How to Construct a Burnham's List

The example we will use is the southern constellation of Pisces Austrinus.

Double and Multiple Stars

Here's the page from Burnham's with the entries for double and multiple stars:

NAME	DIST	PA	YR	MAGS	NOTES	RA & DEC
6	6.8	59	27	6- 13	(B1009) Spect A0	21292s3410
B1013	0.2	101	39	812- 9	PA dec, spect F8	21462s3552
h3059	25.2	253	30	712- 1012	Relfix, spect B9	21479s2810
B1014	2.8	145	32	8 - 12	Spect AO	21537s3138
h5311	40.6	292	19	7 - 10	spect KO	21566s2918
	48.6	227	19	- 10 2		
stn 56	11.3	35	35	7-2- 11	relfix, spect FU	2156782752
N	1.6	116	55	5-2- 6-2	(β2/6) relfix, spect B8	2158982842
B547	2.3	294	35	8 - 14	spect A2	22003s2718
B549	3.6	213	59	7 - 13	spect KO	22017s2608
Daw156	1.3	317	59	712- 11	PA inc, spect GO	22076s3404
ß769	0.9	352	52	7 - 8½	relfix, cpm pair; spect F2	2208783443
B 557	0.3	321	58	6 . 6	PA dee, spect F2	2219183446
λ474	0.1		55	7 - 8	(h3118) spect KO;	22266s2855
	33,7	296	59	- 11	AB uncertain	
ß	30.4	172	52	412- 712	$(\triangle 240)$ nice cpm	22287s3236
					relfix pair, spect ÁO	
B568	4.9	310	35	75- 13	spect A3	22352s3344
h5356	86.6	160	51	612- 7	(H VI 119) wide cpm	22370s2836
h5356Ъ	3.2	67	59	7 - 8	pair, spect GO,F5; BC PA inc.	
Hd 301	0.2	91	54	7 - 7	Binary, 27 yrs; PA	22472s3304
					dec, spect F2	
h5365	4.8	278	33	712-1212	spect A3	22490s3608
	55.6	35	19	-11		
Y	4.3	262	57	412- 812	(h5367) PA slow	22498s3308
					dec, spect AU	22522-2245
δ	5.0	244	53	4-2- 10	(Hwe 91) cpm pair,	2233283240
					slight PA inc,	
	000	1	00	1 1/	FOMAL HAUT Speet A3	2254952953
a	30.0	36	00	1 - 14	Optical (*)	2204902990
6					opercar (")	22551-2622

Most of these stars are to be found in the Washington Double Star Catalogue (WDS) or the Bright Star Catalogue. You will need these catalogues on hand. The first thing to tackle are the entries likely to appear in the WDS. These are pretty much all the entries that do not have either a Bayer classification (single Greek letter) or a Flamsteed number (an integer number). In this case we have one Flamsteed entry (6) and 5 Bayer entries (η , β , γ , δ , α). In order to use the WDS, the notation used by Burnham needs to be translated into that used in the WDS. The table below will help (latest version available on-line).

Observer	Burnham ID	WDS Name ID	Example
F.G.W.Struve	Σ	STF	$\Sigma 265 \equiv STF265$
O.Struve	ΟΣ	STT	OΣ 1265 ≡ STT1265
J.Herschel	h	HJ	h 45 ≡ HJ45
J.Dunlop	Δ	DUN	∆ 93 ≡ DUN93
S.W.Burnham	β	BU	β 99 ≡ BU99
R.G.Aitken	A	A	A 88 ≡ A88
Alvan Clark	AC	AC	AC 141 ≡ AC141
R.A.Rossiter	Rst	RST	Rst 761 ≡ RST761
F.Argelander	Arg	ARG	Arg $62 \equiv ARG62$
H.A.Howe	Hwe	HWE	Hwe 8 ≡ HWE8
Cordoba Obsvt	Cor	C00	$Cor258 \equiv COO258$
T.E.Espin	Es	ES	$Es 7 \equiv ES7$
W.J.Hussey	Hu	HU	$Hu 81 \equiv HU81$
R.T.Innes	1	1	66 ≡ 166
T.J.J.See	λ	SEE	$\lambda 113 = SEE113$
C.Rumker	Rmk	1002	
G.W.Hough	Ho	но	$H_0 72 \equiv HO72$
W.H.van den Bos	В	В	B 6 ≡ B6
E.S.Holden	Hn, Hld	HN, HLD	Hn 83 \equiv HN83, Hld 11 \equiv HLD11
G.P.Kuiper	Kui	KUI	Kui 5 ≡ KUI5
J.South	S	S	S 97 ≡ S97
777	Sei	SEI	Sei 37 = SEI37
777	J	J	J 431 ≡ J431
202	0	DAW	0 8 = DAW8
***	GIS	GLI	GIS 159 = GLI159
???	R	R	$R 2 \equiv R 2 $
???	SIr	SLR	$SIr 22 \equiv SLR22$
???	Φ	FIN	Φ 37 ≡ FIN37
???	Hd	HDO	Hd 241 ≡ HDO241
???	Ср	CPO	$Cp 15 \equiv CPO15$
???	Mid	MLO	MId1 = MLO1
???	NZ	NZO	NZ23 ≡ NZO23
???	Hrg	HRG	Hrg $19 \equiv HRG19$

The first thing to do is create an empty plan document in AstroPlanner. You can also reuse an existing one by deleting all the entries. Select the Planning tab.

				New File		jectsj						
			Observing	Field of	View	Sky	Plannin	9				
ID	Name	Туре	R.A.	Dec	Obs	Mag	Mag2	Separation	Size	Const	Catalogue	Spect
New Object	Delete Object	Add	d Special	Sho	w catalog	jue			Sele	ct from cat	talogue)+
New Object	Delete Object Right Ascension:	Ade	d Special	Sho	w catalog agnitude:	jue	es:		Sele Dele	ct from cat	talogue)+
New Object	Delete Object Right Ascension: h) Add	d Special	Sho	w catalog agnitude:	jue	es:		Sele Dele	ct from cat te	talogue)+
New Object	Delete Object Right Ascension: h M	Add	d Special) (Sho M M	w catalog agnitude: agnitude:	jue Note	es:	•••	Sele	ct from cat	talogue	•(
New Object : Lookup ID ime:	Delete Object Right Ascension: h All Declination:	Mda m	d Special s Spectral: Size:	Sho M M Se	w catalog agnitude: agnitude: eparation:	Jue	es:	•	Selec Dele	ct from cat	talogue)•

Click the **Lookup ID...** button. In the dialog, enter the double star IDs separated by commas and/or new lines. Note below that we used the table above to convert the entries where necessary. Click **Lookup**.

B1013,HJ3059,B1014,HJ531 BU769,B557,SEE474,B568,H,	1,STN56,B547,B549,DAW156 J5356,HDO301,HJ5365,HJ5371
Prefix:	Suffix:

Select only the WDS catalogue entry for speed and to avoid finding spurious objects from elsewhere.

Cata	logues to search	
	Terzan Cluster Catalogue Trumpler Catalogue Tycho Stellar Catalogue UGC Catalogue USNO Neglected Doubles A Catalogue USNO Neglected Doubles B Catalogue USNO Neglected Doubles C Catalogue Washington Double Star Catalogue X280p Zodiacal Catalogue Zodiacal Catalogue	•
C	ielect All Select None	0
-	et catalogues containing	

In the results window, you'll probably want to click the Add All button to add all the found entries.

					Sea	rch Result	5	
Search	ID	Name	Туре	RA	Dec	Magnitude	Catalogue	Description
1013	WDS21492-3.	.B1013	Dbl	21h 49m	-35'38'	8.9	Washington	1st Obs: 1927(0.2",132deg),Last Obs: 1977(0.1",1210
3059	WDS21508-2.	.HJ3059	Dbl	21h 51m	-27'56'	7.5	Washington	ADS15365, 1st Obs: 1830(15.0",258deg),Last Obs: 19
014	WDS21567-3.	.B1014	Dbl	21h 57m	-31'23'	7.9	Washington	1st Obs: 1928(2.7",144deg),Last Obs: 1960(2.4",143d
5311	WDS21595-2.	.HJ5311	Dbl	22h 00m	-29'03'	7.1	Washington	1st Obs: 1919(48.6",227deg),Last Obs: 1919(48.6",22
5311	WDS21595-2.	.HJ5311	Dbl	22h 00m	-29'03'	7.1	Washington	1st Obs: 1834(30.0",298deg),Last Obs: 1919(40.6",29
156	WDS21596-2.	STN56	Dbl	22h 00m	-27'38'	7.3	Washington	ADS15509, 1st Obs: 1878(12.1",38deg),Last Obs: 199
47	WDS22031-2.	.B547	Dbl	22h 03m	-27'03'	7.8	Washington	ADS15570, 1st Obs: 1925(2.4",295deg),Last Obs: 192
19	WDS22045-2	.B549	Dbl	22h 05m	-25'53'	7.0	Washington	ADS15592, 1st Obs: 1926(3.4",208deg),Last Obs: 195
W156	WDS22105-3	DAW156	Dbl	22h 11m	-33'50'	7.7	Washington	1st Obs: 1922(1.3",298deg),Last Obs: 1991(1.6",331
769	WDS22116-3	.BU769	Dbl	22h 12m	-34'28'	7.1	Washington	1st Obs: 1879(0.6",349deg),Last Obs: 1991(0.8",358/
57	WDS22220-3	.B557	Dbl	22h 22m	-34'31'	7.4	Washington	1st Obs: 1926(0.3",344deg),Last Obs: 1992(0.2",292
474	WDS22294-2	.SEE474	Dbl	22h 29m	-28'40'	7.9	Washington	ADS15978, 1st Obs: 1896(0.6",290deg),Last Obs: 1955(0.3",3)
58	WDS22380-3	.8568	Dbl	22h 38m	-33'28'	7.6	Washington	1st Obs: 1927(4.9",310deg),Last Obs: 1935(5.0",310
0301	WDS22500-3	.HD0301	Dbl	22h 50m	-32'48'	6.3	Washington	1st Obs: 1897(0.4",90deg),Last Obs: 1996(0.3",149d
365	WDS22518-3	.HJ5365	Dbl	22h 52m	-35'53'	7.5	Washington	1st Obs: 1919(55.6",35deg),Last Obs: 1991(55.2",36
365	WDS22518-3	.HJ5365	Dbl	22h 52m	-35'53'	7.5	Washington	1st Obs: 1835(2.5",272deg),Last Obs: 1991(4.9",276
371	WDS22578-2.	HJ5371	Dbl	22h 58m	-26'07'	7.7	Washington	ADS16400, 1st Obs; 1834(5.0",346deg),Last Obs; 199
arch com	plete			Slew	to Object	Select	t Non-duplicat	es Add Selected Add All

The entries then appear in the plan document.

			Observing	Field of	View S	iky	Planning					
ID	Name	Type	R.A.	Dec	Obs N	lag	Mag2	Separation	Size	Const	Catalogue	Spect
VDS21492-3538	B1013	Dbl	21h 49m 13s	-35'38'19"		8.9	9.0	0.1		PsA	Washington	F6/7V
VDS21508-2756	HJ3059	Dbl	21h 50m 46s	-27'55'57"		7.5	10.6	25.3		PsA	Washington	B8.5V
VDS21567-3123	B1014	Dbl	21h 56m 39s	-31"23'23"		7.9	12.2	2.4		PsA	Washington	AO
VDS21595-2903	HJ5311	Dbl	21h 59m 31s	-29"03'24"		7.1	10.9	48.6		PsA	Washington	
VDS21595-2903	HJ5311	Dbl	21h 59m 31s	-29'03'24"		7.1	10.6	40.6		PsA	Washington	G8/KOIII
VDS21596-2738	STN56	Dbl	21h 59m 35s	-27"37'50"		7.3	10.5	11.4		PsA	Washington	F2V
VDS22031-2703	B547	Dbl	22h 03m 09s	-27'03'04"		7.8	14.2	2.1		PsA	Washington	A5Vm
VDS22045-2553	B549	Dbl	22h 04m 30s	-25"53'00"		7.0	13.0	3.7		PsA	Washington	G8III
NDS22105-3350	DAW156	Dbl	22h 10m 32s	-33"49'39"		7.7	11.1	1.6		PsA	Washington	G3V
NDS22116-3428	BU769	Dbl	22h 11m 38s	-34'27'54"		7.1	8.2	0.8		PsA	Washington	
NDS22220-3431	B557	Dbl	22h 21m 58s	-34'31'13"		7.4	7.5	0.2		PsA	Washington	F3/5V
NDS22294-2840	SEE474	Dbl	22h 29m 26s	-28"39'34"		7.9	8.2	0.3		PsA	Washington	K2III
MDS22380-3328	B568	Dbl	22h 38m 02s	-33"28'13"		7.6	13.4	5.0		PsA	Washington	A3
MDS22500-3248	HD0301	Dbl	22h 49m 59s	-32'48'19"		6.3	6.5	0.3		PsA	Washington	FOV+F3V
The late of the The		Dhi	22h 51m 46s	-35'53'19"		7.5	11.3	55.2		PsA	Washington	
VDS22518-3553	HJ5365	DDI										
DS22518-3553 DS22518-3553	HJ5365 HJ5365	Dbl	22h 51m 46s	-35"53'19"		7.5	10.9	4.9		PsA	Washington	A3
VDS22518-3553 VDS22518-3553 VDS22578-2606	HJ5365 HJ5365 HJ5371	Dbi Dbi Dbi	22h 51m 46s 22h 57m 48s	-35'53'19" -26'06'30"		7.5	10.9 9.2	4.9 9.1		PsA PsA	Washington Washington	A3 G3V
VDS22518-3553 VDS22518-3553 VDS22578-2606	HU5365 HU5365 HU5371 Delete Oi	Dbi Dbi Dbi	22h 51m 46s 22h 57m 48s d Special	-35'53'19" -26'06'30"	v catalogue	7.5 7.7	10.9 9.2	4.9 9.1	Selec	PsA PsA	Washington Washington	A3 G3V
ND522518-3553 ND522518-3553 ND522578-2606	HU5365 HU5365 HU5371 Delete O	bli Dbi Dbi	22h 51m 46s 22h 57m 48s d Special	-35'53'19" -26'06'30"	v catalogue	7.5 7.7	10.9 9.2	4.9 9.1	Selec	PsA PsA	Washington Washington	A3 G3V
AD522518-3553 AD522518-3553 AD522578-2606	HJ5365 HJ5365 HJ5371 Delete Ol Right As	bil Dbi Dbi bject Adc	22h 51m 46s 22h 57m 48s d Special	-35'53'19" -26'06'30" Show	v catalogue gnitude:	7.5 7.7	10.9 9.2	4.9 9.1	Selec	PsA PsA et from cat	Washington Washington	A3 G3V
ND522518-3553 ND522518-3553 ND522578-2606 New Object : VD522578-2600	HU5365 HU5365 HU5371 Delete Ol Right As 5 22	bject Add scension: h 57 m 48	22h 51m 46s 22h 57m 48s d Special	-35'53'19" -26'06'30" Show Ma	v cataloguu Ignitude: .7	7.5 7.7 P	10.9 9.2 es: \$16400, 94(9.1".3	4.9 9.1	Selec Delet (5.0",346	PsA PsA t from cat e deg),Last	Washington Washington :alogue Obs:	A3 G3V
NDS22518-3553 NDS22518-3553 NDS22578-2606 New Object	HU5365 HU5365 HU5371 Delete Ol Right As 5 22	bli Dbi Dbi bject Add scension: h 57 m 48	22h 51m 46s 22h 57m 48s d Special	-35'53'19" -26'06'30" Show Ma 7. Ma	v catalogue gnitude: .7 gnitude:	7.5 7.7 Note 195	10.9 9.2 es: \$16400, 94(9.1",2	4.9 9.1	Selec Delet (5.0",346 3,Dur:-26	PsA PsA it from cat e ideg),Last 516395	Washington Washington :alogue Obs:	A3 G3V
New Object New Object New Object Lookup ID	HJ5365 HJ5365 HJ5371 Delete Ol Right As 5 22 X All	bject Add scension: h 57 m 48	22h 51m 46s 22h 57m 48s d Special s Dbl Spectral: G3V	-35'53'19" -26'06'30" Show Ma 7. Ma 9.	v catalogur gnitude: .7 gnitude: .2	7.5 7.7 e Note ADS 195	10.9 9.2 85: \$16400, 94(9.1",3	4.9 9.1	Selec Delet (5.0°,346 23,Dur:-20	PsA PsA it from cat e (deg),Last i16395	Washington Washington	A3 G3V
WDS22518-3553 WDS22518-3553 WDS22518-3553 WDS22578-2606	HJ5365 HJ5365 HJ5371 Delete Ol Bight As 5 Z2 M All Derlinat	bject Add	22h 51m 46s 22h 57m 48s d Special s Dbl Spectral: G3V Size:	-35°53'19" -26°06'30")))))))))))))))))))	v catalogu gnitude: .7 gnitude: .2 paration:	7.5 7.7 Note ADC 195	10.9 9.2 es: S16400, 94(9.1",3	4.9 9.1	Selec Delet (5.0°,346 23,Dur:-26	PsA PsA It from cat ite ideg),Last 516395	Washington Washington	A3 G3V
NDS22518-3553 NDS22518-3553 NDS22578-2606 New Object : New Object : Lookup ID ame: US371	HJ5365 HJ5365 HJ5371 Delete Ol Right As 5 22 € All Declinat -26	bject Add scension: h 57 m 48 ion: * 06 * 30	22h 51m 46s 22h 57m 48s d Special	-35°53'19" -26°06'30")))))))))))))))))))	v catalogu gnitude: .7 gnitude: .2 paration: .1	7.5 7.7 P Note AD: 195	10.9 9.2 9.2 es: \$16400, 94(9.1",3	4.9 9.1	Selec Delet (5.0°,346 23,Dur:-26	PsA PsA t from cat ie ideg),Last 516395	Washington Washington talogue Obs:	A3 G3V

Click in the blank area underneath the last entry in order to deselect any selected entry. Click the Lookup ID... button again. This time we want to find the Bayer and Flamsteed entries. You can either enter them as "6 PsA, Delta PsA" etc. or use the shortcut shown below using the Suffix field (note the space before "PsA").

6,eta,beta,gamma,delta,alph	a
Prefix	Suffix
	PsA

This time select only the Bright Star Catalogue for searching (to avoid lots of duplicates).

ID Name Type RA Dec Magnitude Catalogue Description iA HR8230 6 PsA Dbl 21h 32m -33'57' 6.0 Bright SAO213078, HD204854, 6 PsA PsA HR8386 Eta PsA Dbl 22h 01m -28'27' 5.4 Bright SAO213078, HD204854, 6 PsA PsA HR876 Bet PsA Dult 22h 32m -32'21' 4.3 Bright SAO213083, HD213938, Bet PsA, 12 PsA Ima PsA HR8756 Bet PsA, Mult 22h 32m -32'21' 4.3 Bright SAO213835, HD213936, Gam PsA, 22 PsA Ima PsA HR8750 Del PsA, Dbl 22h 53m -32'32' 4.2 Bright SAO214153, HD21636, Gam PsA, 22 PsA a PsA HR8720 Del PsA Dbl 22h 56m -32'32' 4.2 Bright SAO214169, HD216763, Del PsA, 23 PsA a PsA HR8728 Alp PsA Star 22h 58m -29'37' 1.2 Bright SAO191524, HD216956, Alp PsA, 24 PsA	Search ID Name Type RA Dec Magnitude Catalogue Description PsA HR8230 6 PsA Dbl 21h 32m -33"57" 6.0 Bright SA0213078, HD204854, 6 PsA PsA HR8386 Eta PsA Dbl 22h 01m -28"27" 5.4 Bright SA0213078, HD204854, 6 PsA Data 22h 01m -28"27" 5.4 Bright SA013082, HD209014, Eta PsA, 12 PsA Ta PsA HR85756 Bet PsA Mult 22h 32m -32"21" 4.3 Bright SA0213082, HD219014, Eta PsA, 12 PsA mma PsA HR85756 Gam PsA, Dbl 22h 53m -32"53" 4.5 Bright SA021383, HD216336, Gam PsA, 22 PsA ta PsA HR8720 Del PsA Dbl 22h 56m -32"32" 4.2 Bright SA0214153, HD2163763, Del PsA, 23 PsA ha PsA HR8728 Alp PsA Star 22h 58m -29"37" 1.2 Bright SA0191524, HD216956, Alp PsA, 24 PsA	00					Sea	rch Result	S		
A HR8230 6 PsA Dbi 21h 32m -33"57" 6.0 Bright SA0213078, HD204854, 6 PsA PsA HR8386 Eta PsA Dbi 22h 01m -28"27" 5.4 Bright SA0213078, HD204854, 6 PsA PsA HR876 Bet PsA Dbi 22h 01m -28"27" 5.4 Bright SA0213088, HD2049014, Eta PsA, 12 PsA PsA HR8576 Bet PsA Mult 22h 32m -32"21" 4.3 Bright SA0213888, Bet PsA, 17 PsA Ima PsA HR8576 Gam PsA Dbi 22h 53m -32"53" 4.5 Bright SA0211339, HD216336, Gam PsA, 22 PsA a PsA HR8720 Del PsA Dbi 22h 56m -22"37" 1.2 Bright SA0214159, HD216763, Del PsA, 23 PsA a PsA HR8728 Alp PsA Star 22h 58m -29"37" 1.2 Bright SA0191524, HD216956, Alp PsA, 24 PsA	YSA HR8230 6 PA Dbi 21 h 32m -33"57" 6.0 Bright SA0213078, HD204854, 6 PsA a PSA HR8386 Eta PSA Dbi 22h 10m -28"27" 5.4 Bright SA0190822, HD209014, Eta PSA, 12 PsA a PSA HR8576 Bet PSA Mult 22h 32m -32"21" 4.3 Bright SA0213883, HD216339, Bet PSA, 12 PsA mma PSA HR8675 Gam PsA Dbi 22h 53m -32"53" 4.5 Bright SA0211383, HD216336, Gam PsA, 22 PsA mma PSA HR8720 Del PSA Dbi 22h 55m -32"53" 4.5 Bright SA0214153, HD216763, Del PsA, 23 PsA ha PsA HR8728 Alp PsA Star 22h 58m -29"37" 1.2 Bright SA0191824, HD216763, Del PsA, 24 PsA	Search	ID	Name	Туре	RA	Dec	Magnitude	Catalogue	1	Description
PsA HR8386 Eta PsA Dbi 22h 01m -28'27' 5.4 Bright SAO190822, HD209014, Eta PsA, 12 PsA IPSA HR8576 Bet PsA Mult 22h 32m -32'21' 4.3 Bright SAO218833, HD213398, Bet PsA, 17 PsA ima PsA HR859 Gam PsA Dbi 22h 53m -32'53' 4.5 Bright SAO214153, HD216336, Gam PsA, 22 PsA a PsA HR8720 Del PsA Dbi 22h 56m -32'32' 4.2 Bright SAO214153, HD216363, Del PsA, 23 PsA a PsA HR8728 Alp PsA Star 22h 58m -29'37' 1.2 Bright SAO191524, HD216956, Alp PsA, 24 PsA	i FSA HR8386 Eta PsA Dbi 22h 01m - 28'27' 5.4 Bright SAO190822, HD209014, Eta PsA, 12 PsA ta PsA HR8576 Bet PsA Mult 22h 32m - 32'21' 4.3 Bright SAO213883, HD213398, Bet PsA, 17 PsA mma PsA HR8695 Gam PsA Dbi 22h 55m - 32'33' 4.5 Bright SAO214153, HD216336, Gam PsA, 22 PsA ta PsA HR8720 Del PsA Dbi 22h 56m - 32'32' 4.2 Bright SAO214153, HD216763, Del PsA, 23 PsA ha PsA HR8728 Alp PsA Star 22h 58m - 29'37' 1.2 Bright SAO191524, HD216956, Alp PsA, 24 PsA	PsA	HR8230	6 PsA	Dbl	21h 32m	-33'57'	6.0	Bright	SA0213078, HD204854, 6 PsA	
a PsA HR8576 Bet PsA Mult 22h 32m -32'21' 4.3 Bright SA0213883, HD213398, Bet PsA, 17 PsA ima PsA HR8695 Gam PsA Dbi 22h 53m -32'53' 4.5 Bright SA0214153, HD21633, Gam PsA, 22 PsA PsA HR8720 Del PsA Dbi 22h 56m -32'32' 4.2 Bright SA0214189, HD216763, Del PsA, 23 PsA a PsA HR8728 Alp PsA Star 22h 58m -29'37' 1.2 Bright SA0191524, HD216956, Alp PsA, 24 PsA	ta PSA HR8576 Bet PSA Mult 22h 32m 32*21' 4.3 Bright SAO213883, HD213398, Bet PSA, 17 PSA mma PSA HR8695 Gam PSA Dbi 22h 53m 32*53' 4.5 Bright SAO214183, HD216336, Gam PSA, 22 PSA ta PSA HR8720 Del PSA Dbi 22h 56m 32*32' 4.2 Bright SAO214189, HD216763, Del PSA, 23 PSA ha PSA HR8728 Alp PSA Star 22h 58m -29*37' 1.2 Bright SAO191524, HD216956, Alp PSA, 24 PSA	a PsA	HR8386	Eta PsA	Dbl	22h 01m	-28'27'	5.4	Bright	SA0190822, HD209014, Eta PsA, 12 PsA	
ima PsA HR8695 Gam PsA Dbi 22h S3m -32'53' 4.5 Bright SA0214153, HD216336, Gam PsA, 22 PsA a PsA HR8720 Deil PsA Dbi 22h S6m -32'32' 4.2 Bright SA0214189, HD216763, Deil PsA, 23 PsA a PsA HR8728 Alp PsA Star 22h S8m -29'37' 1.2 Bright SA0191524, HD216956, Alp PsA, 24 PsA	mma PsA HR8695 Gam PsA Dbi 22h 53m -32'53' 4.5 Bright SAO214153, HO216336, Gam PsA, 22 PsA ta PsA HR8720 Del PsA Dbi 22h 56m -32'32' 4.2 Bright SAO214189, HD216763, Del PsA, 23 PsA ha PsA HR8728 Alp PsA Star 22h 58m -29'37' 1.2 Bright SAO191524, HD216956, Alp PsA, 24 PsA	ta PsA	HR8576	Bet PsA	Mult	22h 32m	-32'21'	4.3	Bright	SA0213883, HD213398, Bet PsA, 17 PsA	
a PsA HR8720 Del PsA Dbl 22h 56m -32'32' 4.2 Bright SAO214189, HD216763, Del PsA, 23 PsA a PsA HR8728 Alp PsA Star 22h 58m -29'37' 1.2 Bright SAO191524, HD216956, Alp PsA, 24 PsA	ta PsA HR8720 Del PsA Dbi 22h 56m -32'32' 4.2 Bright SAO214189, HD216763, Del PsA, 23 PsA ha PsA HR8728 Alp PsA Star 22h 58m -29'37' 1.2 Bright SAO191524, HD216956, Alp PsA, 24 PsA	mma PsA	HR8695	Gam PsA	Dbl	22h 53m	-32'53'	4.5	Bright	SA0214153, HD216336, Gam PsA, 22 PsA	
a PsA HR8728 Alp PsA Star 22h 58m -29'37' 1.2 Bright SAO191524, HD216956, Alp PsA, 24 PsA	ha PsA HR8728 Alp PsA Star 22h 58m -29'37' 1.2 Bright SAO191524, HD216956, Alp PsA, 24 PsA	Ita PsA	HR8720	Del PsA	Dbl	22h 56m	-32'32'	4.2	Bright	SA0214189, HD216763, Del PsA, 23 PsA	
		nha PsA	HR8728	Alo PsA	Star	22h 58m	-29'37'	1.2	Bright	SA0191524 HD216956 Alp PsA 24 PsA	
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rch complete Slew to Object Select Non-duplicates Add Selected Add All	arch complete Slew to Object Select Non-dupicates Add Selected Add All							Keep	window open	6 objects found	

Using the **Add All** button adds these to the end of the list. Below shows the final list, reordered by dragging rows to reflect the order of the original Burnham list.

			Observi	ng Field of	View	Sky	Planning	- <u> </u>				
ID	Name	Туре	R.A.	Dec	Obs	Mag	Mag2	Separation	Size	Const	Catalogue	Spect
R8230	6 PsA	Dbl	21h 32m 15	s -33'56'41"	1	6.0	13.3	6.8		PsA	Bright	
NDS21492-3538	B1013	Dbl	21h 49m 13	s -35'38'19"		8.9	9.0	0.1		PsA	Washington	F6/7V
NDS21508-2756	HJ3059	Dbl	21h 50m 46	s -27"55'57"		7.5	10.6	25.3		PsA	Washington	B8.5V
NDS21567-3123	B1014	Dbl	21h 56m 39	s -31"23'23"		7.9	12.2	2.4		PsA	Washington	AO
NDS21595-2903	HJ5311	Dbl	21h 59m 31	s -29'03'24"		7.1	10.9	48.6		PsA	Washington	
NDS21595-2903	HJ5311	Dbl	21h 59m 31	s -29'03'24"		7.1	10.6	40.6		PsA	Washington	G8/KOIII
WDS21596-2738	STN56	Dbl	21h 59m 35	s -27"37'50"		7.3	10.5	11.4		PsA	Washington	F2V
R8386	Eta PsA	Dbl	22h 00m 50	s -28'27'13"		5.4	6.4	1.9		PsA	Bright	
NDS22031-2703	B547	Dbl	22h 03m 09	s -27'03'04"		7.8	14.2	2.1		PsA	Washington	A5Vm
MDS22045-2553	8549	Dbl	22h 04m 30	-25"53'00"		7.0	13.0	37		PsA	Washington	GBIII
NDS22105-3350	DAW156	Dbl	22h 10m 32	s -33'49'39"		7.7	11.1	1.6		PsA	Washington	G3V
MDS22116-3428	BI1769	Dbl	22h 11m 38	-34"27'54"		71	8.2	0.8		PeA	Washington	
MDS22220-3431	8557	Dbl	22h 21m 58	-34'31'13"		74	75	0.2		PeA	Washington	F3/5V
ND622204 2940	SEE A7A	Dbl	22h 20m 26	29'29'24"		7.9	9.2	0.2		DeA	Washington	K211
JD8576	Bota BrA	Malt	22h 21m 20	22"20'46"		1.3	7.9	20.2		DeA	Pright	NEIII
100370	DECO	DEL	226 20m 02	- 22120112"		7.0	12.4	50.5		DeA	Washington	4.7
ND622500-3348	D300	Dbl	22h 30m 02	- 22:49:10"		6.3	13.4	5.0		DeA	Washington	EOV. EOV
ND522500-3248	HD0301	DDI	22h 49m 59	5 -32 48 19		0.3	0.5	0.3		PSA	washington	FUV+F3V
ND622518-3553	HJ5365	DDI	22h 51m 46	S -35 53 19		7.5	11.3	35.2		PSA	washington	47
NU522518-3553	HJ5365	DBI	22h 51m 46	s -35'53'19"		1.5	10.9	4.9		PSA	Washington	A3
188695	Gamma PsA	DBI	22h 52m 32	s -32'52'32"		4.5	8.1	4.2		PSA	Bright	
HR8720	Delta PsA	DBI	22h 55m 57	s -32"32"23"		4.Z	9.2	5.2		PsA	Bright	
HR8728	Alpha PsA	Star	22h 57m 39	s -29"37"20"		1.Z		1000		PSA	Bright	
NDS22578-2606	HJ5371	Dbl	22h 57m 48	s -26'06'30"		7.7	9.2	9.1		PsA	Washington	G3V
				_)+
New Object	Delete Ob	oject A	dd Special	Shor	w catalog	ue		•	Selec	ct from ca	talogue	
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Then use the Save As text... command in the File menu and save the file with the special "Burnham_ xxx_y .txt" file name, where xxx is the constellation abbreviation and y is "D"

for double/multiple stars, "V" for variable stars and "C" for Clusters, etc. In this case, the name must be "Burnham_PsA_D.txt". Case is not important, spelling is.

	Save	
Save As:	Burnham_PSA_D.txt	
Where:	Desktop	•
		Cancel Save

In the plan information dialog, add some descriptive text and your name.

Description		
Burnham's Celestia Pisces Austrinus Double and Multiple	Handbook Stars	
Creator's Name:	Paul Rodman	

Now the text file is saved, go to the plan upload page in your browser. Click the **Choose File** button and select the file you just created.

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Click the **Upload** button to upload the file to the "staging area".

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When you've finished, click If you would also like to an	here to add your nounce your post	plan/s to t ing to the A	he list. AstroPlanne	r Yahoo	Group, click	here instea	d.		

Repeat this for any other files you may have created, and then click the "when you've finished, click here" link. Voila. You're done.

Variable Stars

Variable stars are typically in the GCVS Catalogue, unless they have a Bayer or Flamsteed designation in which case use the Bright Star Catalogue.

The Variable Star list for Pisces Austrinus is shown on the next page. Use the same techniques as above to find them. Here's the Lookup dialog for the stars:

R S V RV RX RY ST	
Prefix:	Suffix:

PISCES AUSTRINUS

LIST OF VARIABLE STARS

NAME	MagVar	PE	R	NOTES	RA	&	DEC
TT R S V RV RX RY ST	4.75.0 8.512. 8.313. 3.09 9.012. 9.010. 3.813. 3.512.	7.9 293 273 148 361 366 223	75 3 2 8 1 5 3	Cepheid, spect FO LPV. Spect M3e LPV. Spect M3eM5e Semi-reg; spect M5 LPV. Semi-reg LPV. LPV.	230 221 220 225 213 221 214 225	07 52 09 26 58 03 45 15	2 s 3501 s 2951 s 2818 s 2953 s 2726 s 2731 s 3626 s 3440
NGC	ОТН	TYPE		SUMMARY DESCRIPTION	RA	&	DEC
 7135 7154 7172	I.5135	6 0 0 0 0 0	S(F, S(pH I; B, Sz pH wi Ccc 711 tcc	0?/Pec; 13.1; 0.9' x 0.8' pL,R 0; 13.0; 0.9' x 0.7' 3,pL,1E, vgbM ; 13.5; 0.8' x 0.5' pL,1E, glbm; central bar a; 12.9; 1.6'x 0.6' 3,pL,1E,gbM; nearly edge-on th dark equatorial band; ompact trio of E galaxies .73, 7174, 7176 lies 7' o south.	214 214 215 215	53: 58: 24: 91:	s 3511 s 3507 s 3503 s 3207
	1.5156	8	SB	; 13.2; 1.0' x 0.5' ',pS,mE	2200)45	3402
7314		8	Sb cF	/Sc; 11.9; 3.5' x 1.5' ,L,mE,v1bM, elong N-S	2233	30s	\$2618
7361		0	Sb F, on	Sb; 12.8; 3.0' x 1.0' F,pL,mE,vglbM. Nearly edge- on spiral, elong N-S			
	1.5269	-0-	SO VF	; 13.1; 1.3' x 0.5'	2255	0s	3618
	1.5271	0	S0 pF	?; 12.6; 2.0' x 0.8' ,pS,mE,cbM	2255	35	3401
1484							

The resulting list, including π PsA from the Bright Star Catalogue is shown here:

			Observing	Field of	View Sky	Plannin	g				
ID	Name	Type	R.A.	Dec	Obs Mag	Mag2	Separation	Size	Const	Catalogue	Spect
8767	Pi PsA R PsA S PsA V PsA RV PsA RV PsA RY PsA ST PsA	Star Var Star Var Star Var Star Var Star Var Star Var Star	23h 03m 30s 22h 18m 00s 22h 03m 46s 22h 55m 20s 21h 38m 41s 22h 13m 10s 21h 47m 31s 22h 54m 19s	-34'44'58" -29'36'15" -28'03'09" -29'36'42" -27'16'14" -36'11'46" -34'23'31"	5, 8, 8, 9, 10, 10, 8, 9,	14.7 14.5 10.5 13.0 11.5 14.0 13.0 13.0			PsA PsA PsA PsA PsA PsA PsA PsA	Bright GCVS GCVS GCVS GCVS GCVS GCVS GCVS GCVS	M3(II)e-M5lle M3e-M5lle MB Me Me Me
New Object	Delete Objec	rt A	dd Special	\$) Show	v catalogue			Selec	ct from ca	talogue)•
New Object	Delete Objec	t A	dd Special	Show	w catalogue			Selec	ct from ca	talogue)+
New Object	Delete Objec Right Ascer	nsion:	dd Special Type: s	Show	v catalogue gnitude: N	otes:	•	Selec	ct from ca te	talogue) •
New Object	Delete Objec Right Ascer	st A	dd Special Type: s Spectral:	Shov	w catalogue gnitude: N gnitude:	otes:	•	Selec Dele	ct from ca te	talogue	4(
New Object Lookup ID	Delete Object Right Ascer I All Declination	st A	dd Special S Spectral: Size:	Show Ma : Ma	v catalogue gnitude: N gnitude: paration:	otes:	•	Selec Dele	ct from ca te	talogue	4(

This would be saved and uploaded as "Burnham_PsA_V.txt".

Star Clusters, Nebulæ and Galaxies

These are quite straightforward. In most cases the NGC number is given in the NGC column. Note the Prefix shortcut below.

7135 7154 7172 7314 7361	
Prefix	Suffix:

Select the NGC catalogue only to avoid multiple duplicates.

The IDs in the OTH column (Other) can be challenging. Usually they are from the IC Catalogue (Burnham uses "I.nnnn") or the Harvard Catalogue (H). However, let's try another method of finding an object with an unknown ID. The first entry for Pisces Austrinus is I.5135. Lets pretend we don't recognize that it's IC5135. Here's the procedure for tracking it down:

- 1. Create a new object using the **New Object** button.
- Enter the RA and Dec as given by Burnham. Burnham uses the format "hhmmHDDMM", where hh is hours of RA, mmm is minutes of RA times 10 (e.g. 345 is 34.5 minutes), H is "n" for Northern hemisphere and "s" for Southern, DD is degrees of Dec and MM is minutes of Dec. In the above case Burnham has 21453s3511, which is 21h45.3m RA and -35°11' Dec.
- 3. Since Burnham uses Epoch 1950 coords, we need to convert them to Epoch 2000. Use the **Change Epoch...** command from the **Object** menu.

	1950.0	to 2000.0
um.	1550.0	10 2000.0
Wha	t to change	
•	Selected object o	nly
0,	All manually ente	red objects
-		

4. To find the object in the catalogues, use the **Lookup Synonyms...** command from the **Object** menu. This finds all objects close to the given coordinates.

00					Sea	rch Result	S	
Search	ID	Name	Type	RA	Dec	Magnitude	Catalogue	Description
	NGC7130 IC5135 NGC7130	NGC7130,IC5135 IC5135 NGC7130	Galaxy Galaxy Galaxy	21h 48m 21h 48m 21h 48m	-34'57' -34'57' -34'57'	12.9 12.3	AP DSO IC NGC	IC5135, Rating:FR vF, pL, R; = 7130 pB, S, R, glbM; = IC 5135
	PGC67387 PGC67401	PGC67387 PGC67401	Galaxy Galaxy	21h 48m 21h 49m	-34'57' -34'57'	12.9 16.1	PGC PGC	Type:S,NGC7130,IC5135,ESO403-32,MCG-6-47-15,IRAS Type:I,ESO403-33
	SAC8341	NGC 7130	Galaxy Star	21h 48m 21h 48m	-34"57' -34"57'	12.1 99.0	SAC DSO Tycho	IC 5135, NGC:pB,S,R,glbM, SB:12.7, U2K:383, Sky2K:23,
				_	_			
arch com	plete			Slew	to Object	Select	: Non-duplicat	es Add Selected Add All
						Keep	window open	Z objects found

5. Choose the applicable object and add it to the list.