -2.43 -2.51
 " " 3388 -2.03 -0.04 -2.05 -2.13

-2.33

-3.7
 -3.8 } V -2.18

B8p. v Sapttani

2 Aquila 3278 -1.08 +0.67 -0.72 -0.74
 " " 3282 -0.97 +0.64 -0.62 -0.64

-0.69

F_0 -0.87
 -0.66 -0.63 6700
 -0.36

F_5 -0.90
 -1.30
 -1.19 -1.13 5400
 -1.01
 -1.27

F_8 -1.84
 -1.42 -1.75 4400
 -2.18

1.75
 1.52
 3.27

295

143

143

295

0.2

75.

2

1. Abs. mag.
2. Spec. criteria
3. Spectrum of ν Sgr
- 4.

K for 10,000 +1.52
12,000 +1.31

$$G = K - \frac{C_2}{T} \quad C_2 = 14,300$$

0.72

0.

Class F; available c-stars

22 And	✓ 0	5.1	+45 31	cF0	5.8	3421 (2 Lac) 3423 (2 Lac) 3427 (2 Lac)
Phi Cas	✓ 1	13.8	+57 42	cF5	2 5.25	3410 (2 Lac) 3416 (2 Lac)
Polaris	1	22.6	+88 46	acF5	2.12	
A Per	✓ 3	49.2	+50 24	cF5	2 5.47	3416 (2 Lac) 3422 (2 Lac)
Eps Aur	✓ 4	54.8	+43 40	cF5	4.1	
Br 711	✓ 5	2.5	+ 8 22	cF0	5.47	
Pi 22	10	18.9	+83 4	F2	5.34	
HD 105702	12	5.0	+ 6 22	F0	5.74	
eps Lib	15	18.8	- 9 57	F0	5.08	
HD 143584	15	56.2	+50 10	F0	5.90	
Br 2249	17	51.4	+26 4	cF5	5.48	
nu Her	17	54.7	+30 11	F0	4.48	
35 Cyg	✓ 20	14.8	+34 40	cF5	2 5.18	3404 (1 Lac) 3410 (2 Lac)
HD 214470	✓ 22	33.3	+73 7 ~~+84/37~~	F0	2 5.50	3404 (1 Lac) 3405 (2 Lac) 3401
rho Cas	✓ 23	49.4	+56 57	F8p	3 4.9	3388 (1 Lac) 3399 (1 Lac)
8 CMa				cF8	2.7?	

Professor G.

Isnt this a poor show?
Can we do anything?1 29 66
22 23
1 27

Class A5

	α	δ	m	
HD 40536	2° 54.3	-9 34	5.10	Variable RV, lines somewhat narrow, 2 Monocerotis
HD 34578	5 13.4	+33 52	5.16	Metallic lines v. sharp
HD 218393	23 2.6	+49 40	6.99	Lines very narrow

Class F0

✓ rho Cap	20 23.2	-18 9	5.1	Class A9 ; Mt.W. Contr. 199, -1.0 ^M
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Class F2

✓ Groom 3591	21 46.8	+66 20	6.51	Lines prob. narrow
pi Sgr	19 3.8	-21 11	3.02	
HD 43382	6 10.8	+35 10	6.62	Lines of H are narrow

Class F5

alpha Per	3 17.2	+49 30	1.90	3298(-) 3389 (gamma)
✓ 41 Cyg	✓ 20 25.3	+30 2	4.1	Narrow lines. Mt.W. Contr. 199, -1.1 ^M
✓ beta Del	20 32.9	+14 15	3.72	Lines somewhat narrow

Class F8

delta CMa	7 4.3	-26 14	1.98	Lines very narrow. R.V. Variable
✓ 45 Dra	✓ 18 30.9	+56 58	5.0	3403 (gamma) 3404 (gamma) Lines narrow. Cepheid spectra (A&J)
✓ gamma Cyg	✓ 20 18.6	+39 56	2.32	Lines narrow. Cepheid spectra (A&J)

		Total Absorptions				from Line Contours			
		⁹⁶	⁸³	⁶⁹	²²	^{4x}	^{65x}	^{19x}	²
O 8.5	γ	4.3	1.8	1.0	29	7.3	6.1	2.8	~~4.0~~ x 0.5
	δ	4.6	2.3	1.2	31	7.6	6.9	3.5	~~2.9~~ x 0.6
	ϵ	4.5	2.2	1.4	31	7.5	6.7	3.6	~~3.0~~ x 0.7
B 2	γ	14.0	6.0	—	(35)	17.0	20.0	6.0	4x
	δ	10.2	2.7	0.6	(35)	13.2	12.9	3.3	4x 0.3
	ϵ	16.2	6.7	3.2	(35)	19.2	22.9	9.9	4x 1.6
B 3	γ	11.9	6.6	4.4	(45)	14.9	28.5	11.0	14x 2.2
	δ	11.2	5.2	2.3	(45)	14.2	16.4	7.5	14x 1.2
	ϵ	13.2	6.0	3.3	(45)	16.2	19.2	9.3	14x 1.6
B 5	γ	17.9	8.6	5.0	52	20.9	26.5	13.6	21x 2.5
	δ	14.8	7.7	4.6	58	17.8	22.5	12.3	27x 2.3
	ϵ	18.2	9.4	5.7	57	21.2	27.6	15.1	26x 2.8
B 8	γ	16.9	11.2	6.9	59	22.9	30.1	18.1	28x 2.4
	δ	16.9	9.7	6.4	63	19.9	26.6	16.1	32x 3.2
B 9	γ	20.8	12.6	8.1	69	23.8	33.4	20.7	38x 4.0
	δ	20.7	12.0	7.8	72	23.7	32.7	19.8	41x 3.9
	ϵ	22.8	14.2	10.3	75	25.8	37.0	24.5	44x 5.2
A 0	γ	28.6	16.2	10.5	71	31.6	44.8	26.7	40x 5.4
	δ	24.8	14.6	9.6	73	27.8	39.4	24.2	42x 4.8
	ϵ	22.4	13.3	9.4	70	25.4	35.7	22.7	39x 4.7
A 2	γ	31.2	17.9	11.7	70	34.2	49.1	29.6	39x 5.8
	δ	26.9	15.8	10.0	68	29.9	42.7	25.8	37x 5.0
	ϵ	24.4	14.1	9.2	80	27.4	38.5	23.3	49x 4.6
A 3	γ	34.0	20.0	12.3	70	37.0	54.0	32.3	39x 6.2
	δ	28.4	16.7	10.2	72	31.4	45.1	26.9	41x 5.1
A 5	γ	33.6	17.1	10.0	63	36.6	50.7	27.1	32x 5.0
	δ	31.1	15.3	9.0	67	34.1	46.4	24.3	36x 4.5
	ϵ	33.1	17.1	10.7	75	36.1	50.2	27.8	44x 5.4
F 0	γ	21.3	11.7	6.7	62	24.3	33.0	18.4	31x 3.4
	δ	18.2	10.4	6.5	68	21.2	28.6	16.9	27x 3.2
	ϵ	17.9	10.8	7.6	76	20.9	28.7	18.4	40x 3.6

				Sum	log NH	log Sum
29.2	40.6	19.6	1.0	90.4	17.56	1.95
30.4	44.8	24.5	..	102.7	17.72	2.01
30.0	43.5	25.2	..	98.7	17.86	2.00
68.0	130.0	42.0		240.0	18.62	2.38
52.8	84.0	23.0	1.2	161.0	17.94	2.21
76.8	149.0	69.4	6.4	301.6	18.59	2.48
57.6	120.0	77.0	30.8	285.4	18.73	2.46
56.8	106.5	52.6	16.9	232.8	18.80	2.36
64.8	124.5	65.1	21.0	275.4	18.55	2.44
83.6	172.0	95.2	52.5	403.3	18.90	2.61
71.2	146.0	86.1	62.1	365.4	18.82	2.56
84.8	179.0	105.7	72.9	442.4	18.98	2.64
91.6	196.0	126.7	95.1	509.4	19.14	2.71
79.6	173.0	114.7	101.1	468.4	19.04	2.67
95.2	216.0	144.9	152.0	608.1	19.24	2.79
94.8	213.0	128.6	160.0	596.4	19.21	2.78
103.2	241.0	171.5	229.0	744.7	19.38	2.87
126.4	292.0	186.9	216.0	821.3	19.45	2.91
111.2	255.0	169.4	203.0	738.6	19.37	2.87
101.6	232.0	158.9	184.0	676.5	19.32	2.83
136.8	319.0	207.2	226.0	889.0	19.54	2.95
119.6	277.0	180.6	185.0	762.2	19.42	2.88
109.6	250.0	163.1	226.0	748.7	19.34	2.87
148.0	351.0	226.1	242.0	967.1	19.62	2.99
125.6	293.0	188.3	210.0	817.9	19.46	2.91
146.4	329.0	189.7	160.0	825.1	19.46	2.91
136.4	301.0	170.1	162.0	769.5	19.37	2.89
144.4	321.0	194.6	238.0	898.0	19.48	2.95
97.2	215.0	128.8	106.0	547.0	19.17	2.74
84.8	186.0	118.3	122.0	511.1	19.08	2.71
83.6	187.0	128.8	171.0	570.4	19.16	2.76

				31		4x	6.5x	7x			
F2	γ	16.0	7.4	3.8	56	19.0	23.4	11.2	25x	1.9	2
	δ	13.2	7.3	3.6	56	16.2	20.5	10.9	25x	1.8	6
	ϵ	28.0	16.6	7.8	88	31.0	44.6	24.4	57x	3.9	12
F5	γ	11.6	4.6	2.2	45	14.6	16.2	6.8	14x	1.1	5
	δ	13.0	6.0	2.5	48	16.0	19.0	8.5	17x	1.2	6
	ϵ	28.0	16.7	10.1	81	31.0	44.7	26.8	50x	5.0	12
F8	γ	12.8	7.8	4.5	42	15.8	20.6	12.3	13x	2.2	6
	δ	11.0	6.4	4.2	45	14.0	17.4	10.6	14x	2.1	5
	ϵ	20.4	11.6	8.4	79	23.4	32.0	20.0	48x	4.2	9
G5	γ	4.5	2.5	2.0	33	7.5	7.0	4.5	2x	1.0	30
	δ	4.4	2.4	1.3	32	7.4	6.8	3.7	1x	0.6	29
K0	γ	4.3	2.5	1.5	29	7.3	6.8	4.0	-	0.8	29
	ϵ	28.2	12.9	9.8	81	31.2	41.1	22.7	50x	4.9	12
K2	ϵ	26.9	14.4	10.0	82	29.9	41.3	24.4	51x	5.0	11
K5	γ	4.5	3.2	2.5	31	7.5	7.7	5.7	-	1.2	3
	δ	5.5	3.5	2.6	31	8.5	9.0	6.1	-	1.3	3
dK5	γ	2.5	0.8		31	5.5	3.3	0.8	-		2
	δ	4.8	2.6	1.3	31	7.8	7.4	3.9	-	0.6	3

					Sum	log Sum	log NH
9	26.0	152.0	78.4	47.7	354.1	2.55	18.72
8	64.8	133.5	76.3	45.2	319.8	2.51	18.68
3.9	124.0	290.0	170.8	223.0	807.8	2.91	19.34
1.1	58.4	106.0	47.6	15.4	221.4	2.34	18.23
1.2	64.0	124.0	59.5	20.8	268.3	2.43	18.40
5.0	124.0	29.0	187.6	250.0	~~851.6~~ 590.6	~~2.92~~ 2.77	19.45
2.2	63.2	134.0	86.1	28.6	310.9	2.49	18.81
2.1	56.0	113.0	74.2	29.4	272.6	2.44	18.70
4.2	93.6	208.0	140.0	202.0	643.6	~~2.84~~ 2.64	19.22
1.0	30.0	~~45.5~~ 49.3	31.5	2.0	109.0	2.04	17.69
0.6	29.6	44.3	25.9	0.6	100.4	2.00	17.66
0.8	29.2	44.3	28.0		101.5	2.00	17.81
4.9	124.8	266.0	158.9	245.0	794.7	2.90	19.32
5.0	119.6	268.0	170.8	255.0	813.4	2.91	19.38
1.2	30.0	50.0	39.9		119.9	2.08	18.14
3	34.0	58.5	42.7		135.2	2.13	18.19
	22.0	21.5	5.6		49.1	1.69	17.07
0.6	31.2	48.1	27.3		106.6	2.03	17.74

Contour of K line and tot. ab.

Class	q6	83	69	58	(52) 48	db.	4x	6.5x	7x	5.5x	5x	
A0	2.5	0.8	0.5			38	5.5	3.3	1.3	..	..	3x0.2
A3	6.7	4.0	2.5			(45)	9.7	10.7	6.5	..	..	14x1.2
A5	10.4	6.2	4.1	2.3	1.8	51	13.4	16.6	10.3	6.4	4.1	0x0.9
A7	9.3	5.6	4.4	3.8	3.2	(53)	12.3	14.9	10.0	8.2	7.0	1x1.6
A8	11.5	7.0	5.3	4.2	3.1	(55)	14.5	18.5	12.3	9.5	7.3	3x1.6
F0	11.5	7.0	5.3	4.5	3.4	58	14.5	18.5	12.3	9.8	7.9	6x1.7
F2	17.5	8.6	6.8	6.3	5.3	87	20.5	26.1	15.4	13.1	11.6	35x26
F5	25.0	17.2	10.9	7.9	5.8	78	28.0	42.2	28.1	18.8	13.7	26x29
F8	16.4	10.7	7.2	5.7	4.6	76	19.4	27.1	17.9	12.9	10.3	24x23
G5	21.2	13.6	9.6	7.4	..	73	24.2	34.8	23.2	17.0		21x37
G5	23.1	15.0	10.5	8.0		73	26.1	38.1	25.5	18.5		31x40
K0	28.2	12.9	9.8	7.8	6.2	78	31.2	41.1	22.7	17.6	14.0	26x36
K2	28.7	18.7	13.6	10.5	8.1	82	31.7	47.4	32.3	24.1	18.6	31x40
K5	19.4	14.2	9.7	6.4	4.2	73	22.4	33.6	23.9	16.1	10.6	21x21
M0	22.2	15.8	10.9	8.2	6.2	80	25.2	38.0	26.7	19.1	14.4	28x31
M1	27.2	18.0	10.0	6.8	4.8	77	30.2	45.2	28.0	16.8	11.6	25x24
M2	22.3	15.6	10.6	7.9	6.1	80	25.3	37.9	26.2	18.5	14.0	28x30
M3	22.2	10.8	7.0	5.0	4.0	78	25.2	33.0	17.8	12.0	9.0	26x20
M5	23.2	15.8	10.2	7.9	5.1	77	26.2	39.0	26.0	18.1	13.0	25x26

Contour of 4227

F0	2.9					22	5.9					18x1.4
F5	3.9	2.6	0.6			24	6.9	6.5	3.2			7x0.3
F8	5.5	2.1	1.0			34	8.5	7.6	3.1			3x0.5
G5	3.9	2.5	1.5			39	6.9	6.4	4.0			2x0.8
K0	6.7	4.4	2.9			51	9.7	11.1	7.3			20x14
K2	7.7	4.5	2.8			51	10.7	12.2	7.3			20x14
K5	14.0	7.6	4.1			70	17.0	21.6	11.7			39x2.0
M0	15.5	10.3	6.5			72	18.5	25.8	16.8			41x3.2
M1	16.0	9.8	5.0			61	19.0	25.8	14.8			20x2.5
M2	17.4	9.6	4.7			67	20.4	27.0	14.3			26x2.4
M3	16.4	9.8	6.4			62	19.4	26.2	16.2			31x3.2

						Sum	lg Sum	lg NH
22.0	21.4	9.1			1.4	53.9	1.73	17.00:
38.8	69.6	45.5			16.8	170.7	2.23	18.24
53.6	107.9	72.1	35.2	20.5	0	289.3	2.46	18.67
49.2	96.8	70.0	45.1	35.0	1.6	297.7	2.47	18.66
58.0	120.2	76.1	52.2	36.5	4.8	347.8	2.54	18.82
58.0	120.2	76.1	53.9	39.5	10.2	357.9	2.55	18.84
82.0	169.6	107.8	72.0	58.0	9.1.0	580.4	2.76	19.01
112.0	274.3	196.7	103.4	68.5	75.4	830.3	2.92	19.49
57.6	176.2	124.3	71.0	51.5	55.2	535.8	2.73	19.13
96.8	226.2	162.4	93.5	..	114.7	693.6	2.84	~~19.38~~
104.4	247.6	178.5	101.8	..	124.0	686.3	2.84	19.
124.8	267.2	158.9	96.8	70.0	80.6	798.3	2.90	19.52
126.8	308.1	226.1	132.6	93.0	124.0	1010.6	3.00	19.64
89.6	218.4	167.3	88.6	53.0	44.1	661.0	2.82	19.36
100.8	247.0	186.9	105.0	72.0	86.8	798.5	2.90	19.46
120.8	293.8	196.0	92.4	58.0	60.0	821.0	2.91	19.48
101.2	246.4	183.4	101.8	70.0	84.0	786.8	2.90	19.44
100.8	~~214.5~~ ~~115.7~~	124.6	66.0	45.0	52.0	602.9	2.78	19.12
104.8	253.5	182.0	99.6	65.0	65.0	769.9	2.89	19.43
23.6	..				2.5	26.1	1.42	17.28
27.6	42.2	22.4			0	92.2	1.96	17.56
34.0	49.4	21.7			1.5	106.6	2.03	17.61
27.6	41.6	28.0			2.4	99.6	2.00	..
38.8	72.2	51.1			28.0	190.1	2.28	18.36
42.8	79.3	51.1			28.0	201.2	2.30	18.37
68.0	140.4	81.9			78.0	368.3	2.57	18.76
74.0	167.7	117.6			131.2	490.5	2.69	19.08
76.0	167.7	103.6			75.0	422.3	2.63	18.96
81.6	175.5	102.1			86.4	443.6	2.65	18.92
77.6	170.3	113.4			99.2	460.5	2.66	19.08

Total Energies

Class	T	H γ	H δ	H ϵ +H	K	4227
O 8.5	8500	1.95 14.76 16.71	2.01	2.00		
B 2	13000	2.38 15.49 17.87	2.21	2.48		
B 3	13000	2.46 15.49 17.95	2.36	2.44		
B 5	13000	2.61 15.49 18.10	2.56	2.64		
B 8	12000	2.71 15.39 18.10	2.67			
B 9	11000	2.79 15.27 18.06	2.78	2.87		
A 0	10000	2.91 15.13 18.04	2.87	2.83	1.73	
A 2	9500	2.95 15.06 18.00	2.88	2.87		
A 3	9000	2.99 14.97 17.96	2.91	..	2.23	
A 5	8500	2.91 14.87 17.78	2.89	2.95	2.46	
A 7	8000	..	..	..	2.47	
A 8	8000				2.54	
F 0	7500	2.74 14.63 17.37	2.71	2.76	2.55	1.42 14.64 16.06
F 2	7000	2.55 14.50 17.05	2.51	2.91	2.76	
F 5	6500	2.34 14.32 16.67	2.43	2.92	2.92	1.96 14.32 16.28
F 8	6000	2.49 14.14 16.63	2.44	2.84	2.73	2.03 14.14 16.17
G 5	5000	2.04 13.65 15.69	2.00		2.84	2.00 13.65 15.65
K 0	4000	2.00 12.93 14.93		2.90	2.90	2.28 12.93 15.21
K 2	3500			2.91	3.00	2.30 12.28 14.58
K 5	3000	2.08 11.69 13.77	2.13		2.82	2.57 11.66 13.23
dK 5		1.69	2.03			
M 0	2800				2.90	2.69
M 1	2700				2.91	2.63
M 2	2600				2.90	2.65
M 3	2500				2.78	2.66
M 5	2400				2.89	

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