

Chartwell

Students (Ref. A4-641K)
Laboratory Book

Chartwell Students Books

Manuscript Books

Students wove paper, 160 pages ruled blue where applicable. Full bound hard covers. Size A4.

Ruling	Cover colour	Ref.
Plain	Light Brown	A4-620K
Plain and feint (alternate pages)	Grey	A4-621K
Feint ($\frac{1}{2}$ in. spacing)	Turquoise	A4-626K
Feint and margin	Orange	A4-627K
Narrow feint ($\frac{1}{4}$ in. spacing)	Magenta	A4-628K
Narrow feint and margin	Tango	A4-629K

Sectional Books

Students wove paper scaled on left-hand pages and ruled feint and margin on right-hand pages, unless otherwise stated, all in blue. Size A4.

Pages	Scale	Cover colour	Ref.
160 pages full bound hard covers	1, 5 & 10 mm.	Green	A4-641K
	2, 10 & 20 mm.	Blue	A4-642K
	5 mm. squares all pages	Yellow	A4-646K
80 pages wire stitched limp covers	1, 5 & 10 mm.	Green	A4-641C
	2, 10 & 20 mm.	Blue	A4-642C
	5 mm. squares all pages	Yellow	A4-646C

Ask your supplier also for Chartwell Students Pads and Peel Pacs, and free literature describing our extensive range of products.

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INDEX OF EXPERIMENTS

Conducted at _____ during 19__ / ____

Subject

Name of student _____ Course _____

[illegible]

110-111 Discussion of color corrections PEP/CCD/P/S
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 118 mean $\langle B \rangle$ of 2210 Var's
 119 Absolute $\langle B \rangle$ of Var's based on Panagia

20 Apr 1989 - all files →
JMN 274
Save set # 1.

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- 106-109 " (XI)

Hel. Con'm

Hel' con'ms.

Jan - Apr 25 0
 Apr 26 - May 15 +1
 May 16 - 0

4-m

from seeing

✓ 442 15" 1975 Jan 5/6 2418.800 $\begin{matrix} >20.9 \\ 5^- \end{matrix}$ 2
 ✓ 2778 10" 1977 Jan 19/21 3154.753 $\begin{matrix} >20.9 \\ 3^- \end{matrix}$ 2
 ✓ 2909 12" Feb 9/9 3183.761 $\begin{matrix} >20.5 \\ 3^- \end{matrix}$ 2⁺

✓ 5229 10" 1981 Mar 3/2 4695.510 $\begin{matrix} >20.9 \\ 5^- \end{matrix}$ 1.5 ✓

✓ 5231 12" " 628' $\begin{matrix} >20.9 \\ 4^- \end{matrix}$ 2 ✓

✓ 5242 10" Apr 1/2 4696.497 $\begin{matrix} >20.9 \\ 5^- \end{matrix}$ 1.5 ✓

✓ 5249 12" " 641' $\begin{matrix} >20.9 \\ 5^- \end{matrix}$ 2 ✓

Blue plates

(68) 8x10 plates (3)

28, 29

No.	Exp.	date	JD	geoc.	lim	seeing		
60-mch								
(u) 3044	40 ^m	1981 Fe 28/29	4664	550	20.3 ⁺	2		
x 3046	60 ^m	"		649	20.3 ⁺	2		✓✓
x 3047	60 ^m	"		693	20.4	2	broken	✓
x 3050	60 ^m	Mr 1/2	4665	544	20.3	3		✓
3051	60 ^m	"		592	20.5	2		✓
x 3052	60 ^m	"		636	20.4	2		✓
x 3053	60 ^m	"		685	20.4	2		
x 3054	40 ^m	"		722	19.8	1.5		
3130	60 ^m	De 26/27	4965	608	20.3	2		✓
x 3134	60 ^m	"		760	20.5	1.5		✓
4-m								
✓ 4544	10 ^m	1980 Fe 14/15	4284	698	>20.9	1.5	RACINE (from bkg)	✓
✓ 4545	1 ^m	" ?		702	20.5	1.5	RACINE (from bkg)	
✓ 4841	10 ^m	No 6/7	4550	741	>20.9	3	RACINE (broken)	✓
? 4846	10 ^m	"		822	20.9	3	RACINE	
✓ 4847	5 ^m	"		828	20.9	3	RACINE	✓
✓ 5523	10 ^m	1981 De 22/23	4961	600	>20.9	4	RACINE	
✓ 5528	10 ^m	"		675	>20.9	1.5	RACINE (2)	✓✓
✓ 5532	10 ^m	"		759	>20.9	1.5	RACINE (2)	✓✓
✓ 5537	10 ^m	"		810	>20.9	2	RACINE (1)	✓
✓ 5540	10 ^m	"		843	>20.9	4	RACINE (1)	✓✓
✓ 5548	10 ^m	23/24	4962	610	>20.9	5	RACINE (1)	✓✓
✓ 5554	10 ^m	"		704	>20.9	5	RACINE (1)	✓
✓ 5559	5 ^m	"		757	20.9	4	RACINE (1)	✓
5563	8 ^m	"		805	20.9	3	RACINE (off-center)	✓
5564	5 ^m	"		811	20.9	3	RACINE (" ")	
5565	2 ^m	"		813	20.5	3	RACINE (" ")	
✓ 5575	10 ^m	26/27	4965	617	>20.9	5	RACINE (1)	✓✓
✓ 5580	10 ^m	"		706	>20.9	5	RACINE (1)	✓
✓ 5590	10 ^m	"		835	>20.9	5	RACINE (2)	✓✓
✓ 6384	10 ^m	1985 Jan 12/13	6078	564	>20.9	4		✓✓✓
✓ 6387	10 ^m	"		602	>20.9	4		✓
✓ 6390	10 ^m	"		639	>20.9	4		✓

Guide probe problems (+ others)

442	112, 199,
2778	112
2909	112
4544	112, 1, 137, 231, 69, SE(0:
4545	" " " " " "
4841	94, 112
4846	94, 112
4847	94, 112
5229	164:
5231	112
5242	OK
5249	137
5523	O.K.
5528	67
5532	18, 103, 24
5537	103, 18, 24
5540	103, 24
5548	94:
5554	94, 82
5559	82
5563	82, 54, 29, 85, 241, 30, 239, 57, 210
5564	" " "
5565	"
5575	239, 57
5580	109
5590	232, 3, 140, 109, 100, 155
6384	164, 98,
6387	98:
6390	98:
6393	98:
6396	98:
6400	98:
6407	98:
6410	98:
6413	98:
6417	231, 137:
6420	" "
6423	" "
6426	" "
6429	" "
6431	" "

Blue plates (cont'd)

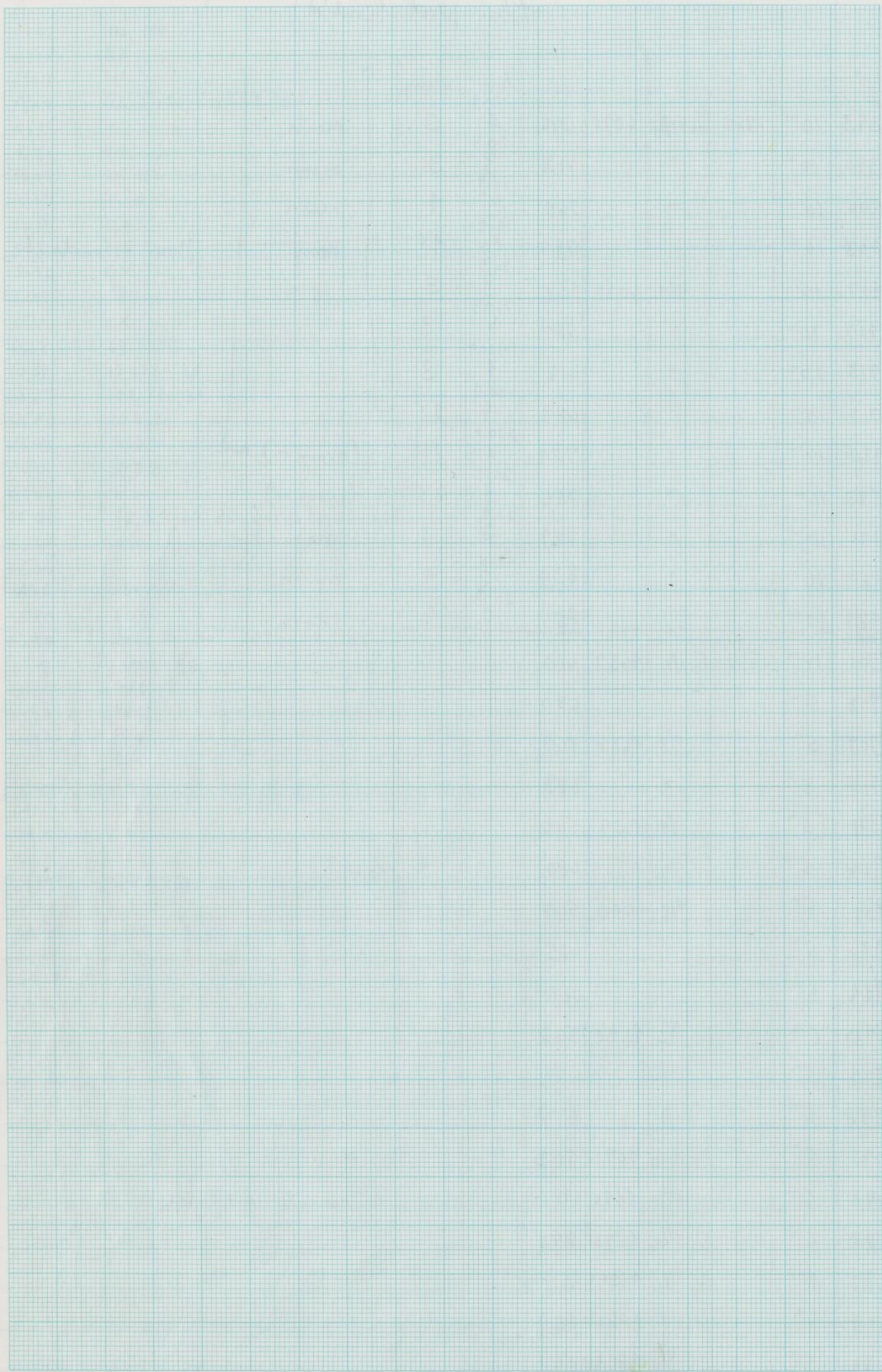
5

						lim	seeing		
✓ 6393	10 ^m	1985	Feb 12/13	6078	676	>20.9 4	3	moon	
✓ 6396	10 ^m		"		713	20.9 3	3	moon	
✓ 6400	10 ^m		"		764	19.9 2	4	moon	
✓ 6403	10 ^m		"		797	19.4 0	4+	moon	moon + too dark
✓ 6407	10 ^m		13/14	6079	551	20.9 3	3		✓
✓ 6410	10 ^m		"		585	>20.9 4	3		
✓ 6413	10 ^m		"		617	(>20.9 4	3		
✓ 6417	10 ^m		"		689	>20.9 4	2.5		✓
✓ 6420	10 ^m		"		724	>20.9 4	2.5	(moon -)	✓
✓ 6423	10 ^m		"		756	20.9 3	2.5	(moon -)	
✓ 6426	10 ^m		"		789	20.9 3	3	(moon -)	
✓ 6429	10 ^m		"		834	20.5 2	4	moon	
✓ 6431	10 ^m				851	20.3 2	4	moon	

IMAGE-TUBE

(53) x Y901	18 ^m	1981	Feb 1/2	4637	610				
x Y902	5 ^m		"		630				
x Y909	5 ^m		2/3	4638	563				
x Y915	5 ^m		"		673				
x Y921	5 ^m		3/4	4639	566				
x Y926	5 ^m		"		680			-best?	
x Y930	5 ^m		4/5	4640	567				
x 933	5 ^m		"		623				
x 936	5 ^m		"		683				
x 940	5 ^m		5/6	4641	563				
x 944	5 ^m		"		591				
x 948	5 ^m		"		675				
x 1091	8 ^m		Mr 27/28	4691	519				
x 1094	5 ^m		29/30	4693	503?			UT minutes not legible	
x 1524	5 ^m		Se 25/26	4873	870				
x 1602	5 ^m		Oct 1/2	4879	880				
x 1619	5 ^m		1/5	4882	869				
x 1631	5 ^m		5/6	4883	861				

Guide book problems (4 pages)



Blue plates (cont'd.)

(7)

Plate	exp	date	JD	lim	seeing
x Y1665	5 ^m	1981 Dec 14/15	4953.657		
x 1669	5 ^m	15/16	4954.573 4954		
x 1676	5 ^m	"	657		
x 1680	7 ^m	"	?		} both say start 5 ^h 13 ^m
x 1681	5 ^m	"	?		
x 1682	5 ^m	"	741		
x 1685	5 ^m	"	777		
x 1693	5 ^m	16/17	4955.557		
x 1708	5 ^m .5	"	673		
x 1717	5 ^m	"	738?		
x 1739	8 ^m	17/18	4956.621		
x 1740	6 ^m	"	627		
x 1747	7 ^m	"	685		
x 1756	6 ^m	"	754		
x 1797	6 ^m	20/21	4959.?		no LT (start) given
x 1892	5 ^m	1982 Jan 25/26	4995.760		
x 1896	5 ^m	26/27	4996.603		
x 1902	5 ^m	"	714		
x 1905	5 ^m	27/28	4997.565		
x 1909	5 ^m	"	736		
x 1914	5 ^m	28/29	4998.582		excellent
x 1918	5 ^m	"	732		
x 2045	5 ^m	Mar 16/17	5045.558		
x 2062	5 ^m	19/20	5048.523		
x 2069	5 ^m	20/21	5049.524		
x 2076	5 ^m	21/22	5050.523		excellent
x 2082	5 ^m	22/23	5051.522		
x 2089	5 ^m	23/24	5052.545		
x 2344	6 ^m	Dec 13/14	5317.678		
x 2346	6 ^m .5	"	793		
x 2354	10 ^m	14/15	5318.838		

g-m

- ✓ 441 15^m 1975 Ja 5% 2418.788 >>208
- ✓ 27779 10^m 1977 Ja 1% 3154.763 20.8
- ✓ 2907 10^m Fe 8/9 3183.741 20.8
- ✓ 2908 10^m " .751 20.7

Box 1

all 1.5 m

4-m B 442-4847 + 5576, 5581

5 5229 - 6380 + 5582

3 6393 end; V 441-5567

Blue / yellow plates (cont'd)

(9)

Plate #	exp	date	J.D.	lim	seeing
x 2407	12 ^m	1983 Ja 2/3	5337 612		
x 2409	6 ^m	3/4	5338 572		
x 2416	7 ^m	4/5	5339 563		
x 2462	8 ^m	Mr 14/17	5410 565		

Yellow Plates

60-mil	3045	60^m	1981 Fe 28/29	4664	599	18.0	too faint to measure
4-mil	✓ 4634	15 ^m	1980 No 5/6	4549	829	20.8	Racine
	✓ 4842	10 ^m	6/7	4550	751	20.7	" 602
	✓ 4843	6 ^m	"	758	20.1	"	"
	✓ 5522	12 ^m	1981 De 22/23	4961	588	20.7	"
	5529	12^m	"	686			" grossly o.o. focus.!
	✓ 5555	10 ^m	23/24	4962	715	20.4	"
	5566	1^m	"	816			" field?
	✓ 5567	10 ^m	"	822	20.2	"	(off-center)
	✓ 5576	12 ^m	26/27	4965	631	20.8	"
	✓ 5581	15 ^m	"	717	>20.8	"	"
	✓ 5582	7 ^m	"	726	20.6	"	"

Image Tube

x	1666	5 ^m	1981 Dec 14/15	4953	662		
x	1670	6 ^m	15/16	4954	595		
x	1692	5 ^m	16/17	4955	552		
x	1709	6 ^m	"	680	?		? - check.
x	1716	6 ^m	"	735	?		
x	1725	6 ^m	"	793	?		
x	1738	7 ^m	17/18	4956	614		
x	1748	7 ^m	"	691			
x	1757	6 ^m	"	759			
x	1762	8 ^m	"	804			
x	1899	6 ^m	1982 Ja 26/27	4996	637		

Box 1 60 yellow

1^m blue 3045-5231

Box 2 5242-6407

Box 3 6410-6431

4 m. yellow

Blinking pairs - blue21 pairs blin¹¹

best blue

- ✓ 5575 m. 5590 Great!
- X 5554 m. 5580 NO 5554 has slightly worse seeing - not good.
- ✓ 4544 m. 5528 O.K. 5528 has sl. worse seeing - 4544 ^{very} variable - not a terribly good plate
- X 4544 m. 5575
- ✓ 5532 m. 5554 O.K. - actually a remarkably good pair!
- ✓ 5528 m. 5580 O.K. 5528 has sl. worse seeing.
- ✓ 5532 m. 5590 O.K. - Very good match.
- ✓ 5537 m. 5548 O.K. Good pair
- X 6407 m. 6426 NO 6426 has way too much moon.
- ✓ 6390 m. 6417 not terribly good - seeing not well matched anywhere

✓ 3051 - 3134 not terribly good - 3051 fatter

✓ 3046 - 3052 - pretty good pair

✓ 3046 - 3130 (2⁺, 2) pretty good pair

X ~~3044~~ - 3054 won't go deep enough.

✓ 5540 - 5559 (10th pair!) - a very good match!

✓ 6384 m. 5540 - good, esp. at center. Not so good at E end

✓ 4841 ~~off~~ m. 5563 (3,3) This was a lousy pair, mainly due to differences in ^{Scale + distortion}

✓ ^(Recine) 4847 m. 6407 (3,3) good on E + center; poorer on W. One plate uneven?

X 6396 v.d. ^{try 6423 (3,2.5)} 6426 (3,3) - a good match, but seeing bad and plates terribly dark, as too ^{hard to see}

✓ 6387 m. 6420 (4,2.5) 6387 a bit fatter - one of the worst pairs yet ^{seemed variable}

✓ 5548 m. 5575 (blinched by GG) - not the best. One of the plates -

✓ 3047 - 3050 - pretty well matched at E end

X 6387 - 6413 - 6387 too good - deeper, better seeing

4846 m. 6426 (3,3)

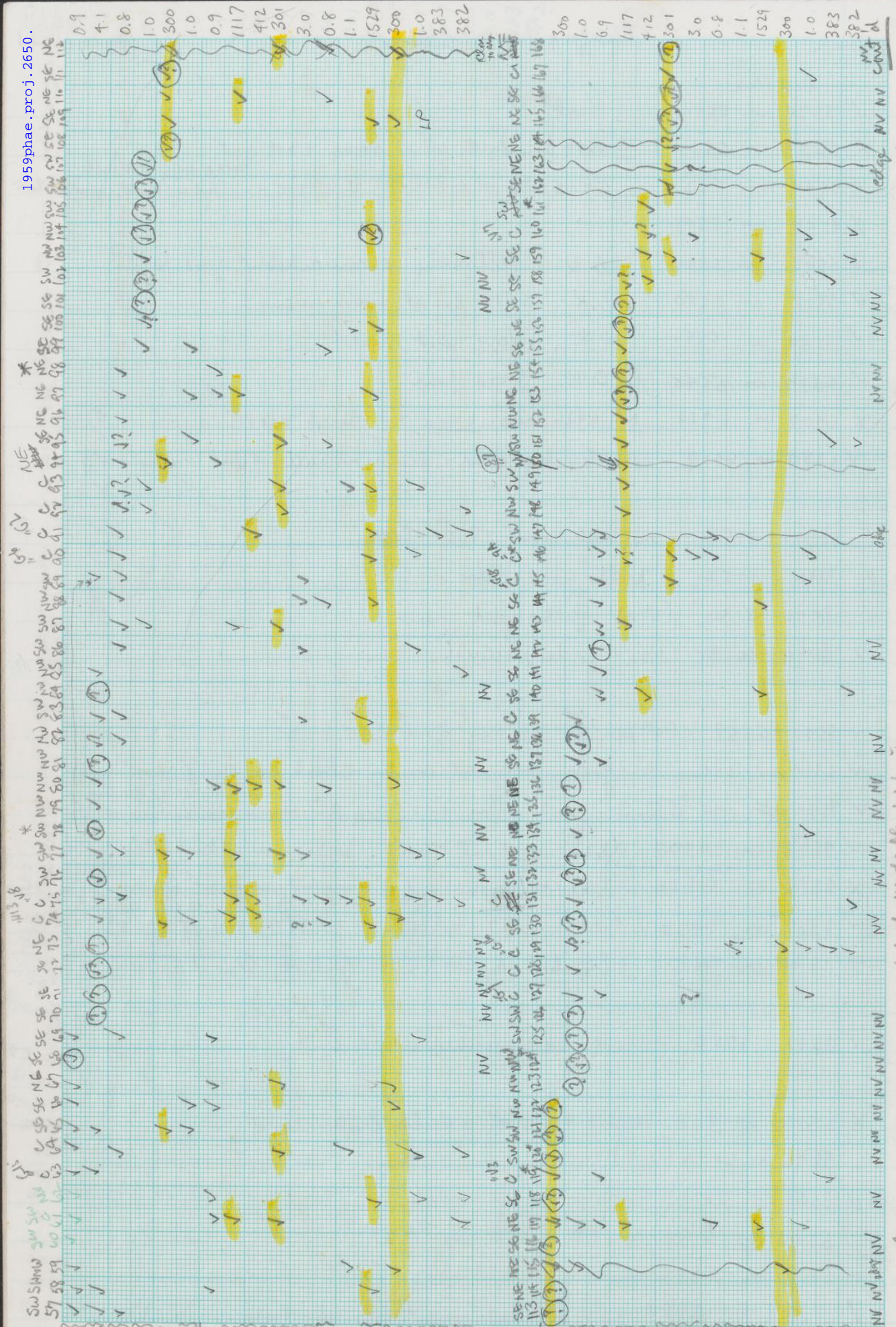
yes ✓ 3053 - 3130 - 3053 the better plate

Now ✓ 5523 m. 6410 or 6413 (4, 2⁺ m. 4,3)

✓ 5229 m. 5242

✓ 5231 m. 6384 not particularly good, but no other choice

✓ 5249 m. 6384 good



* 98 is on 5548, not on 5539; also on chart!
 * 161 was marked w/ no number; cannot easily discern which it was intended to be.
 * 124 the W of a blended pair
 * 146 the N of close pair
 * 119 SE of 2
 * 120: looks like N of pair?
 * 578 - clearly the star, ranging to 59

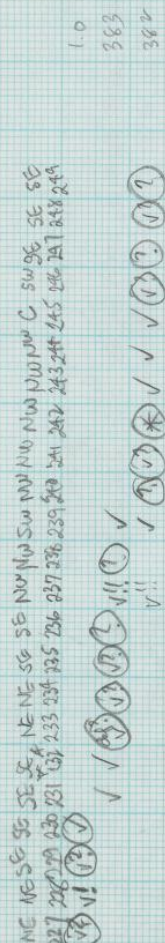
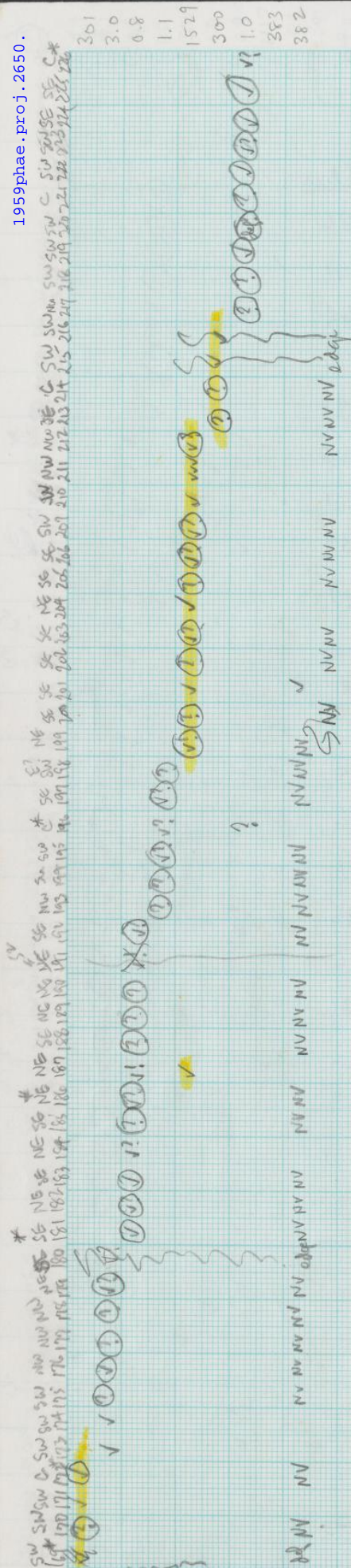
The Cluster Variable Stars (by numbering scheme)

13

Graham #	Variable #	My #	
G1	V1	19	plus
G2		91	✓ 36
G3	V3	119	✓ 61 ✓ -
G4	V4		✓ 64 ✓ -
G5	V5		✓ 92
G6		90	✓ 93
G7	V7	160	✓ 128
G8	V8	75	✓ 131 ✓ -
G9		127	✓ 139
G10		17	✓ 167
G11		15	
G12		14	✓ 8 ✓ -
G13	V13	74	✓ 9 ✓ -
G14			✓ 20 ✓ -
G15	V15	63	✓ 96 ✓ -
G16		129	✓ 97 ✓ -
G17		10	✓ 245 ✓ -
G18	V18	35+145	✓ 196
G19	V19	11	✓ 226
G20		12	✓ -
G21		50	✓ -
6A			
6B			
9A		146	
9B			
13A		13	

* 161 was marked w/10 number
to be assigned to be
* 146 the N of close pair
* 120: both like N* of pair?

* 578 - clearly the star, ranging to 58



169: no image on 3130;
but on print!

172 = middle of a line

173 S of 2 closer

* 181 is middle of line of 3 ⁸⁰

* 186- is this an enclosure defect?

* 231 in SW of line pair

* 232 " E " "

* 242- is this P-R thing? It is definite.
Broth!

* either 226 or 196 is
Variable, if not

Vanessa, 1/1/00
Broth!

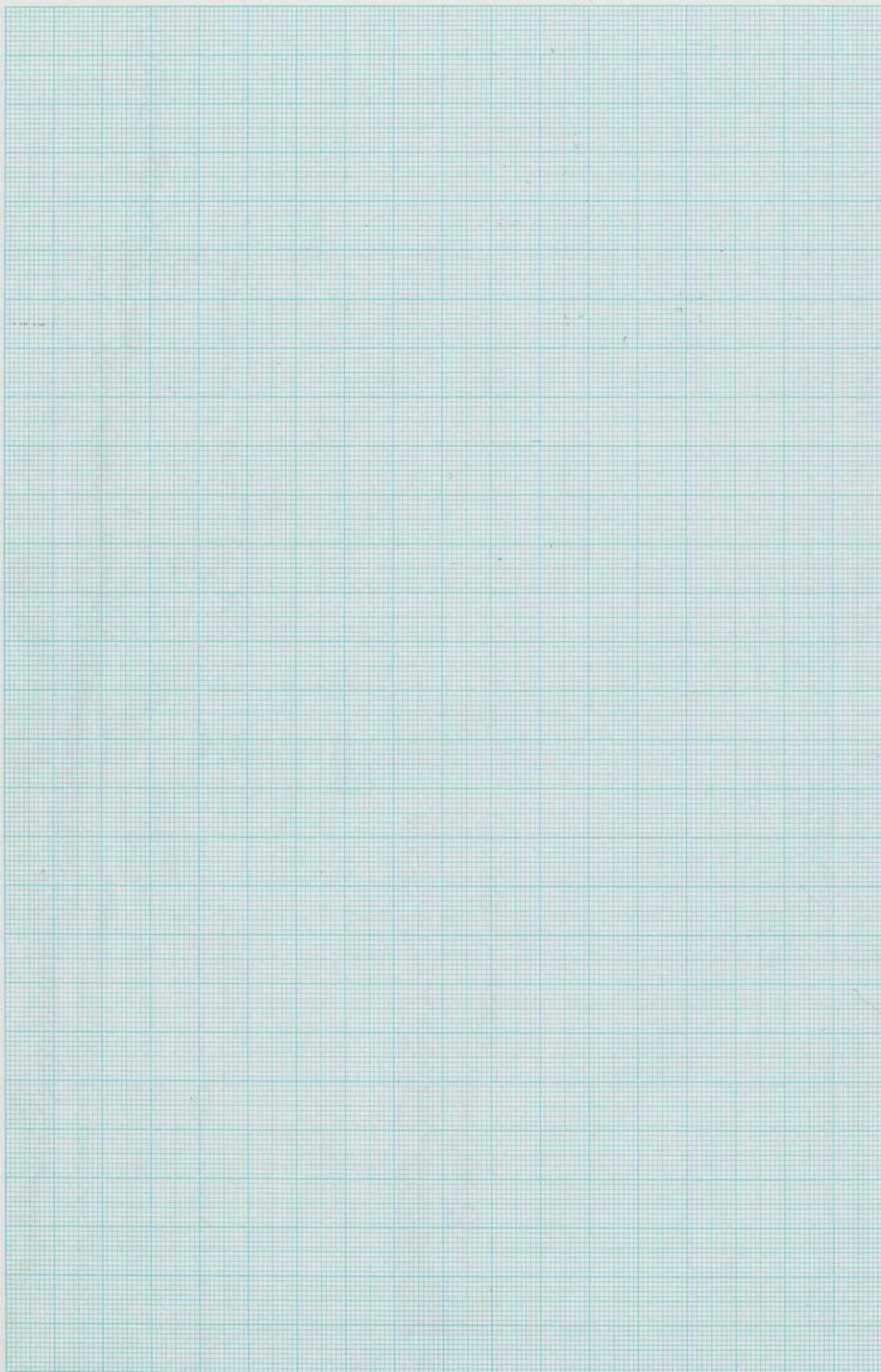
* 242 - is this P-R thing? all is definite

* 186 - is this an emission defect?

but on print!
173 S of 2 closer

1959phae.proj.2650.

\$263.25



PDS

Standards

6	17's	sw	nw	sw	sw	NE	NE	NE	(37 var?) ←	
		7g	31b	35	37a	36	38			
9	16's	sw	sw	NE	NE	sw	nw	NE	NE	SE
		7f	9i	19c	20a	35a	38a	38e	38f	38h
7	15's	sw	sw	sw	nw	SE	nw	SE	nw	(21a var?) ←
		9f	9g	9h	21b	39	39a	40a		

Prefixes

G = Graham var (?)

N = Nemea std

A = Andersen std

T = "test" stars

26 plus ft A-Z
 53

60 2 quadrants @ ~ 30 ea.

20 + field checks (10/quadrant)

33 + 33 central

53 + standards

166

60 plates

x 2

120

x 166

start w/ NE, SE Quadrants -

NE, stds, C, SE

→ some sd, NE, C, some st, SE, some st.

set on plate # 5554
5242 for E half.

star 187

0,0

Y = -58354

X = +1368

PDS file 1 include 39 central "variables"

+ 7 close Andersen/Nemea stds

+ 26 A-Z

+ 2 "prelud" + 1 "anti-lab"

Plate	Date	Param	Scale	Ahr	Mag	Filter	Total	File#	Comments
B 5554	17/7	40,40,25,25,64	1.0	C2	10X	CC	231	8	(to 198)
B 5229	"	"	"	"	"	"	232	1	(to 59) (May be defective) (59*)
B 5231	"	"	"	"	"	"	"	2	✓
B 5242	"	"	"	"	"	"	"	3	✓
B 5249	"	"	"	"	"	"	"	4	(to 220)
B 442	"	"	"	"	"	"	"	5	✓ left running overnight
B 2778	18/7	"	"	"	"	"	"	6	✓
B 2909	"	"	"	"	"	"	"	7	(dark plate) hung up - aborted
B 2909	"	"	"	"	"	"	231	10	(to 59) only has 2 points in it
B 4544	"	"	1.00213	"	"	"	"	11	(none)
B 4545	"	"	"	"	"	"	"	12	✓
B 4846	19/7	"	1.00250	"	"	"	231	13	ran away ^{only} 2 EoFs added after 134*s!
B 4846	"	"	"	"	"	"	"	14	15x (File 14 is blank) → lost
B 4847	"	"	"	"	"	"	"	16	did 63*s, then ran away. 2 EoFs written
B 4847	"	"	"	"	"	"	"	17	did 19*s, then ran away. 2 EoFs written
B 4847	20/7	"	"	"	"	"	231	18*	did 17 " " " " " "

~ PDS declared dead. ~

14 July '87 Spent day trying to make sense of ST7 program. Created file of Central variables + standards on CCD frame area

15 July '87 Created four quadrant position files of variables, 10 test stars, and Nerner stds of 15, 16 and 17 mag

Tape 231

file 7 - empty (no positions - why?) coarse 4.84

~~file 8 40, 40, 22, 22, 25 voltages~~

(file 2 has 75 ✓ stars

3 52 ✓

4 48 ✓

5 49 ✓

6 48 ✓

272

at scanning speed of 25, each * takes $\sim 40^s$ (1^s per frame)

& the whole file will take

3 hours! Can we ① scan

faster? ② cut down frame

size? ③ may be hazardous

since on other plates stars may

not be in quite the same place.

[all took ~ 50 min to do 75 stars]

Star 115 in file 3 too far - program hung up. Had to regain control by interrupt. Hope there's a double EOF somewhere!!

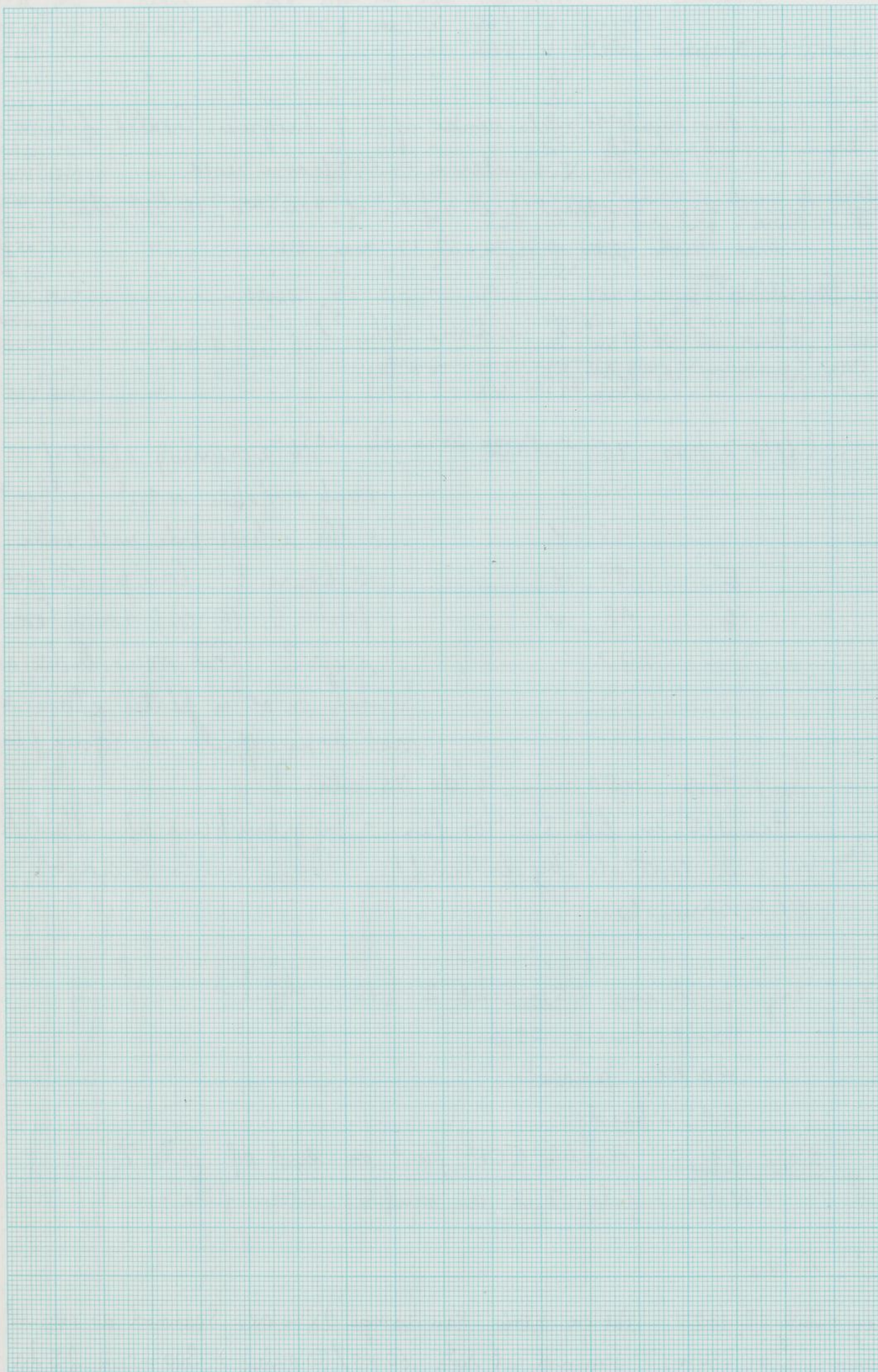
17 July try pixel size 25μ [C2 (10x obj.)]
pixel spacing 25μ .
40x40 pixels.
64 speed.

take 231 - double EOF put on end of file 7.

(N.B. - file 7 is an empty scan file.

Scan

Sunday July 19, 1987 Put on 4846. Ran ramps 2x \rightarrow OK. Scanned as normal, and ran away after 134 *s. Scanned at rate $60^*s/30$ min $\rightarrow 300^*s$ in 2.5 hr!



Sunday - continued added 2 EOFs after file 13 by hand.

20/7/87 Monday - Can't even run 75 stars without running away.

We're called in -

When we get going, try

16 μ aperture (C3)

16 μ spacing

100 speed.

→ use 25 μ x 25 μ
(to be sure to get star!)

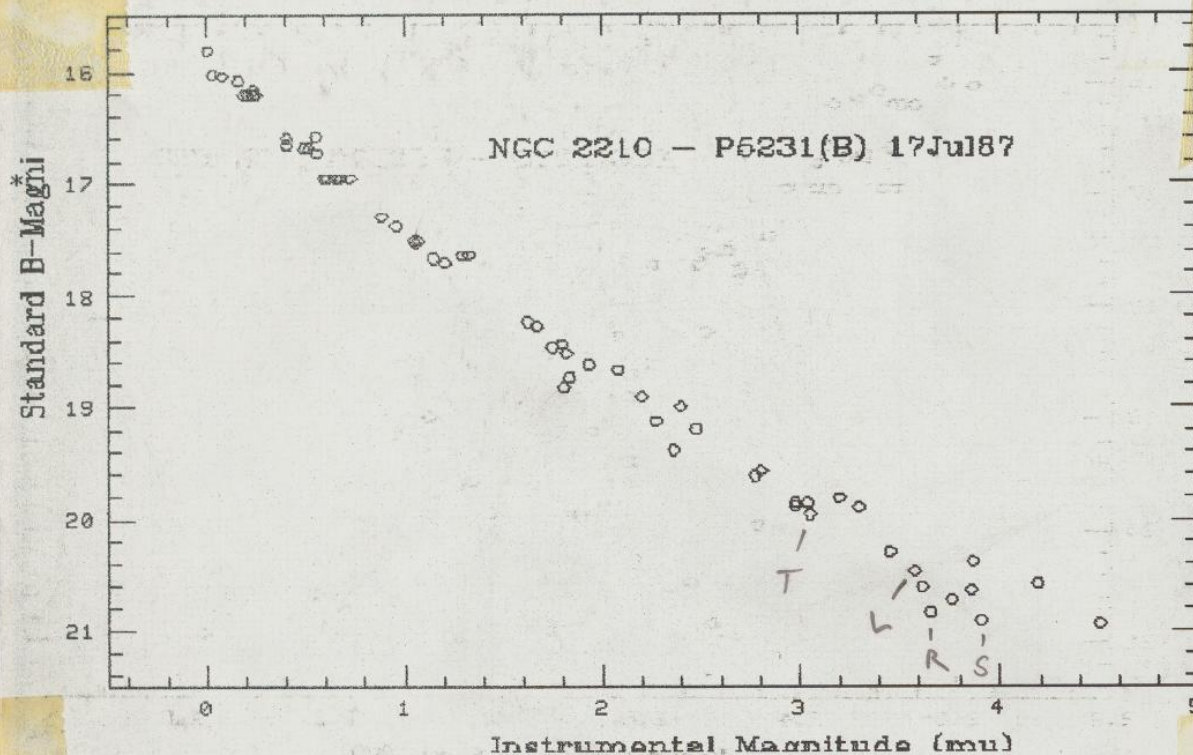
22/7/87 try to get star 187 for computing scale

serial # is probably either 125 (list of combined files)

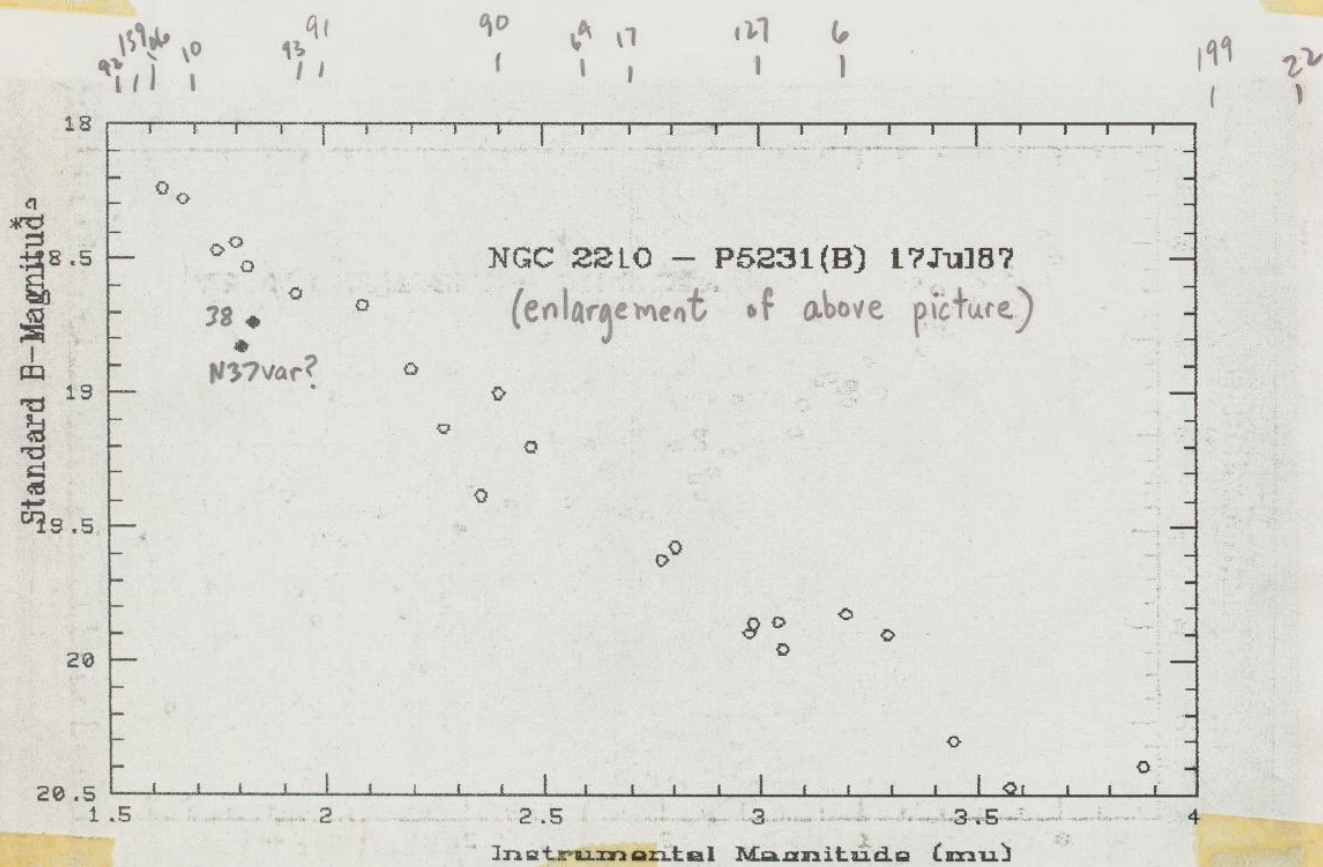
124 (# in runs)

and star # 40, which is N38F = 0,0

Sample Calib curves (Mag vs. μ) from P5231 (take 232 file 2) - stds only
 Lower curve is detail of upper in region of RR's

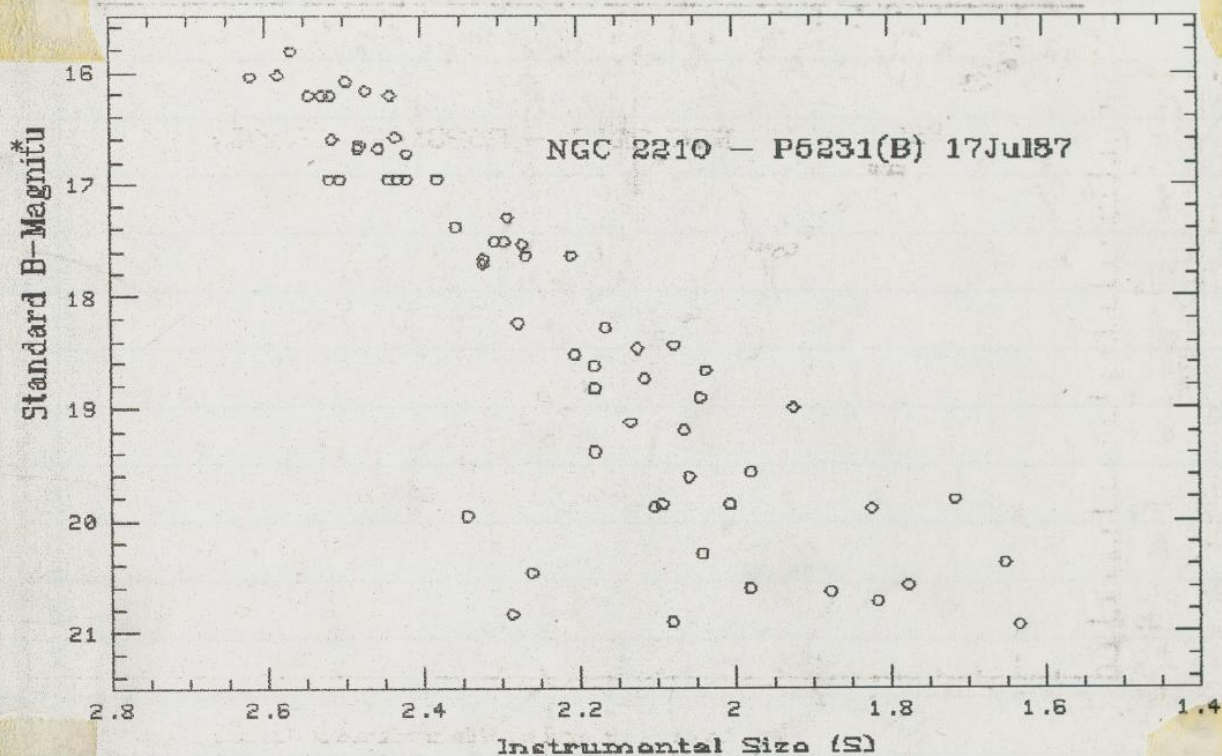
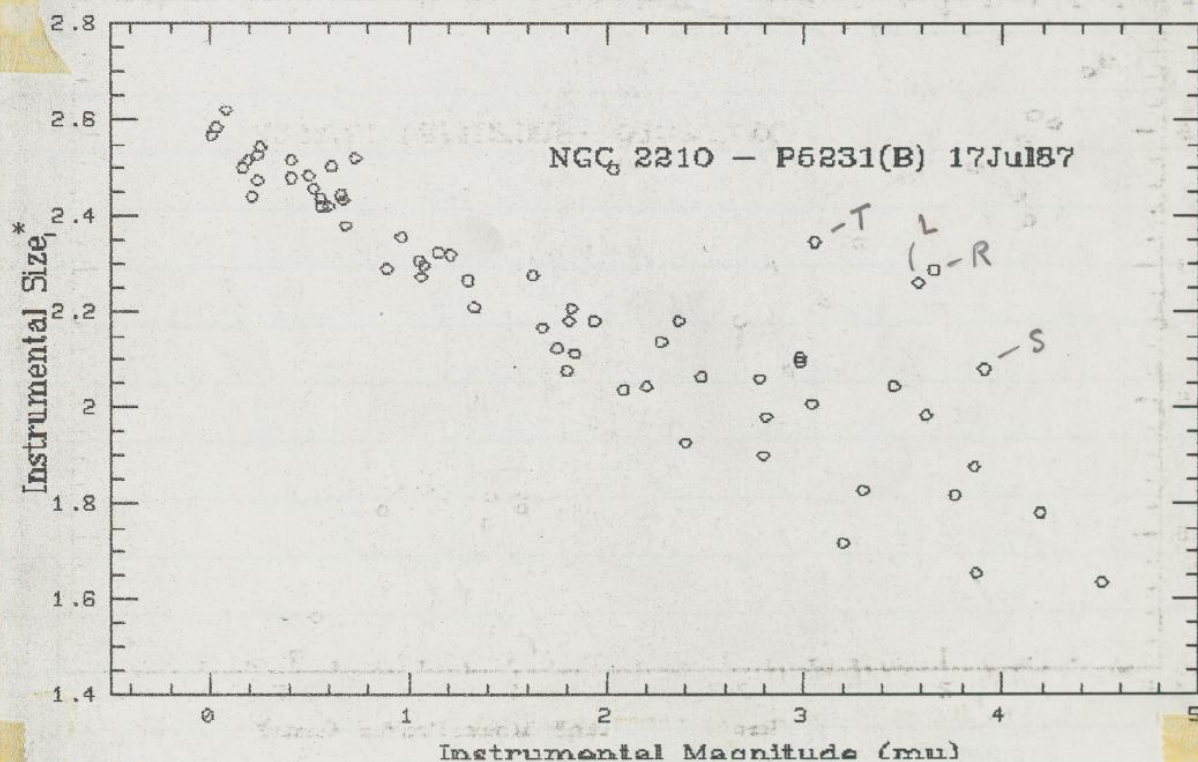


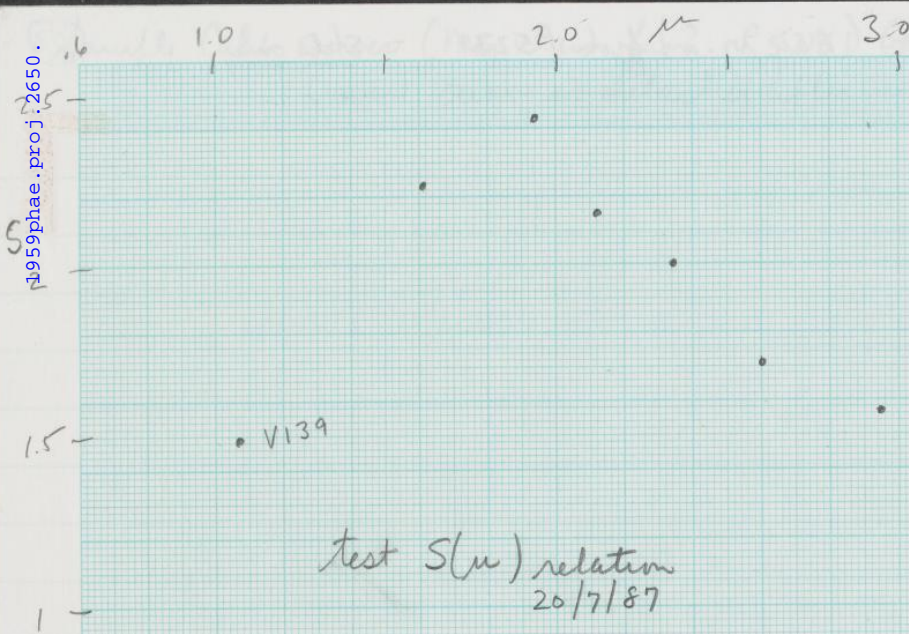
Mag RR. Mac



Sample calib curve (Mag vs. S) from P5231 - stds only

(23)

Sample S vs μ curve for P5231 - stds only



test $S(\mu)$ relation
20/7/87

232

231

23
MTA
23

DNO = Document/Nonload

Evaluation of tape 232 (MTAO)

(25)

All MTAO

↓ tape 231

23/7/87

- 232 file 1 parity error after 59 stars (P5229B)
 2 ran O.K. (P5231B)
 3 ran O.K. (P5242B) [star MH#127 invisible]
 4 270 stars (!) (P5249B) " " "
 5 ran O.K. (P442B)
 231 8 198 stars (P5554B)
 10 89 stars (P2909B - faint)
 11 none? 89 stars (P4544B) - poor bkg
 13 none- (P4846B) - file only has 134 *'s.
 15 "parity error" "integer overflow" (P4846B)
 16 ran O.K. (P4847) - file only has 63 *'s.
 232 6 ran O.K. (P2778) re-ran to get the "100" stars
 MTAI 231 15 parity error right off.

N.B. Redo
 232 #6
 for $\mu = 100$'s

The complete files are - 231 #16 - P4847B -

232 #2 P5231B

3 P5242B

5 P442B

6 P2778B

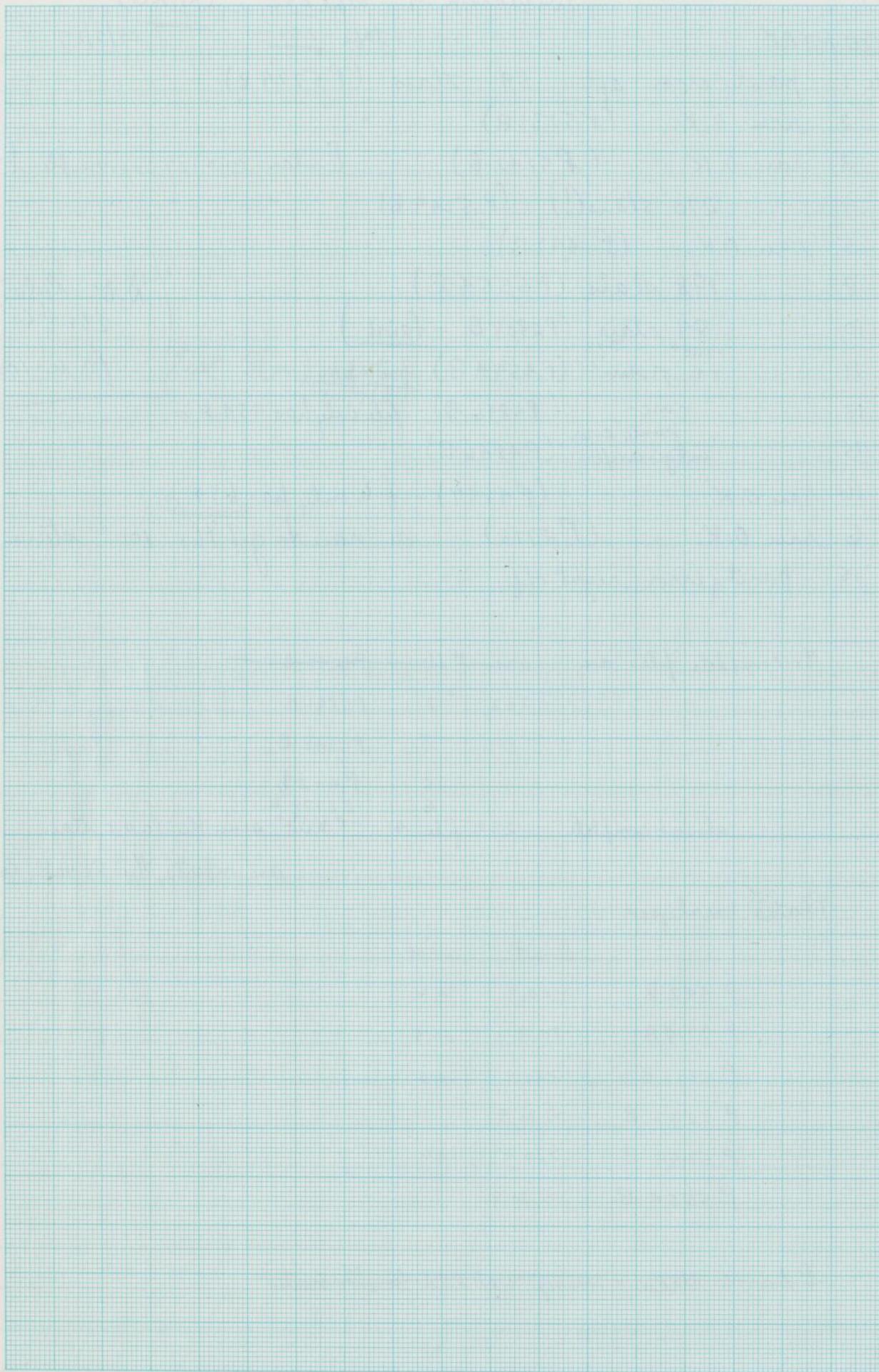
almost complete: 232 file 4 - P5249B, since the last 2 stars

are repeats, this is really complete

Plates analysed

	limit	cut at
P442B	> 20.9	20.6
P2778B	20.9	20.4
P5231B	> 20.9	20.6
P5242B	>> 20.9	
P5249B	> 20.9	20.6
P5554B	>> 20.9	

P has a strange image & should be eliminated



Record of Reductions of PDS o/p Tapes

(This is an earlier
go-through than
the previous page)

Date	Tape - file no.	Comments
21 July	JMN231-11	Parity error after 40 *s. Irreg. bcknd. P4544B.DAT
"	231-12	- DS=1800, PO=7. → many rasters come to the screen did 88 *s → SAFETY.DAT;11 - second pass → *197 cpl. - third pass → completion P4545B.DAT
"	231-13	→ 134 * P4546B.DAT
"	231-15	Program dies (in SEARCH) when we try to read from file 15.
"	231-16	✓ OUTPUT.PRT 63 *s P4847B.DAT

determination of better ^B image for

N37 V? (#79)

N38 (#80)

on S/O system

Plot	79	80
5231	18.49	18.53
5242	18.36	18.31
442	18.57	18.59
2778	18.33	18.24
5249	18.37	18.40
mean	18.42 ± .05	18.41 ± .07
(Nemec	18.83	18.74)
5554	18.44	18.34
new mean	18.43	18.40

Nemec/Andersen Standards Used

	V	B-V	B
N 7 F	16.30		16.69
N 7 G	17.25		18.47 ✓
N 9 F	15.04		16.09
N 9 G	15.99		16.69
N 9 H	15.92		16.66
N 9 I	16.11		16.73
N 19 C	16.42		17.30 ✓
N 20 A	16.72		16.59
N 21 A V?	15.04		15.82
N 21 B	15.71		16.60
N 31 B	17.05		17.38 ✓
N 35 A	16.24		16.21
N 36	17.19		17.71 ✓
N 37 V?	17.16		18.83 ✓
N 38	17.07		18.74 ✓
N 38 A	*16.86		
N 38 E	16.33		17.67 ✓
N 38 F	*16.93		
N 38 H	16.99		17.64 ✓
N 39	15.21		16.03
N 39 A	15.27		16.21
N 40 A	15.45		16.04

V B-V B

see →

* Use S/O value

STANDARDS

(29)

N2210

Schommer/Olszewski

July 21, 1987

Star	Xpos	Y pos	Vmag	sig(V)	B-V	chi(V)	chi(B)	
A	49.76	169.40	18.361✓	-0.012	0.842	19.20 0.86✓	0.82	
B	58.47	149.81	20.378✓	0.009	0.352	20.73 0.45✓	0.70	
C								ON BAD COLUMN
D	78.21	152.46	19.214✓	0.013	0.636	19.85 0.85✓	0.95	
E	35.04	230.36	19.018✓	0.016	0.841	19.86 1.17✓	1.15	
F?	123.93	82.55	18.951✓	0.013	0.940	19.89 0.87✓	0.75	
G	107.77	34.64	20.420✓	0.015	0.166	20.59 0.73✓	0.61	
H	85.12	45.10	20.213✓	0.016	0.092	20.30 1.02✓	0.79	
I	76.52	35.30	19.272✓	0.013	0.552	19.82 0.84✓	0.87	
J	150.	107.	18.55✓		0.83	19.38		short exp.
K	190.52	78.33	19.038✓	0.018	0.866	19.90 1.25✓	0.81	
L	234.34	118.76	20.215✓	0.015	0.259	20.47 0.90✓	0.84	
M	256.35	87.67	19.908✓	0.011	0.705	20.61 0.67✓	0.84	
N	267.84	97.75	19.060✓	0.016	0.556	19.62 0.77✓	0.67	
O	249.13	154.04	20.664✓	0.011	0.273	20.94 0.53✓	0.59	:nr bad column
P	258.07	149.11	20.613✓	0.018	0.027	20.64 1.04✓	0.77	
Q	267.34	155.57	19.632✓	0.037	0.759	20.39 0.98✓	0.68	::
R	266.14	168.28	20.099✓	0.016	0.741	20.84 1.00✓	1.11	
S	251.03	167.42	20.763✓	0.021	0.154	20.92 1.21✓	0.95	:
T	93.32	173.37	19.282✓	0.013	0.665	19.95 0.86✓	1.10	
U	163.73	52.87	17.043	0.008	1.400	18.44 0.26✓	1.55	
V	203	102	18.37✓		-0.13	18.24		short exp
W	207.59	181.74	18.289✓	0.011	0.843	19.13 0.77✓	0.49	
X	264.61	144.89	19.055✓	0.010	-0.052	19.00 0.65✓	0.54	
Y	59.03	251.09	18.50✓		0.13	18.63		short exp
Z	201.82	119.15	18.507✓	0.015	1.063	19.57 1.03✓	0.99	
AA	15.27	21.06	19.204	0.015	0.869	0.95	0.90	
BB	222.	27	19.69		0.94			short exposure
CC	42.34	204.66	19.268	0.012	0.062	0.74	0.79	
DD	44.57	122.48	19.975	0.011	0.789	0.61	0.85	
A21	48.62	222.71	17.990✓	0.007	0.916	18.91 0.44✓	0.47	
A22	102.61	249.69	17.507✓	0.007	0.772	18.28 0.47✓	0.50	
A24	155	242	15.31		0.86	16.17		short exp.
A25	168.34	270.98	17.434✓	0.011	1.096	18.53 0.77✓	1.06	
A26	195.30	280.37	17.685✓	0.019	0.983	18.67 1.52✓	1.85	
N38A	279	327	16.86		0.68	17.54		short exp.
N38F	244.20	407.67	16.932	0.015	-0.060	16.95 0.93	1.41	
EOB1						16.87		

1:	(XC,YC) = (	-2400.,	992.)	- 91
2:	(XC,YC) = (	-1919.,	1360.)	- 90
3:	(XC,YC) = (	-762.,	2220.)	- 93
4:	(XC,YC) = (	-438.,	2236.)	- 139
5:	(XC,YC) = (	-548.,	1828.)	- 167
6:	(XC,YC) = (	-249.,	1650.)	- G9B
7:	(XC,YC) = (	-1392.,	712.)	- 92
8:	(XC,YC) = (	299.,	1356.)	- 146
9:	(XC,YC) = (	710.,	1725.)	- 127
10:	(XC,YC) = (	881.,	965.)	- 17
11:	(XC,YC) = (	2835.,	-3924.)	- 64
12:	(XC,YC) = (	2036.,	2102.)	- 10
13:	(XC,YC) = (	2281.,	2615.)	- 196
14:	(XC,YC) = (	2355.,	2910.)	- 129
15:	(XC,YC) = (	2836.,	2983.)	- 226
16:	(XC,YC) = (	3894.,	2079.)	- 35
17:	(XC,YC) = (	3938.,	2166.)	- 145
18:	(XC,YC) = (	7328.,	2189.)	- 11
19:	(XC,YC) = (	10283.,	7227.)	- 131
20:	(XC,YC) = (	2093.,	4410.)	- 36
21:	(XC,YC) = (	1752.,	4331.)	- 63
22:	(XC,YC) = (	1374.,	4000.)	- 14
23:	(XC,YC) = (	1242.,	4317.)	- GV14
24:	(XC,YC) = (	578.,	4082.)	- 15
25:	(XC,YC) = (	1307.,	4820.)	- 74
26:	(XC,YC) = (	1882.,	6211.)	- 13
27:	(XC,YC) = (	2318.,	10043.)	- 12
28:	(XC,YC) = (	-373.,	10682.)	- 50
29:	(XC,YC) = (	-8486.,	12217.)	- 61
30:	(XC,YC) = (	-2471.,	6932.)	- 119
31:	(XC,YC) = (	-209.,	4120.)	- 128
32:	(XC,YC) = (	-1142.,	5052.)	- 75
33:	(XC,YC) = (	-1792.,	4603.)	- 160
34:	(XC,YC) = (	-2141.,	4419.)	- G6A
35:	(XC,YC) = (	-2765.,	4082.)	- GV4
36:	(XC,YC) = (	-1683.,	3877.)	- G6B
37:	(XC,YC) = (	-2455.,	3003.)	- GV5
38:	(XC,YC) = (	-4923.,	2422.)	- 19
39:	(XC,YC) = (	-6947.,	-9952.)	- 245
- 40:	(XC,YC) = (	2.,	-6.)	- N38F
- 41:	(XC,YC) = (	-2524.,	-1127.)	- N38A
- 42:	(XC,YC) = (	-4060.,	1478.)	- A26
- 43:	(XC,YC) = (	-4375.,	2326.)	- A25
- 44:	(XC,YC) = (	-5382.,	2726.)	- A24
- 45:	(XC,YC) = (	-5096.,	4388.)	- A22
- 46:	(XC,YC) = (	-5986.,	6092.)	- A91
- 47:	(XC,YC) = (	-5057.,	5778.)	- Y
- 48:	(XC,YC) = (	-5751.,	6514.)	- E
- 49:	(XC,YC) = (	-7658.,	6029.)	- A
- 50:	(XC,YC) = (	-8289.,	5734.)	- B
- 51:	(XC,YC) = (	-8171.,	5142.)	- D
- 52:	(XC,YC) = (	-7540.,	4634.)	- T
- 53:	(XC,YC) = (	-7504.,	4643.)	- TCOR
- 54:	(XC,YC) = (	-11892.,	5082.)	- I
- 55:	(XC,YC) = (	-11580.,	4828.)	- H
- 56:	(XC,YC) = (	-11912.,	4096.)	- G
- 57:	(XC,YC) = (	-10385.,	3625.)	- F
- 58:	(XC,YC) = (	-9579.,	2819.)	- J
- 59:	(XC,YC) = (	-11269.,	2352.)	- U
- 60:	(XC,YC) = (	-10467.,	1497.)	- K
- 61:	(XC,YC) = (	-9710.,	1110.)	- V
- 62:	(XC,YC) = (	-9196.,	1194.)	- Z
- 63:	(XC,YC) = (	-9137.,	123.)	- L
- 64:	(XC,YC) = (	-10120.,	-588.)	- M
- 65:	(XC,YC) = (	-9794.,	-924.)	- N

- 66:	(XC,YC) = (	-8328.,	-804.)	- X
- 67:	(XC,YC) = (	-7981.,	-879.)	- Q
- 68:	(XC,YC) = (	-7584.,	-848.)	- R
- 69:	(XC,YC) = (	-7637.,	-336.)	- S
- 70:	(XC,YC) = (	-8167.,	-587.)	- P
- 71:	(XC,YC) = (	-8005.,	-305.)	- O
- 72:	(XC,YC) = (	-7197.,	1031.)	- W
- 73:	(XC,YC) = (	-5240.,	-221.)	- C
74:	(XC,YC) = (	-1931.,	1315.)	- 90
75:	(XC,YC) = (	2818.,	-3920.)	- <u>64</u> - 64 X
- 76:	(XC,YC) = (	0.,	0.)	- N38F=0,0
- 77:	(XC,YC) = (	870.,	-2620.)	- N36
78:	(XC,YC) = (	2834.,	-3932.)	- 64
- 79:	(XC,YC) = (	2711.,	-1713.)	- N37 V?
- 80:	(XC,YC) = (	3212.,	-1212.)	- N38
- 81:	(XC,YC) = (	4124.,	1111.)	- N38E
82:	(XC,YC) = (	7342.,	2191.)	- 11
83:	(XC,YC) = (	13592.,	-5128.)	- 9
84:	(XC,YC) = (	12502.,	-12399.)	- 96
85:	(XC,YC) = (	17062.,	-4665.)	- 97
86:	(XC,YC) = (	25387.,	-1316.)	- 7
87:	(XC,YC) = (	25656.,	-1738.)	- 234
88:	(XC,YC) = (	41360.,	491.)	- 228
89:	(XC,YC) = (	66372.,	-8619.)	- 110
90:	(XC,YC) = (	85574.,	-29228.)	- 164
91:	(XC,YC) = (	70295.,	-35131.)	- 98
92:	(XC,YC) = (	54887.,	-25487.)	- 199
93:	(XC,YC) = (	52069.,	-39627.)	- 42
94:	(XC,YC) = (	42333.,	-34284.)	- 39
95:	(XC,YC) = (	43329.,	-31834.)	- 44
96:	(XC,YC) = (	37480.,	-24948.)	- 6
97:	(XC,YC) = (	35807.,	-22853.)	- 48
98:	(XC,YC) = (	38989.,	-22448.)	- 45
99:	(XC,YC) = (	42356.,	-17017.)	- 134
100:	(XC,YC) = (	37557.,	-17254.)	- TNE1
101:	(XC,YC) = (	38158.,	-16771.)	- TNE2
102:	(XC,YC) = (	39850.,	-13033.)	- TNE3
103:	(XC,YC) = (	40790.,	-10971.)	- TNE4
104:	(XC,YC) = (	37237.,	-10669.)	- TNE5
105:	(XC,YC) = (	33663.,	-8518.)	- 46
106:	(XC,YC) = (	32085.,	-8670.)	- 47
- 107:	(XC,YC) = (	<u>29230.</u> ,	-17747.)	- N20A X
- 108:	(XC,YC) = (	9293.,	-26299.)	- N19C
109:	(XC,YC) = (	46961.,	-69249.)	- 4
110:	(XC,YC) = (	50600.,	-76442.)	- 40
111:	(XC,YC) = (	55453.,	-77242.)	- 112
112:	(XC,YC) = (	34066.,	-89257.)	- 115
113:	(XC,YC) = (	28488.,	-81072.)	- 67
114:	(XC,YC) = (	18254.,	-78580.)	- 184
115:	(XC,YC) = (	13789.,	-76569.)	- TNE10
116:	(XC,YC) = (	2609.,	-81789.)	- 94
117:	(XC,YC) = (	7895.,	-71402.)	- 49
118:	(XC,YC) = (	12039.,	-67879.)	- TNE6
119:	(XC,YC) = (	15212.,	-69995.)	- TNE7
120:	(XC,YC) = (	16080.,	-68575.)	- TNE8
121:	(XC,YC) = (	14732.,	-66128.)	- TNE9
122:	(XC,YC) = (	23593.,	-66458.)	- 143
123:	(XC,YC) = (	20790.,	-64576.)	- 204
124:	(XC,YC) = (	1388.,	-58507.)	- 187
125:	(XC,YC) = (	15338.,	-49444.)	- 117
- 126:	(XC,YC) = (	1.,	0.)	- 0,0*
- 127:	(XC,YC) = (	2839.,	-3936.)	- 64
- 128:	(XC,YC) = (	3625.,	5496.)	- N38H
129:	(XC,YC) = (	2323.,	10041.)	- 12
130:	(XC,YC) = (	10290.,	7217.)	- 131

131:	(XC,YC) = (	13516.,	3451.)	-	130
132:	(XC,YC) = (	45066.,	9095.)	-	5
133:	(XC,YC) = (	50199.,	11012.)	-	141
134:	(XC,YC) = (	74419.,	1978.)	-	231
135:	(XC,YC) = (	94888.,	4057.)	-	180
136:	(XC,YC) = (	94627.,	5918.)	-	163
137:	(XC,YC) = (	84269.,	9361.)	-	137
138:	(XC,YC) = (	71743.,	13207.)	-	1
139:	(XC,YC) = (	79376.,	21929.)	-	69
140:	(XC,YC) = (	64325.,	20440.)	-	158
141:	(XC,YC) = (	67272.,	21790.)	-	SE10
142:	(XC,YC) = (	67659.,	25991.)	-	SE9
143:	(XC,YC) = (	66134.,	28332.)	-	SE6
144:	(XC,YC) = (	62252.,	28145.)	-	SE7
145:	(XC,YC) = (	61669.,	28314.)	-	SE8
146:	(XC,YC) = (	68087.,	36984.)	-	2
147:	(XC,YC) = (	68883.,	48365.)	-	41
148:	(XC,YC) = (	67485.,	60010.)	-	109
149:	(XC,YC) = (	54314.,	51498.)	-	43
150:	(XC,YC) = (	49465.,	61665.)	-	140
151:	(XC,YC) = (	50680.,	62866.)	-	3
152:	(XC,YC) = (	47585.,	64796.)	-	232
153:	(XC,YC) = (	10749.,	94920.)	-	165 65
154:	(XC,YC) = (	19010.,	91728.)	-	37
155:	(XC,YC) = (	15423.,	76964.)	-	159
156:	(XC,YC) = (	30168.,	74148.)	-	100
157:	(XC,YC) = (	33633.,	75415.)	-	155
158:	(XC,YC) = (	29756.,	67328.)	-	SE1
159:	(XC,YC) = (	28471.,	66693.)	-	SE2
160:	(XC,YC) = (	29471.,	66059.)	-	SE3
161:	(XC,YC) = (	29910.,	64878.)	-	SE4
162:	(XC,YC) = (	32290.,	63762.)	-	SE5
163:	(XC,YC) = (	26806.,	64176.)	-	66
164:	(XC,YC) = (	34055.,	52199.)	-	38
165:	(XC,YC) = (	32845.,	48929.)	-	201
166:	(XC,YC) = (	33718.,	44246.)	-	99
167:	(XC,YC) = (	31646.,	26132.)	-	249
168:	(XC,YC) = (	14549.,	41904.)	-	144
169:	(XC,YC) = (	10398.,	37019.)	-	N39
170:	(XC,YC) = (	2284.,	25790.)	-	95
171:	(XC,YC) = (	5208.,	20047.)	-	N40A
172:	(XC,YC) = (	11158.,	19974.)	-	8
173:	(XC,YC) = (	2333.,	10052.)	-	12
174:	(XC,YC) = (	3619.,	5489.)	-	N38H
175:	(XC,YC) = (	5.,	2.)	-	N3F=00
176:	(XC,YC) = (	-386.,	10684.)	-	50
177:	(XC,YC) = (	-4634.,	18328.)	-	N35A
178:	(XC,YC) = (	-6174.,	17015.)	-	20
179:	(XC,YC) = (	-8477.,	12208.)	-	61
180:	(XC,YC) = (	-18013.,	11767.)	-	244
181:	(XC,YC) = (	-21468.,	6224.)	-	N7F
182:	(XC,YC) = (	-21887.,	6067.)	-	N7G
183:	(XC,YC) = (	-26346.,	9506.)	-	23
184:	(XC,YC) = (	-42437.,	7081.)	-	87
185:	(XC,YC) = (	-55436.,	6716.)	-	52
186:	(XC,YC) = (	-57895.,	4912.)	-	161
187:	(XC,YC) = (	-55395.,	10035.)	-	SW9
188:	(XC,YC) = (	-53693.,	14830.)	-	SW10
189:	(XC,YC) = (	-42496.,	15055.)	-	86
190:	(XC,YC) = (	-47231.,	23308.)	-	SW7
191:	(XC,YC) = (	-46999.,	24455.)	-	SW8
192:	(XC,YC) = (	-59043.,	28850.)	-	SW6
193:	(XC,YC) = (	-66498.,	25582.)	-	149
194:	(XC,YC) = (	-68627.,	17627.)	-	83
195:	(XC,YC) = (	-78224.,	32362.)	-	30

261:	(XC, YC)	= (	-19093.	-	-34169.)	-	NW8
262:	(XC, YC)	= (	-18221.	-	-30296.)	-	NW9
263:	(XC, YC)	= (	-20974.	-	-31612.)	-	NW10
264:	(XC, YC)	= (	-22637.	-	-31633.)	-	237
265:	(XC, YC)	= (	-11432.	-	-17510.)	-	51
266:	(XC, YC)	= (	-17455.	-	-13418.)	-	N31B
267:	(XC, YC)	= (	-6951.	-	-9957.)	-	245
268:	(XC, YC)	= (	-7142.	-	-6869.)	-	N21A
269:	(XC, YC)	= (	-3652.	-	-3934.)	-	N21B
270:	(XC, YC)	= (	-2531.	-	-1150.)	-	N38A
271:	(XC, YC)	= (	-5349.	-	2705.)	-	N39A
272:	(XC, YC)	= (	2.	-	1.)	-	N38E

Adel

X

 $\hat{\alpha}$

人

XC

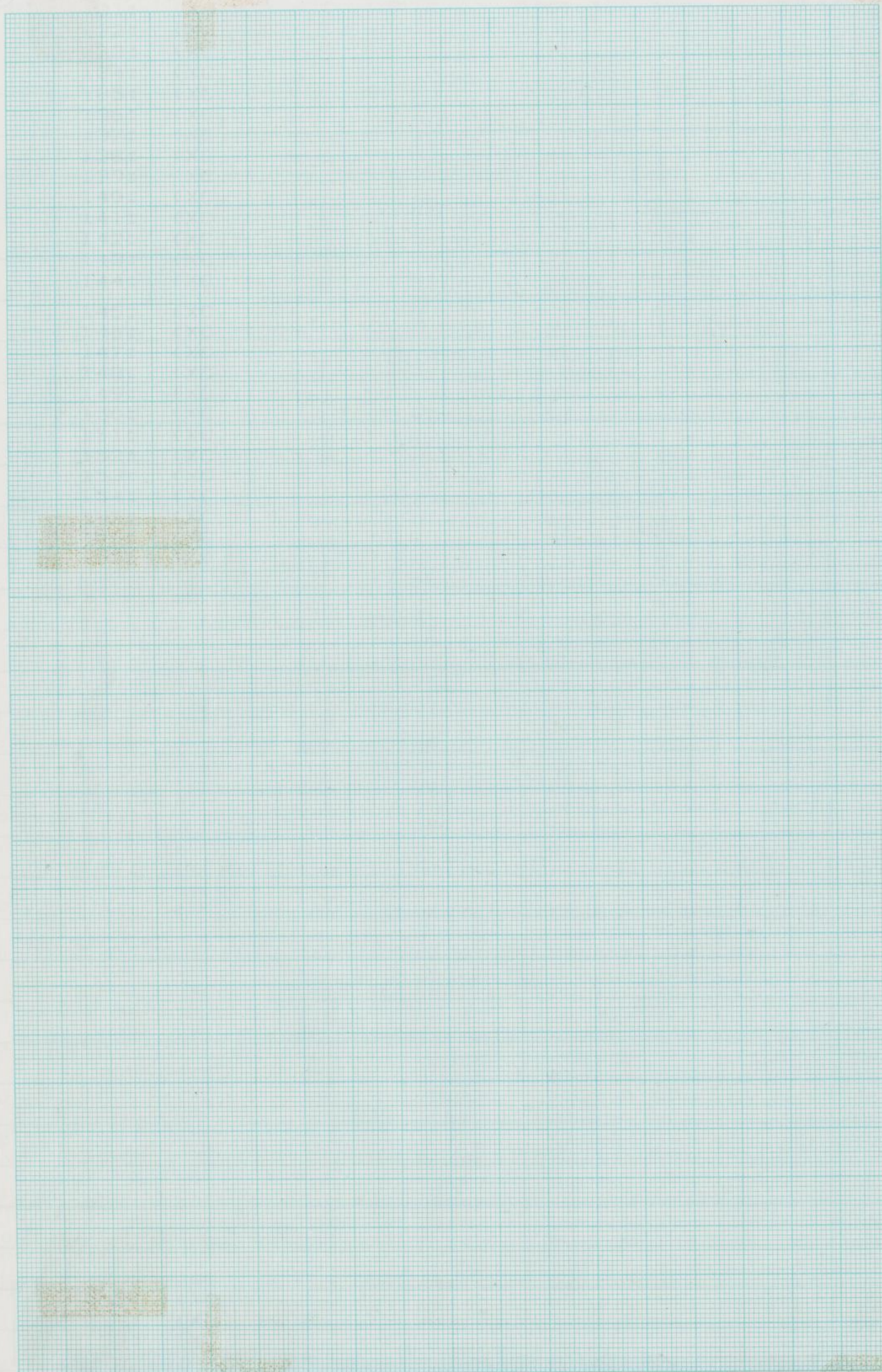
110

72

14

1

1



4 August 1987

① Played with P2778 calibration curve:

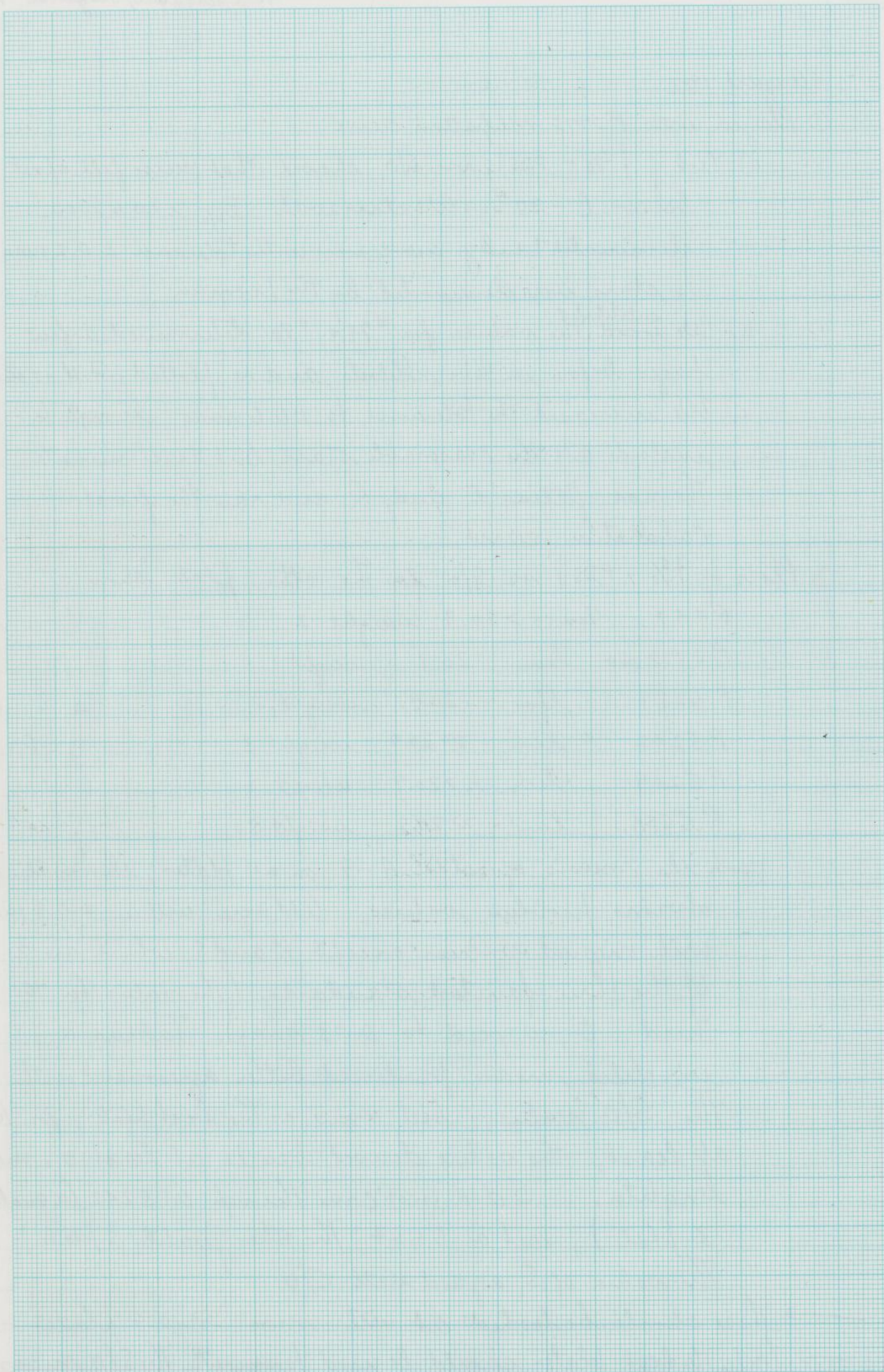
- Plot of $|S/O - PDS|$ vs S/O showed that curve fell apart below $B \sim 20.6$. All stars with $B_{S/O} > 20.6$ were eliminated and a curve run with tolerance ± 0.2 mag. 13 stars were eliminated by the program.
- We ~~used~~ ^{substituted} the values for #79 + #80 determined a few pages before in this notebook, and re-plotted. Still 13 eliminated.
- We increased the tolerance to ± 0.6 mag - enough to include all the reasonable stars, but to eliminate the non-fitting E and Q and ran the final calibration curve.

② Plots of $|S/O - PDS|$ vs S/O for the other plates show:

P442 $\text{lim} = > 20.9$ weight 2
 P2778 rev $\text{lim} = 20.9$ weight 1
 P5231 $\text{lim} = > 20.9$ weight 2
 P5242 $\text{lim} = > 20.9$ weight 3
 P5249 $\text{lim} = > 20.9$ weight 1
 P5554 $\text{lim} = > 20.9$ weight 3

Took the means of stds A-Z on all plates, eliminating obvious problem values. All agree within ± 0.9 mag with original values except R and S, which are 2 of the three faintest standards. (The value for the third, O, agreed to 0.03 mag). Taking a weighted mean produced better agreement with the S/O values, but even on the best plates, for R at least, the value derived here is at least 0.1 mag brighter. S did not come through on 5242 (a quality 3 plate), but on 5554, the other quality 3 plate. The value of S agreed with S/O .

- These should be looked at with more > 20.9 plates -
 → Only the best plates should be used to smooth the S/O mags.



11/8/87 Some final thoughts for this summer.

The analysis of magnitudes for the "local standards" (ten stars well out in each quadrant) shows that the errors are running mostly 2-3 times as large as the canonical 0.035 value. (I think I could do better by iris-ing!).

The obvious thing to try first next summer is using a smaller diaphragm - like 16μ , and still do 40×40 pixel scans. This means that the scaling factor must be determined and used for the 4 m plates, so that the star will be well within the confines of the scan.

The Stetson reduction program picked the wrong star an annoyingly large (if really small) number of times. Is it advisable to look at all the frames during the reduction?? Perhaps careful observance of the scaling factor rule above will help.

Many stars, for no apparent reason, showed very large ERRX and/or ERRY. This seems to have affected the magnitudes. Also, on one plate, the program picked a very low sky value for two standards, rendering their μ too small (i.e. too bright). It's hard to see how to avoid this, but care should be taken to eliminate measures where the sky looks to be odd.

8/3/89 "Best" plates (depth + seeing) and comments (blue only)

B	P4544	Bad background density changes.
	V5229	O.K.
	V5242	O.K.
	V5528	O.K.? (long E-W Scratch + other smaller ones)
	V5532	O.K.
	V5548	O.K. (poorest seeing of the bunch)
	5554	O.K.
	5575	O.K.
	5580	O.K. (except for small ink mark on emulsion, 'tsk! tsk!')
	5590	O.K.

1989	Plate	Date	□	No. Pixels	Area	Mag	Filters	Tape #	file	Ds	exp	?	x276
B	5229	7/3	22 μ	40x40	B3	4X	C,C	1	1				*97 beyond reach, did not read
B	5229	10/3	22 μ	40x40	B3	4X	C,C	2	1	3443	3.2	✓	*142 continued tape error - scan aborted
B	5242	10/3	"	"	"	"	"	2	290	3048	7.3	✓	file I
B	5528	11/3	"	"	"	"	"	2	579	3075	7.3	✓	edge limit error - prob* 10
B	5532	11/3	"	"	"	"	"	2	868	3065	8.1	✓	"
B	5548	11/3	"	"	"	"	"	2	1157	3103	8.1	✓	"
B	5559	11/3	"	"	"	"	"	2	1446	3065	9.9	✓	"
B	5575	12/3	"	"	"	"	"	2	1735	2990	30.4	✓	bad orient
B	5580	12/3	"	"	"	"	"	1	1	2997	55	✓	overwrite of previous tape
B	5590	12/3	"	"	"	"	"	1	290	2991	23.5	✓	reduced to here 12/3
B	0442	12/3	"	"	"	"	"	3	1	3057	12.4	✓	
B	2778	12/3	"	"	"	"	"	3	290	2424	37	✓	①
B	5231	13/3	"	"	"	"	"	1	579	2966	4.3	✓	first scan with "ORIENT" !!
B	5249	13/3	"	"	"	"	"	1	868	3369	5.9	✓	
B	4544	14/3	"	"	"	"	"	1	1157	3456	4.7	✓	5 "tape errors" (b.k. - guide probe)
B	5523	14/3	"	"	"	"	"	3	579	2858	21.6	✓	
B	5537	14/3	"	"	"	"	"	3	868	2966	8.5	✓	
B	5540	14/3	"	"	"	"	"	3	1157	3533	27.5	✓	after double EOF!!
B	5559	14/3	"	"	"	"	"	3	1446	3217	3.34	✓	new lamp
B	6384	15/3	"	"	"	"	"	1	1446	3188	6.5	✓	left running - no scan - bkg jump
B	6387	16/3	"	"	"	"	"	4	1			✓	aborted
B	6387	17/3	"	"	"	"	"	4	1	2912	39	✓	
B	6390	17/3	"	"	"	"	"	4	290	3058	6.1	✓	left running
B	6393	18/3	"	"	"	"	"	4	579	2948	9.1	✓	plate has pits in bkg.
B	6396	18/3	"	"	"	"	"	4	868	4471	3.7	✓	dark bkg - left running
B	6410	19/3	"	"	"	"	"	5	1	3214	4.0	✓	
V	0441	19/3	"	"	"	"	"	5	290	2998	11.9	✓	
V	2707	20/3	"	"	"	"	"	5	579	2914	29	✓	
B	2909	20/3	"	"	"	"	"	5	868	3842	2.8	✓	
B	4545	20/3	"	"	"	"	"	5	1157	2938	2.8	✓	
B	4841	20/3	"	"	"	"	"	5	1446	4400	2.3	✓	see comments in "log" - broken
B	5564	23/3	"	"	"	"	"	6	1	22	22	✓	file seems not to be right on PDSRED - wrong orient?
B	5563	23/3	"	"	"	"	"	6	290	290	290	✓	150 stars only (incomplete file)
B	5563	24/3	"	"	"	"	"	6	440	440	440	✓	EOF out of file
B	4846	25/3	"	"	"	"	"	6	440	2163	11	✓	left running 2:10 pm
V	2907	26/3	"	"	"	"	"	7	1	3092	18.0	✓	
V	2908	26/3	"	"	"	"	"	7	290	2960	56	✓	
V	4834	26/3	"	"	"	"	"	8	1	3171	6.9	✓	
V	4842	26/3	"	"	"	"	"	8	290	2968	9.2	✓	left running
V	4843	27/3	"	"	"	"	"	7	579	2636	8.2	✓	
V	5522	27/3	"	"	"	"	"	7	868	2739	6.7	✓	
V	5555	27/3	"	"	"	"	"	7	1157	2929	18.3	✓	
V	5567	27/3	"	"	"	"	"	7	1446	2906	6.4	✓	center (see comments p. 53!)
V	5576	27/3	"	"	"	"	"	7	1735	3115	5.7	✓	290
V	5581	28/3	"	"	"	"	"	8	579	3071	4.3	✓	
V	5582	28/3	"	"	"	"	"	9	1	3109	3.7	✓	
B	4847	29/3	"	"	"	"	"	9	290	2222	34	✓	
B	6384	29/3	"	"	"	"	"	9	579	2880	10.3	✓	
B	6407	29/3	"	"	"	"	"	9	868	2493	22	✓	
B	6413	29/3	"	"	"	"	"	9	1157	3635	6.3	✓	
B	6417	29/3	"	"	"	"	"	9	1446	2932	11	✓	579 pits in plate
B	6420	30/3	"	"	"	"	"	4	1157	2840	65	✓	1000 density??
B	6423	31/3	"	"	"	"	"	10	1	2778	50	✓	
B	53134	31/3	"	"	"	"	"	10	290	3392	2.8	✓	
B	6426	1/4	"	"	"	"	"	11	1	2648	83	✓	

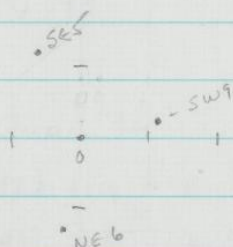
Orientation of plates

39

3/6/89

Use SW 9, NE 6, SE 5

		x_c	y_c
Plate coords	SW 9	-55395	+10035
(from pp 30-33)	NE 6	+12039	-67879
	SE 5	+32290	+63762



3/7/89 Orientation + scale not available, so must use larger boxes

Star names have 8 characters

20 μ steps

Position file = NGC 2210.POS

use star 21 (SW) as position star
-6648, 66287

Traced P 5229 (maybe) -

Actually, machine "bumped" at star ~97, but did not about the scanning. At star 142, there was a "take error" which stopped the program.

3/8/89 will try to trace 2 plates this afternoon -

1) Re-do P 5229

2) P 5242

Might check max x , max y , min x , min y

95000 98000 -81000 -90000

But have only $\pm 100,000$, so how about eliminating real outliers? (see next page)

	Plate	Date	□	No. Pairs	Apex	Mag	file	to	file	D _s	act. SD _g	
B	P6429	1/4/89	20	40x40	B.3	4X	10	11'	290	2600	6.5	✓
B	P6431	"	"	"	"	"	10	11'	579	2871	5.7	✓
B	S3044	"	"	"	"	"	8	11'	868	5190	0.74	✓
B	P6400	2/4/89	"	"	"	"	10	10	579	2828	2.4	✓ 579
B	S3046	"	"	"	"	"	8	10	868	3001	2.17	✓ A 868
B	S3050	"	"	"	"	"	8	10	1157	4721	1.72	✓ A 1157
B	S3051	"	"	"	"	"	8	12	1	3855	2.15	✓
B	S3052	"	"	"	"	"	8	12	290	3380	2.14	✓ scan labeled merely "P" !!
BOUT	0442	3/4/89				175	9	12	579	3069	8.0	✓ 175 stars (N9F=126)
B	S3053	"				289	8	12	754	2960	3.43	✓
B	S563	4/4/89				289	7	8	868	2870	5.3	✓ 58 + 1 "out"
B	S564	"					7	13	1	2783	6.0	✓
B	S565	"					7	13	290	1844	17.9	✓
V	S567	"					7	13	579	3505	3.06	✓
B	S3047	"					8	13	868	4259	1.58	✓ 62 + 1 "out"
BOUT	2778	5/4/89					9	6'	1	12998	5.4	✓
BOUT	5229	"					"	6'	176	13003	4.95	✓
BOUT	5242	"					"	6'	351	13004	7.1	✓
BOUT	5528	"					"	6'	526	2963	10.0	✓
BOUT	5532	"					"	6'	701	3050	9.0	✓
BOUT	5548	"					"	6'	876	3085	5.7	✓
B	S3054	"					8	10	1051	2671	6.0	✓ 6'1051
BOUT	5554	4/4/89					9	12	1043	3060	10.1	✓ B 1157-1331
BOUT	5575	"					9	12	1218	3056	18.5	✓ B 1332-1506
BOUT	5580	"					9	12	1393	3049	10.	✓ B 1507-1681
BOUT	5590	"					9	12	1568	3012	11.	✓ B 1682-1856
B	S3130	"					8	3	1157	2905	2.54	✓ B 868-1156

8/3/89
cont'd.

Stars with either Cond > 80,000.

NE Quad:

			type?	
(9) (97)	164	$x = 85.6$	$\ell.p. - v.?$	test (moved to p. 9)
(119)	115	$y = -89.2$	RR	kill
(120) (120)	67	$y = -81.1$	RR	
(123) (123)	94	$y = -81.8$	RR	

SE Quad

(142)	180	$x = 94.9$	var?	kill
(143)	163	$x = 94.6$	Ceph?	kill
(150) (152)	137	$x = 89.3$	RR	
(10) (168)	65	$y = 94.9$	RR	test (moved to position 10)
(166) (169)	37	$y = 91.7$	RR	

SW Quad

(226)	216	$y = 81.7$	$\ell.p.$	kill
(227)	215	$y = 93.0$	$\ell.p.$	kill
(223) (228)	210	$y = 89.5$	$\ell.p.$	test
(229)	147	$y = 97.2$	RR	kill

NW Quad

(246) (252)	85	$x = -80.9$	Ceph?	
(265) (271)	18	$y = -80.4$	RR	

9/3/89

Pick out five stars to use as orientation

1) N 38 f	0	0
2) NW 3	-67877	-15281
3) NE 10	13789	-76569
4) SE 9	67659	25991
5) SW 1	-30685	62913

Plotted calib curve for piece of 5229 measured 7/3.

Final location of scan files by plate

1959phae.proj.2650.

Scan time approx 2^h15^m (43)10/3/89 P5229 - scan started ~1:35 pm - 2^h10^m

P5242 scan started ~4:15 pm; left running [ran O.K.]

11/3/89 P5528 - 08:27 started - "stage limit error" <#26 - prob #10(65)

260* in
2 h.
finish 10:41

P5532 - 10:56 started - finish 13:11

P5548 - 13:24 started finish 15:39

P5554 15:56 started left running - [finished O.K.]

12/3/89 P5575 08:21 started - note - large scale factor!

P5580 10:47 started

P5590 13:15 started

P 442 15:48 started

P 2778 ~18:15

⇒ good star to determine D_s , q is #277 in file II (N21A)

so add 276 to initial file #

13/3/89 P5231 14:00 first plate with "orient" command fin: 16:13
reduced before starting next plateP5249 17:11 started and left on after reduction for
last plate, which looks great!

14/3/89 P4544 07:23 started

← { Had to rewind tape ^{stand.} so Wes
could print out

P5523 09:57

P5537 12:27

P5540 15:00 (Hance Smith was watching set-up)

P5559 17:28 left running

15/3/89 P6384 left running

N.B. for some reason, double EOF on
Tape 3 after file 115616/3/89 P6387 - started 17:10 left running - had a time
with "zero" in set-up - went crazy + aborted17/3/89 P6387 started 14:57 (after visit by "shadow minister")
2^h15^m

18/3/89 P6390 - started 17:30 - left running

18/3/89 P6393 started 08:40

P6396 " 11:08 - very dark!

The Sequence - on list II

	N7F	193
	N7G	194
	N9F	215
	N9G	214
	N9H	213
	N9I	212
	N19C	116
	N20A	115
V?	N21A	277
	N21B	278
	N31B	275
	N35A	189, 231
	N36	86
V?	N37	88
	N38	89
	N38A	51, 234, 279
	N38E	90
	N38F	50, 85, 133, 187, 233, 289
	N38H	135, 186
	N39	181
	N39A	235, 280
	N40A	183

(A91)	A21	56
	A22	55
	A24	54
	A25	53
	A26	52

A	59
B	60
D	61
E	58
F	66
G	65
H	64
I	63
J	67
K	69
L	72
M	73
N	74
O	80
P	79
Q	76
R	77
S	78
T	62
U	68
V	70
W	81
X	75
Y	57
Z	71

SMOOTHING

Preliminary Reduction of Standards.

Used for calib curves

(45)

SDO
5229

	B	5229	5242	5528	5532	Smoothed value	SDO 5590	SDO 5580	SDO 5575	SDO 5559	SDO 5548	SDO 5532	SDO 5528	SDO 5242	m- μ
N7F	16.69	0.19	0.18	-0.06	-0.10	16.71	16.75	16.53	16.78	17.13	16.99	16.81	16.77	16.53	16.52
N7G	18.47	1.30	1.18	0.94	0.83	18.36	17.38	17.28	17.50	17.68	17.60	17.56	17.46	17.11	17.13
N9F	16.09	-0.19	-0.17	-0.48	-0.48	16.03	0.98	1.08	0.86	0.68	0.76	0.80	0.90	1.25	1.23
N9G	16.69	0.15	0.20	-0.18	-0.14	16.63	16.42	16.24	16.50	16.83	16.66	16.51	16.51	16.20	16.22
N9H	16.66	0.13	0.16	-0.17	-0.20	16.55	-39	-21	-47	-80	-63	-48	-48	-17	-0.19
N9I	16.73	0.23	0.18	-0.09	-0.13	16.71	16.75	16.54	16.83	17.06	16.86	16.77	16.81	16.44	16.48
N19C	17.30	0.45	0.50	0.10	0.13	17.18	-12	0.09	-20	-43	-23	-19	-18	0.19	0.15
N20A	16.59	0.19	0.24	-0.13	-0.12	16.72	16.71	16.52	16.77	17.04	16.89	16.75	16.72	16.40	16.41
v? N21A	15.82	-0.28	-0.21	-0.53	-0.53	15.89	-16	0.03	-22	-49	-39	-20	-17	0.15	0.14
N21B	16.60	0.10	0.08	-0.17	-0.18	16.57	16.75	16.57	16.82	17.09	16.95	16.84	16.79	16.55	16.48
N31B	17.38	0.66	0.58	0.28	0.30	17.40	-04	0.14	-11	-38	-24	-13	-08	0.16	0.23
N35A	16.21	-0.05	-0.06	-0.32	-0.29	16.29	16.91	16.76	17.02	17.29	17.17	17.06	17.08	16.69	16.74
"	"	-0.04	-0.02	-0.30	-0.33		0.27	0.42	0.16	-11	0.01	0.12	0.10	0.49	0.44
N36	17.71	0.90	0.76	0.53	0.52	17.75	16.76	16.54	16.82	17.08	17.00	16.89	16.84	16.47	16.51
v? N37	18.83	1.41	1.25	1.00	0.96	18.48	-04	0.18	-10	-36	-28	-12	-12	0.25	0.19
N38	18.74	1.39	1.24	0.99	0.99	18.41	16.38	16.13	16.47	16.74	16.61	16.42	16.41	16.10	16.17
N38A	17.54	0.73	0.65	0.36	0.36	17.51	-49	-24	-58	-85	-72	-53	-52	-21	-0.28
"	"	0.71	0.65	0.37	0.38		16.64	16.48	16.74	17.05	16.93	16.75	16.73	16.50	16.47
"	"	0.71	0.65	0.37	0.38		-07	0.09	-17	-48	-36	-18	-16	0.07	0.10
N38E	17.67	0.86	0.79	0.41	0.42	17.63	17.06	16.87	17.13	17.34	17.26	17.12	17.13	16.82	16.75
N38F	16.87	0.27	0.26	0.09	0.02	16.95	0.34	0.53	0.29	0.06	0.14	0.28	0.27	0.58	0.65
"	"	0.29	0.28	0.10	0.00		16.55	-26	-03	-35	-66	-52	-29	-31	-06
"	"	0.30	0.26	0.09	0.02		-26	16.33	16.64	16.95	16.87	16.60	16.59	16.33	16.33
"	"	0.31	0.29	0.10	0.00		-27	-04	-35	-66	-52	-33	-29	-02	-0.03
"	"	0.27	0.29	0.05	0.01		17.15	16.97	17.23	17.53	17.39	17.25	17.26	16.97	16.89
"	"	0.31	0.29	0.09	0.01		0.60	0.78	0.52	0.22	0.36	0.50	0.49	0.78	0.86
N38H	17.64	0.93	0.84	0.60	0.54	17.81	17.43	17.34	17.52	17.75	17.62	17.53	17.53	17.21	17.10
"	"	0.89	0.81	0.59	0.54		1.05	1.14	0.96	0.73	0.86	0.95	0.94	1.27	1.38
N39	16.03	-0.22	-0.18	-0.55	-0.50	15.97	17.46	17.32	17.46	17.70	17.59	17.51	17.51	17.21	17.04
N39A	16.21	-0.07	-0.09	-0.39	-0.36	16.21	0.95	1.09	0.95	0.71	0.82	0.90	0.90	1.20	1.37
"	"	-0.08	-0.09	-0.36	-0.36		0.46	0.60	0.32	0.06	0.22	0.34	0.35	0.63	0.74
N40A	16.04	-0.18	-0.20	-0.44	-0.47	16.05	17.06	16.90	17.16	17.43	17.16	17.16	16.89	16.62	16.78
							0.45	0.62	0.36	0.08	0.19	0.36	0.36	0.62	0.70
							0.43	0.60	0.36	0.09	0.22	0.36	0.35	0.61	0.70
							17.13	16.94	17.25	17.51	17.35	17.22	17.22	16.82	16.83
							0.50	0.69	0.38	0.12	0.28	0.41	0.41	0.81	0.80
							0.08	0.36	0.04	-26	-16	0.02	0.09	0.28	0.27
							0.06	0.35	0.06	-25	-16	0.01	0.09	0.29	0.30
							16.86	16.89	16.89	-24	-17	0.02	0.08	0.27	0.31
							0.09	0.33	0.08	-26	-16	0.01	0.06	0.30	0.29
							0.11	0.35	0.05	-25	-16	0.00	0.09	0.30	0.30
							0.10	0.36	0.07	-26	-15	0.01	0.08	0.30	0.32
							0.61	0.80	0.53	0.27	0.41	0.52	0.56	0.78	0.90
							17.21	17.29	17.55	17.39	17.29	17.24	17.02	16.93	16.93
							0.60	0.81	0.52	0.26	0.42	0.51	0.58	0.80	0.86
							16.38	16.21	16.49	16.81	16.61	16.46	16.52	16.15	16.20
							-41	-24	-52	-84	-64	-49	-55	-18	-0.23
							16.53	16.26	16.26	16.59	16.59	16.51	16.49	16.25	16.23
							-32	-05	-41	-66	-58	-36	-38	-09	-0.08
							-31	7	16.63	16.87	16.57	16.56	16.30	16.22	16.22
							16.41	16.23	16.51	16.81	16.69	16.51	16.49	16.25	16.23
							-31	-18	-46	-71	-64	-47	-44	-20	-0.18

SMOOTHING OF 9 STD plates

(47)

Used for calib curves

SDO
5229

		5229	5242	5526	5532	Smoothed Values	SDO 5590	SDO 5580	SDO 5575	SDO 5554	SDO 5548	SDO 5532	SDO 5528	SDO 5515	SDO 5505
A ₂₁	18.91	1.77	1.66	1.29	1.29	18.90	17.56	17.45	17.65	17.88	17.69	17.64	17.65	17.29	17.17
A ₂₂	18.28	1.27	1.00	0.89	0.87	18.26	1.34	1.45	1.25	1.02	1.21	1.26	1.25	1.61	1.73
A ₂₄	16.17	-0.06	-0.08	-0.37	-0.38	16.21	17.39	17.19	17.44	17.67	17.55	17.44	17.48	17.15	17.05
A ₂₅	18.53	1.44	1.23	1.03	0.96	18.50	0.87	1.07	0.82	0.59	0.71	0.82	0.78	1.11	1.21
A ₂₆	18.67	1.64	1.45	1.05	1.10	18.63	16.52	16.27	16.60	16.89	16.77	16.58	16.57	16.29	16.27
							-31	-0.06	-39	-68	-56	-37	-36	-0.8	-0.06
							17.46	17.32	17.51	17.74	17.63	17.57	17.52	17.24	17.10
							1.04	1.18	0.99	0.76	0.87	0.93	0.98	1.26	1.40
							17.45	17.36	17.59	17.79	17.71	17.59	17.69	17.19	17.03
							1.18	1.27	1.04	0.84	0.92	1.04	0.94	1.44	1.60
A	19.20	1.94	1.81	1.48	1.45	19.19	17.67	17.51	17.68	17.90	17.76	17.74	17.78	17.33	17.27
							1.52	1.68	1.51	1.29	1.43	1.45	1.41	1.86	1.92
B	20.73	3.40	3.17	2.75	2.78	20.67	17.76	17.75	17.80	18.03	17.98	17.88	18.00	17.25	17.23
							2.91	2.92	2.87	2.64	2.69	2.79	2.67	3.42	3.42
D	19.85	2.68	2.38	2.03	2.05	19.85	17.71	17.76	17.78	17.95	17.81	17.84	17.88	17.48	17.27
							2.14	2.09	2.07	1.90	2.04	2.01	1.97	2.37	2.58
E	19.86	2.62	2.39	2.05	2.10	19.86	17.80	17.73	17.74	17.94	17.84	17.85	17.85	17.49	17.24
							2.66	2.13	2.12	1.92	2.02	2.01	2.01	2.37	2.62
F	19.89	2.60	2.29	2.11	2.22	19.90	17.72	17.69	17.81	17.94	17.82	17.88	17.94	17.44	17.26
							2.18	2.21	2.09	1.96	2.08	2.02	1.96	2.46	2.64
G	20.59	3.62	3.12	2.69	2.89	20.67	17.73	17.86	17.78	17.92	17.87	17.95	17.99	17.32	17.26
							2.94	2.81	2.89	2.75	2.80	2.72	2.68	3.35	3.41
H	20.30	2.92	2.88	2.50	2.50	20.33	17.74	17.81	17.88	17.92	17.85	17.88	17.91	17.38	17.25
							2.59	2.52	2.45	2.41	2.48	2.45	2.42	2.95	3.08
I	19.82	2.51	2.33	2.00	2.12	19.83	17.76	17.66	17.77	17.98	17.82	17.85	17.90	17.44	17.30
							2.07	2.17	2.06	1.85	2.01	1.98	1.93	2.39	2.53
J	19.38	2.07	1.95	1.59	1.61	19.29	17.67	17.62	17.63	17.99	17.73	17.75	17.78	17.37	17.28
							1.62	1.67	1.66	1.30	1.56	1.54	1.51	1.92	2.01
K	19.90	2.72	2.58	2.05	2.12	19.92	17.76	17.70	17.79	17.98	17.90	17.84	17.92	17.43	17.18
							2.16	2.22	2.13	1.94	2.02	2.08	2.00	2.49	2.74
L	20.47	3.18	3.00	2.52	2.66	20.51	17.77	17.77	17.81	17.91	17.88	17.90	17.98	17.45	17.20
							2.74	2.74	2.64	2.60	2.63	2.61	2.53	3.06	3.31
M	20.61	3.37	3.42	2.82	2.69	20.63	17.74	17.83	17.89	18.05	17.84	17.93	17.95	17.21	17.18
							2.89	2.80	2.74	2.58	2.79	2.70	2.68	3.42	3.45
N	19.62	2.42	1.97	1.80	1.74	19.61	17.68	17.71	17.77	17.96	17.84	17.89	17.87	17.41	17.22
							1.93	1.90	1.84	1.65	1.77	1.72	1.74	2.20	2.39
O	20.94	3.52	3.41	2.90	2.93	20.89	17.71	17.83	17.82	18.03	17.76	17.94	17.95	17.27	17.30
							3.18	3.06	3.07	2.86	3.13	2.95	2.84	3.62	3.59
P	20.64	3.14	3.07	2.73	2.69	20.64	17.70	17.87	17.87	17.98	17.80	17.92	17.87	17.31	17.33
							2.94	2.77	2.77	2.66	2.84	2.72	2.77	3.33	3.31
Q	20.39	3.14	2.91	2.49	2.51	20.36	17.80	17.78	17.93	17.90	17.80	17.88	17.90	17.34	17.30
							2.56	2.58	2.43	2.46	2.56	2.48	2.46	3.02	3.06
R	20.84	3.54	3.31	2.80	3.00	20.81	17.71	17.83	17.80	17.95	17.76	17.84	17.99	17.57	17.33
							3.10	2.98	3.01	2.86	3.05	2.97	2.82	3.24	3.48
S	20.92	3.97	2.99	3.07	3.11	20.94	17.60	17.87	17.82	18.06	17.90	17.88	17.98	17.51	17.14
							3.34	3.07	3.12	2.88	3.04	3.06	2.96	3.43	3.80
T	19.95	2.76	2.41	2.08	2.13	19.95	17.73	17.67	17.80	17.94	17.82	17.90	17.95	17.46	17.29
							2.22	2.28	2.15	2.01	2.13	2.02	2.00	2.49	2.66
U	18.44	1.49	1.30	0.98	0.95	18.45	17.42	17.27	17.54	17.76	17.61	17.54	17.58	17.17	17.07
							1.03	1.18	0.91	0.69	0.84	0.91	0.87	1.28	1.38
V	18.24	1.27	1.12	0.86	0.88	18.32	17.41	17.20	17.47	17.71	17.57	17.48	17.50	17.18	17.06
							0.91	1.12	0.85	0.61	0.75	0.84	0.82	1.14	1.26
W	19.13	1.94	1.78	1.36	1.51	19.13	17.63	17.98	17.67	17.86	17.73	17.70	17.82	17.40	17.17
							1.50	1.65	1.46	1.27	1.40	1.43	1.31	1.73	1.96
X	19.00	1.88	1.75	1.48	1.47	19.07	17.64	17.44	17.71	17.85	17.76	17.67	17.76	17.39	17.21
							1.43	1.63	1.36	1.22	1.31	1.40	1.35	1.68	1.86
Y	18.63	1.53	1.34	1.14	1.07	18.67	17.49	17.33	17.58	17.75	17.71	17.65	17.61	17.24	17.19
							1.18	1.34	1.07	0.92	0.96	1.02	1.06	1.43	1.48
Z	19.57	2.36	2.02	1.79	1.86	19.58	17.72	17.56	17.82	17.98	17.86	17.72	17.84	17.52	17.29
							1.86	2.02	1.76	1.60	1.72	1.86	1.74	2.06	2.29
							17.46	17.30	17.47	17.70	17.64	17.54	17.53	17.24	17.11
C	18.46	1.31	1.21	0.99	0.93	18.46	1.09	1.16	0.99	0.76	0.82	0.92	0.93	1.22	1.35
							1.09	1.16	0.99	0.76	0.82	0.92	0.93	1.22	1.35

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USE			4-m Smoothed (9 plates)			f-m minis			Smoothed			Smoothed			60-in B		
		$\pm \sigma_B$	CCD PEP			f-m PEP			CCD/ PEP			f-m -PEP					
N7F	16.71	.05	16.69	+ .02	0.40	16.31	.05	16.30	+ .01			16.69					
N7G	18.36	.08	18.47	- .11	1.23	17.13	.05	17.25	- .12			18.44					
N9F	16.03	.03	16.09	- .06	1.08	14.95	.06	15.04	- .09			16.09					
N9G	16.63	.08	16.69	- .06	0.74	15.89	.04	15.99	- .10			16.65					
N9H	16.55	.06	16.66	- .11	0.76	15.79	.04	15.92	- .13			16.57					
N9I	16.71	.05	16.73	- .02	0.62	16.09	.04	16.11	- .02			16.71					
N9C	17.18	.06	17.30	- .12	0.83	16.35	.05	16.42	- .07			17.21					
N20A	16.72	.04	16.59	+ .13	-0.16	16.88	.05	16.72	+ .16			16.63					
N21A	15.89	.03	15.82	+ .07	0.81	15.08	.05	15.04	+ .04			15.92					
N21B	16.57	.04	16.60	- .03	0.86	15.71	.03	15.71	.00			16.60					
N31B	17.40	.04	17.38	+ .02	0.35	17.05	.04	17.05	.00			17.37					
N35A	16.29	.04	16.21	+ .08	-0.07	16.36	.03	16.24	+ .12			16.21					
N36	17.75	.02	17.71	+ .04	0.46	17.29	.03	17.19	+ .10			17.74					
N37	18.48	.04	18.83	(- .35)	1.45	17.03	.03	17.16	- .13			18.58					
N38	18.41	.06	18.74	(- .33)	1.42	16.99	.02	17.07	- .08			18.51					
N38A	17.51	.03	17.54	- .03	0.69	16.82	.04	16.86	- .04			17.52					
N38E	17.63	.07	17.67	- .04	1.36	16.27	.06	16.33	- .06			17.72					
N38F	16.95	.07	16.89	+ .08	- .10	17.05	.04	16.93	+ .12			16.87					
N38H	17.81	.05	17.64	+ .17	0.58	17.23	.02	16.99	+ .24			17.81					
N39	15.99	.06	16.03	- .04	0.77	15.20	.05	15.21	- .01			15.99					
N39A	16.21	.04	16.21	.00	0.90	15.31	.03	15.27	+ .04			16.25					
N40A	16.05	.04	16.04	+ .01	0.58	15.47	.03	15.45	+ .02			16.05					
A21	18.90	.03	18.91	- .01	0.92	17.98	.03	17.99	- .01			18.94					
A22	18.26	.02	18.28	- .02	0.72	17.54	.03	17.51	+ .03			18.28					
A24	16.21	.03	16.17	+ .04	0.91	15.30	.02	15.31	- .01			16.25					
A25	18.50	.04	18.53	- .03	1.05	17.45	.03	17.43	+ .02			18.56					
A26	18.63	.06	18.67	- .04	0.95	17.68	.07	17.68	.00			18.67					
A	19.19	.04	19.20	- .01	0.82	18.37	.03	18.36	+ .01			19.22					
B	20.67	.07	20.73	- .06	(0.27)	(20.40)	.11	20.38	(+ .02)			20.63					
C	18.46	.05	-	-	-0.13	18.59	.05	-	-			18.38					
D	19.85	.04	19.85	.00	0.67	19.18	.08	19.21	- .03			19.86					
E	19.86	.04	19.86	.00	0.87	18.99	.07	19.02	- .03			19.89					
F	19.90	.02	19.89	+ .01	0.95	18.95	.07	18.95	.00			19.94					
G	20.67	.05	20.59	+ .08	(0.13)	(20.54)	.11	20.42	(+ .12)			20.62					
H	20.33	.04	20.30	+ .03	(0.04)	(20.29)	.10	20.21	(+ .08)			20.27					
I	19.83	.03	19.82	+ .01	0.54	19.29	.07	19.27	+ .02			19.83					
J	19.29	.07	19.38	- .09	0.82	18.47	.07	18.55	- .08			19.32					
K	19.92	.04	19.90	+ .02	0.87	19.05	.06	19.04	+ .01			19.95					
L	20.51	.04	20.47	+ .04	(0.38)	(20.13)	.09	20.22	(- .09)			20.49					
M	20.63	.06	20.61	+ .02	(0.68)	(19.95)	.13	19.91	(+ .04)			20.64					
N	19.61	.05	19.62	- .01	0.59	19.02	.05	19.06	- .04			19.61					
O	20.89	.04	20.94	- .05	(0.29)	(20.60)	.15	20.66	(- .06)			20.86					
P	20.64	.06	20.64	.00	(0.07)	(20.57)	.16	20.61	(- .04)			20.58					
Q	20.36	.06	20.39	- .03	(0.72)	(19.64)	.11	19.63	(+ .01)			20.38					
R	20.81	.09	20.84	- .03	0.78	20.03	.08	20.10	- .07			20.83					
S	20.94	.09	20.92	+ .02	(0.44)	(20.50)	.19	20.76	(- .26)			20.92					
T	19.95	.04	19.95	.00	0.64	19.31	.03	19.28	+ .03			19.96					
U	18.45	.02	18.44	+ .01	1.43	17.02	.05	17.04	- .02			18.55					
V	18.32	.03	18.24	+ .08	-0.13	18.45	.04	18.37	+ .08			18.24					
W	19.13	.04	19.13	.00	0.86	18.27	.05	18.29	- .02			19.16					
X	19.07	.05	19.00	+ .07	-0.07	19.14	.07	19.06	+ .08			18.99					
Y	18.67	.04	18.63	+ .04	0.11	18.56	.04	18.50	+ .06			18.61					
Z	19.58	.07	19.57	+ .01	1.10	18.48	.05	18.51	- .03			19.64					

calibration curves - B plates

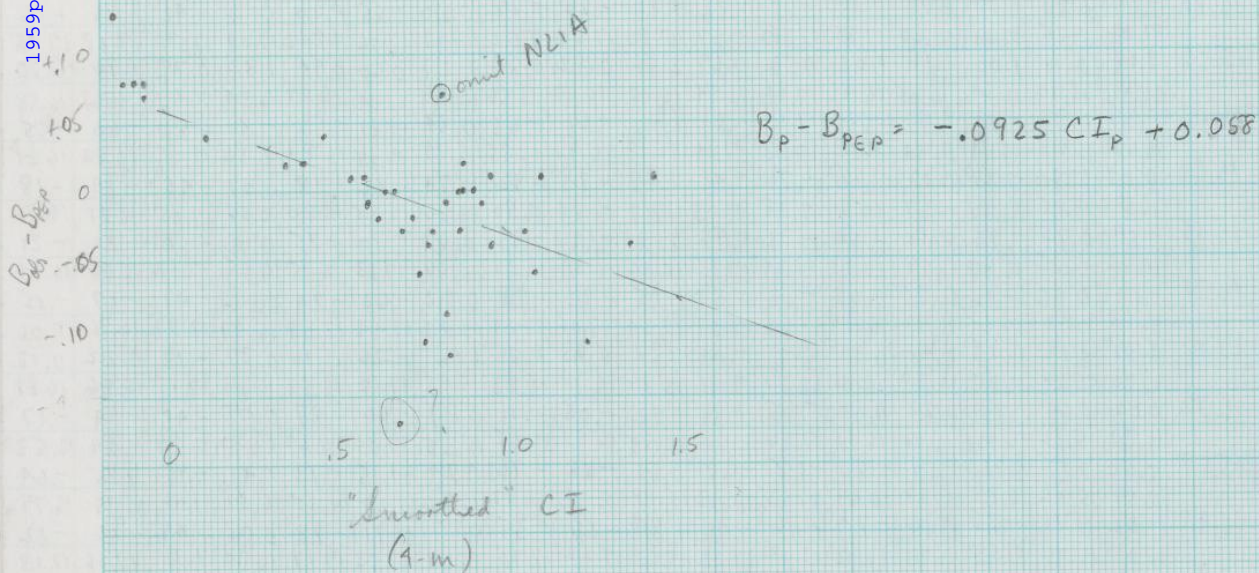
(49)

	B	P0442	P2778	P523	P4544	P5249	P5523	P5537	P4545	P6387	P6390	P2909	P4841	P6393	P6396	P6410	P4847	P6384
N7F	16.71	16.75	15.91	16.88	16.45	16.76	17.36	17.07	15.30	16.94	16.99	15.91	17.36	16.91	16.59	17.13	16.87	16.87
N7G	18.36	17.22	16.25	17.36	17.20	17.35	17.80	17.67	15.50	17.54	17.52	16.09	17.76	17.42	17.04	17.57	17.18	17.46
N9F	16.03	16.38	15.70	16.60	16.05	16.41	17.14	16.84	15.03	16.62	16.66	15.69	17.04	16.59	16.34	16.83	16.63	16.58
N9G	16.63	16.62	15.83	16.84	16.41	16.63	17.33	17.04	15.18	16.92	16.95	15.89	17.29	16.81	16.56	17.09	16.82	16.81
N9H	16.55	16.64	15.85	16.80	16.37	16.59	17.28	17.03	15.19	16.84	16.90	15.86	17.25	16.80	16.55	17.05	16.77	16.76
N9I	16.71	16.75	15.85	16.87	16.48	16.73	17.34	17.10	15.26	16.94	16.99	15.88	17.33	16.95	16.65	17.12	16.88	16.86
N19C	17.18	16.83	15.99	17.05	16.70	16.89	17.51	17.27	15.34	17.05	17.09	16.02	17.44	17.08	16.79	17.31	16.96	17.06
N20A	16.72	16.70	15.88	16.85	16.50	16.71	17.37	17.11	15.30	16.78	16.83	15.85	17.32	16.89	16.63	17.15	16.86	16.89
N21A	15.89	16.39	15.72	16.61	16.08	16.39	17.16	16.74	15.03	16.57	16.65	15.65	17.04	16.62	16.30	16.87	16.64	16.53
N21B	16.57	16.59	15.86	16.82	16.38	16.64	17.33	17.03	15.28	16.84	16.92	15.90	17.28	16.85	16.54	17.06	16.79	16.79
N31B	17.40	17.01	16.06	17.13	16.78	17.02	17.62	17.32	15.52	17.22	17.25	16.01	17.53	17.17	16.84	17.38	17.06	17.13
N35A	16.29	16.59	16.01	16.73	16.51	17.21	16.87	16.77	16.81	15.77	16.74	15.77	16.74	15.77	16.74	15.77	16.74	15.77
N36	17.75	17.08	16.19	17.25	16.94	17.06	17.64	17.48	15.49	17.25	17.30	16.03	17.60	17.31	16.90	17.45	17.07	17.30
N37	18.48	17.09	16.21	17.43	17.21	17.31	17.79	17.69	15.48	17.56	17.60	16.02	17.78	17.54	17.03	17.64	17.13	17.51
N38	18.41	17.10	16.30	17.33	17.25	17.22	17.75	17.64	15.41	17.49	17.49	16.09	17.72	17.41	17.03	17.58	17.16	17.46
N38A	17.51	17.02	16.07	17.22	16.81	17.65	17.41	15.49	17.27	16.06	17.57	16.06	17.57	16.06	17.57	16.06	17.57	16.06
N38E	17.63	16.97	16.13	17.22	16.95	17.01	17.69	17.47	15.45	17.29	17.32	16.08	17.62	17.24	16.93	17.46	17.09	17.24
N38F	16.95	16.15	0.99	0.00	0.38	0.17	-45	-24	1.47	-04	-07	1.01	-42	-05	0.28	-24	0.02	0.02
N38H	17.81	17.03	16.18	17.29	16.97	17.41	17.17	17.02	17.03	15.95	17.02	17.03	15.95	17.02	17.03	15.95	17.02	17.03
N39	15.97	16.31	15.65	16.59	16.06	16.39	17.13	16.81	15.02	16.58	16.60	15.59	17.03	16.62	16.32	16.83	16.61	16.55
N39A	16.21	16.35	15.81	16.21	16.21	16.21	16.21	16.21	16.21	16.21	16.21	16.21	16.21	16.21	16.21	16.21	16.21	16.21
N40A	16.05	16.42	15.65	16.65	16.08	16.40	17.11	16.78	15.08	16.65	16.61	15.67	17.06	16.65	16.34	16.88	16.61	16.57

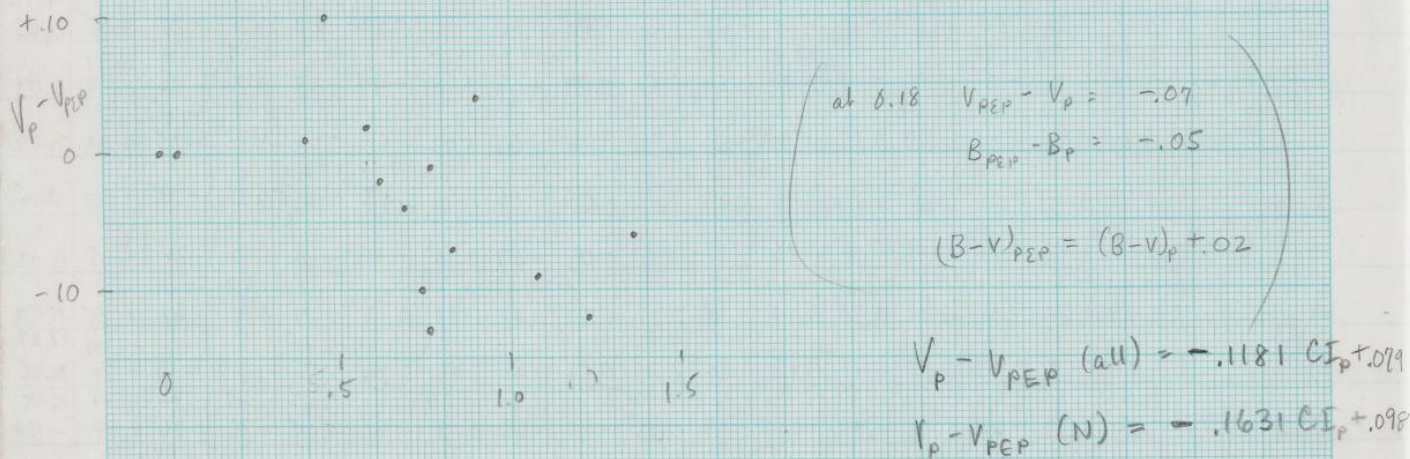
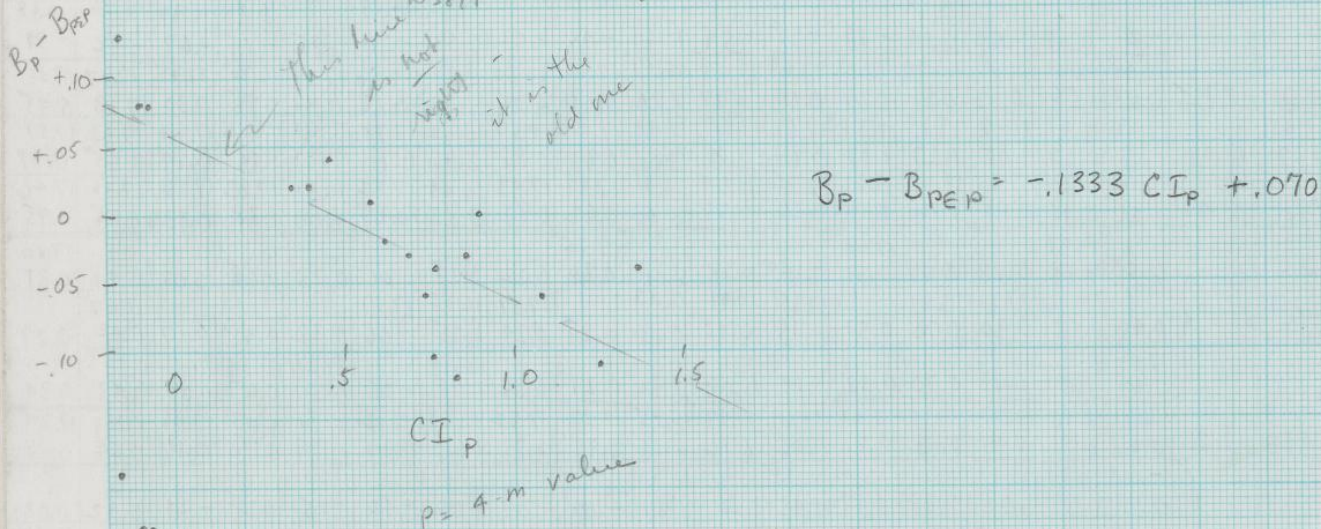
4m vs. PEP color effect

⊙ N38H

⊙ omit NL1A



only for top N stars minus 21 A. (and N37, N38!)



SEE ALSO NEXT PAGE

Calibration curves - B plates

(51)

1959phae.proj.2650.

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A21	18.90	17.28	16.09	17.49	17.42	17.38	17.84	17.79	15.47	17.62	17.57	15.94	17.90	17.55	17.01	17.61	17.16	17.58
		1.62	2.81	1.41	1.48	1.52	1.06	1.11	3.43	1.28	1.33	2.96	1.00	1.35	1.89	1.29	1.74	1.32
A22	18.26	17.20	16.24	17.31	17.11	17.27	17.72	17.58	15.57	17.48	17.51	16.12	17.70	17.42	16.96	17.56	17.18	17.40
		1.06	2.02	0.95	1.15	0.99	0.54	0.68	2.69	0.78	0.75	2.14	0.56	0.84	1.30	0.70	1.08	0.86
A24	16.21	16.52	15.78	16.74	16.18	16.49	17.20	16.87	15.18	16.74	16.75	15.75	17.14	16.76	16.45	16.94	16.73	16.67
		7.31	0.43	7.53	0.03	7.28	7.99	7.66	1.03	7.53	7.54	0.46	7.93	7.55	7.24	7.73	7.52	7.46
A25	18.50	17.22	16.25	17.42	17.18	17.25	17.81	17.69	15.56	17.55	17.52	16.06	17.75	17.46	17.04	17.63	17.14	17.49
		1.28	2.25	1.08	1.32	1.25	0.69	0.81	2.94	0.95	0.98	2.44	0.75	1.04	1.46	0.87	1.36	1.01
A26	18.63	17.23	16.27	17.34	17.30	17.26	17.74	17.77	15.60	17.97	17.50	15.97	17.63	17.54	16.95	17.56	17.03	17.47
		1.40	2.36	1.29	1.33	1.37	0.89	0.86	3.03	1.16	1.13	2.66	1.00	1.09	1.68	1.07	1.60	1.16
A	19.19	17.34	16.36	17.47	17.41	17.44	17.85	17.80	15.32	17.67	17.62	15.75	17.86	17.50	17.00	17.67	17.22	17.62
		1.85	2.83	1.72	1.78	1.75	1.34	1.39	3.87	1.52	1.57	3.44	1.33	1.69	2.19	1.52	1.97	1.57
B	20.67	17.44	17.54	17.58	17.19	17.19	17.79	17.68	17.65	17.68	17.65	17.37	17.22	17.37	17.22	17.53	16.63	17.70
		3.23	3.13	3.09	3.48	3.48	2.88	2.99	3.02	3.02	3.02	3.30	3.45	3.30	3.45	3.14	4.04	2.97
C	18.46	17.35	16.10	17.38	17.21	17.26	17.81	17.69	15.63	17.49	17.60	15.97	17.82	17.47	17.06	17.62	17.20	17.50
		1.11	2.36	1.08	1.25	1.20	0.65	0.77	2.83	0.97	0.86	2.49	0.64	0.99	1.40	0.84	1.26	0.96
D	19.85	17.41	15.98	17.52	17.57	17.32	17.89	17.86	15.74	17.78	17.74	15.69	17.78	17.66	16.11	17.76	17.07	17.61
		2.44	3.87	2.33	2.28	2.53	1.96	1.99	4.11	2.07	2.11	4.16	2.07	2.19	3.74	2.09	2.78	2.24
E	19.86	17.40	17.35	17.65	17.19	17.82	17.88	17.80	17.73	15.54	17.88	17.57	17.88	17.57	17.55	16.98	17.63	17.63
		2.46	2.51	2.21	2.67	2.04	1.98	2.06	2.13	4.32	1.98	2.29	2.29	2.31	2.88	2.23	2.23	2.23
F	19.90	17.37	15.78	17.56	17.62	17.36	17.88	17.90	15.84	17.55	17.63	15.44	17.88	17.39	16.54	17.66	17.10	17.57
		2.53	4.12	2.34	2.28	2.54	2.02	2.00	4.06	2.35	2.27	4.46	2.02	2.51	3.36	2.24	2.80	2.33
G	20.67	17.32	17.28	17.60	17.44	17.44	17.86	17.86	17.69	17.69	17.69	15.27	17.72	17.32	16.63	17.43	17.32	17.78
		3.35	3.39	3.07	3.23	3.23	2.81	2.98	2.98	2.98	2.98	5.40	2.95	3.35	4.04	3.24	3.35	2.89
H	20.33	17.64	16.06	17.46	17.54	17.25	17.73	17.90	15.05	17.68	17.66	17.82	17.51	16.48	17.78	17.16	17.77	17.77
		2.69	4.27	2.87	2.79	3.08	2.60	2.43	5.28	2.65	2.67	2.51	2.82	3.85	2.55	3.17	2.56	2.56
I	19.83	17.48	16.33	17.55	17.60	17.26	17.88	17.89	15.46	17.72	17.68	15.43	17.83	17.49	16.85	17.67	17.26	17.70
		2.35	3.50	2.28	2.23	2.57	1.95	1.94	4.37	2.11	2.15	4.40	2.00	2.34	2.98	2.16	2.57	2.13
J	19.29	17.35	16.09	17.54	17.56	17.34	17.84	17.84	15.58	17.66	17.73	15.72	17.88	17.59	16.82	17.71	17.23	17.63
		1.94	3.20	1.75	1.73	1.95	1.45	1.45	3.71	1.63	1.56	3.57	1.41	1.70	2.47	1.58	2.06	1.66
K	19.92	17.37	16.24	17.41	17.66	17.39	17.89	17.90	15.33	17.77	17.62	16.15	17.93	17.56	16.95	17.62	16.96	17.65
		2.55	3.68	2.51	2.26	2.53	2.03	2.02	4.59	2.15	2.30	3.77	1.99	2.36	2.97	2.30	2.96	2.27
L	20.51	17.27	17.27	17.70	17.47	17.81	17.84	17.84	17.81	17.57	17.88	17.56	17.88	17.56	17.68	17.34	17.79	17.79
		3.24	3.24	2.81	3.04	2.70	2.67	2.70	2.70	2.94	2.94	2.63	2.95	2.95	2.83	3.17	2.72	2.72
M	20.63	17.34	17.72	17.78	17.01	17.76	17.79	17.73	17.56	17.73	17.56	17.73	17.56	17.73	17.56	17.73	17.56	17.73
		3.29	2.91	2.85	3.62	2.87	2.84	2.90	3.07	3.07	3.07	3.18	4.09	2.98	3.47	2.83	2.83	2.83
N	19.61	17.37	16.46	17.45	17.51	17.40	17.91	17.87	15.56	17.71	17.76	15.65	17.82	17.59	16.62	17.59	17.00	17.71
		2.24	3.15	2.16	2.10	2.21	1.70	1.74	4.05	1.90	1.85	3.96	1.79	2.02	2.99	2.04	2.61	1.90
O	20.89	17.27	17.19	17.61	17.27	17.76	18.01	17.47	17.57	17.77	17.66	17.77	17.66	17.77	17.66	17.77	17.66	17.77
		3.62	3.70	3.28	3.62	3.13	2.98	3.42	3.32	3.42	3.32	3.12	3.23	3.23	3.27	3.54	3.26	3.26
P	20.64	17.30	17.28	17.35	17.90	17.72	17.72	17.72	15.89	17.84	17.65	17.84	17.65	17.84	17.65	17.84	17.65	17.84
		3.34	3.36	3.29	3.29	2.74	2.74	2.92	4.75	2.80	2.99	3.30	3.30	3.30	3.30	3.30	3.30	3.30
Q	20.36	17.36	16.36	17.32	17.76	17.18	17.80	17.82	17.60	15.74	17.86	17.86	17.86	17.86	17.86	17.86	17.86	17.86
		3.00	4.00	3.04	2.60	3.18	2.56	2.54	2.76	4.62	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50
R	20.81	17.33	17.29	17.77	17.18	17.87	17.80	17.70	17.75	15.73	18.02	17.50	17.70	17.75	15.73	18.02	17.50	17.70
		3.48	3.52	3.04	3.63	2.94	3.01	3.11	3.06	5.08	2.79	4.31	3.21	3.35	3.27	3.27	3.27	3.27
S	20.94	17.39	17.52	17.75	17.42	17.99	17.89	17.79	17.65	17.79	17.65	17.79	17.65	17.79	17.65	17.79	17.65	17.79
		3.55	3.42	3.19	3.52	2.95	3.05	3.15	3.29	3.29	3.29	3.00	3.00	3.00	3.00	3.00	3.00	3.00
T	19.95	17.46	16.18	17.39	17.58	17.31	17.86	17.87	15.25	17.68	17.67	15.86	17.85	17.59	17.64	17.11	17.68	17.68
		2.49	3.77	2.56	2.37	2.64	2.09	2.08	4.70	2.27	2.28	4.09	2.10	2.36	2.31	2.84	2.27	2.27
U	18.45	17.16	16.26	17.39	17.18	17.31	17.79	17.68	15.66	17.54	17.51	16.08	17.76	17.42	17.02	17.57	17.18	17.46
		1.29	2.19	1.06	1.27	1.14	0.68	0.77	2.79	0.91	0.94	2.37	0.69	1.03	1.43	0.88	1.27	0.99
V	18.32	17.26	16.15	17.43	17.20	17.23	17.82	17.67	15.55	17.51	17.55	16.04	17.72	17.41	17.07	17.61	17.18	17.44
		1.06	2.17	0.89	1.12	1.09	0.50	0.65	2.77	0.81	0.77	2.28	0.60	0.91	1.25	0.71	1.14	0.88
W	19.13	17.30	16.09	17.52	17.39	17.38	17.78	17.86	15.47	17.67	17.65	15.88	17.81	17.53	16.69	17.60	17.12	17.59
		1.83	3.04	1.61	1.74	1.75	1.35	1.27	3.66	1.46	1.48	3.25	1.32	1.60	2.44	1.53	2.01	1.54
X	19.07	17.52	16.28	17.47	17.36	17.25	17.74	17.82	15.53	17.61	17.61	15.78	17.86	17.49	16.87	17.71	17.21	17.57
		1.55	2.79	1.60	1.71	1.82	1.33	1.25	3.53	1.46	1.46	3.29	1.21	1.58	2.20	1.36	1.86	1.50
Y	18.67	17.35	16.23	17.46	17.28	17.30	17.83	17.75	15.60	17.61	17.57	15.97	17.85	17.39	17.00	17.56	17.23	17.54
		1.32	2.44	1.21	1.36	1.37	0.84	0.92	3.07	1.06	1.10	2.70	0.82	1.28	1.67	1.11	1.44	1.13
Z	19.58	17.36	16.20	17.46	17.62	17.35	17.90	17.86	15.22	17.72	17.72	15.87	17.81	17.56	16.70	17.64	17.25	17.68
		2.32	3.13	1.86	2.23	2.23	1.68	1.68	4.36	1.68	1.68	3.91	1.68	2.23	2.88	1.94	2.32	1.90

$(B-V)_p$

These are blue

Nemec PEP

$$P-PEP = -0.1333 (B-V)_p + 0.070$$

combined

P-CCD

Schommer et al. CCD

PEP slope

combined slope

more log

(53)

- 19/3/89 P6410 started 8:32
- P0441 - left running ~11:15 - first visual plate
- 20/3/89 P2779 - 8:16 am - Δx in orient constants looks much better.
- P2909 start 10:45
- P4545 1:45
- P4841 left running - broken; one orient star on crack, alas! Δx for orient @ large value
- 23/3/89 P5564 started at 2:15 pm \rightarrow 4:30 pm - not oriented properly
- P5563 started at 4:55 pm \rightarrow
only (15) ^(17??) stars done; then stopped
- 24/3/89 P5563 rescanned OK } These two are
- 25/3/89 P4846 scanned 2:10 pm \rightarrow } after a double check
- 26/3/89 P2907 - started 10:30 am.
- P2908 12:57 pm
- P4834 3:27 pm (Δx and Δy fairly large)
- P4842 5:57 pm (left running)
- 27/3/89 P4843 started 8:32 a.m.
- P5522 10:57 am (1:12 pm)
- P5555 1:22 pm (3:37)
- P5567 (off-center) 4:08 pm - ^{finish 6:23} had problem with "orient," probably because plate is off-center - W part is missing (neg. x) - a 5-star solution gave large Δx (~530 μ !); eliminating both star with largest neg. x gave poor Δx and Δy . So, I eliminated both W stars and only did a 3-star solution. TIME WILL TELL!
- 28/3 P5581 start 9:20
- P5582 start 16134 left running
- 29/3 P4847 - start 8:08 (10:22)
- P6384 10:33 (12:47)
- P6407 12:58 (3:13)
- P6413 ~3:20
- P6417 ~5:50

6/4 P 5554 BOUT 8:54 → 10:08
P5525 " 10:18 → 11:32
P5580 " 11:42
P5590
S3130 3:23

Decided that S 3045 with $V_{\text{sun}} \sim 18.0$ was just not worth trying to trace!

- 30/3 Scanned P6420 - but take drive set at 1600! so take care with
reductions which must be done at 1600 ^{not necessarily a/c to PBS}
- 31/3 Created "outer star file" for re-training early "non-orient" plates.
Created (PBS) "undistorted" star file for 60-mil
P6423 started ~2:30 pm.
S3134 - left running (outer filter knob at "6" - seems o.k.)
- 1/4 P6426 8:20 am - p.s. S3134 is beautiful!
P6429 10:52 am
P6431 1:31 pm
S3044 4:00 pm + left for Peter's
- 2/4 P6400 8:18 am very dark
~~P6403~~ Much too dark
S3046 10:49
S3050 1:17
S3051 3:37
S3052 ~5:45
- 3/4 More EOF problems yesterday
Then P6423 outer file
and S3053 left running
- 4/4 P5563 off-center started at 8:06
5564 " " 10:18
5565 " " 12:37
5567 " " 2:48
S3047 broken left running
- 5/4 work on early (non-orient) plates
P2778 BOUT 8:23 - 10:37 1^h 14^m
P5229 BOUT 9:47 - 11:01
P5242 " 11:11 - 12:25
P5528 " 12:35 - 1:49
P5532 " 1:58 - 3:12
P5548 " 3:23 - 4:37
S3054 60-w left running

Continued on prev. pg.

441
2779
2907
2908
4834
4842
5576
5581

8 plates

Smoothing V plates

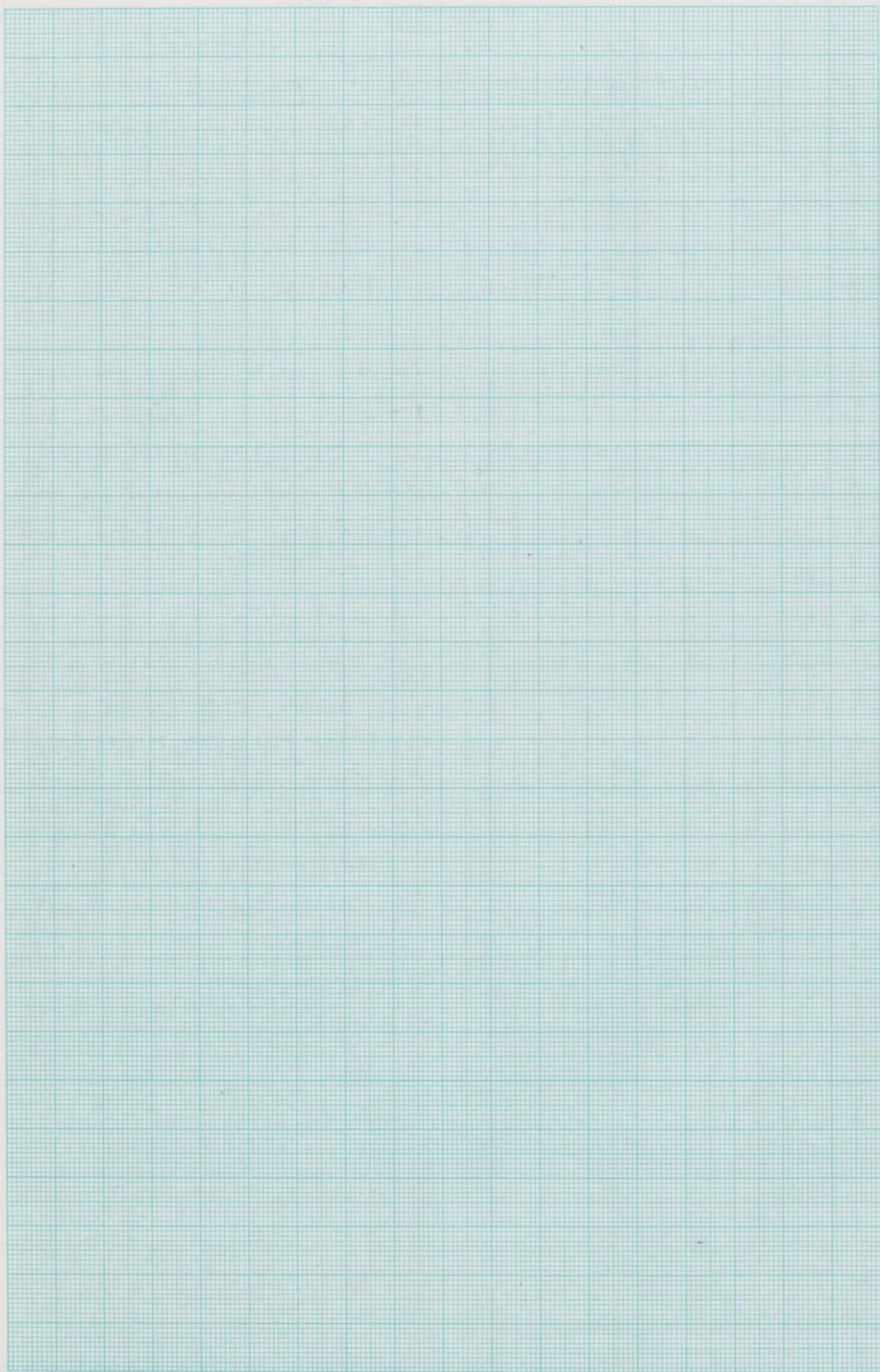
(57)

	CCD/ PEP	Smoothed										mon calib					
		441	2779	2907	2908	4834	4842	5576	5581	✓	4843	5522	5555	5582	5567	5576	
N7F	16.30	16.24 0.06 16.73	15.77 0.53 16.10	15.60 0.70 16.01	15.71 0.59 16.01	16.72 -42 17.07	16.31 -01 16.71		15.88 0.42 16.27	16.31	15.97 0.34 16.07	16.18 0.13 16.23	15.94 0.37 16.12	15.39 0.92 15.48	15.95 0.36 16.12	15.88 0.43 16.08	
N7G	17.25	0.52 15.74	1.15 15.39	1.24 15.23	1.24 15.28	0.18 16.33	0.54 15.93		0.98 15.51	17.13	1.06 15.59	0.90 15.82	1.01 15.51	1.65 14.99	1.01 15.52	1.05 15.24	
N9F	15.04	-70 16.16	-35 15.78	-19 15.61	-24 15.61	-1.29 16.67	-89 16.31		-47 15.91	14.95	-64 15.84	-89 16.13	-56 15.78	-04 15.29	-57 15.82	-29 15.66	
N9G	15.99	-17 16.14	0.28 15.71	0.38 15.59	0.38 15.61	-68 16.66	-32 16.31		0.08 15.90	15.89	0.05 15.80	714 16.01	0.11 15.73	0.60 15.19	0.07 15.80	0.23 15.61	
N9H	15.92	-22 16.16	0.21 15.69	0.33 15.61	0.31 15.61	-74 16.66	-39 16.33		0.02 15.97	15.79	-01 15.93	-22 16.13	0.06 15.89	0.60 15.36	-01 15.89	0.17 15.78	
N9I	16.11	-05 16.39	0.42 15.85	0.50 15.72	0.50 15.76	-55 16.77	-22 16.41		0.14 15.98	16.09	0.16 15.92	-04 16.12	0.20 15.97	0.73 15.41	0.20 15.92	0.31 15.81	
N19C	16.42	0.03 16.35	0.57 15.76	0.70 15.64	0.66 15.70	-35 16.72	0.01 16.34		0.44 15.93	16.35	0.43 16.05	0.23 16.15	0.38 16.05	0.94 15.98	0.43 15.99	0.54 16.00	
N20A	16.72	0.37 15.74	0.96 15.32	1.08 15.17	1.02 15.18	0.00 16.29	0.38 15.87		0.79 15.34	16.88	0.83 15.65	0.73 15.88	0.83 15.54	1.40 14.95	0.89 15.55	0.88 15.35	
N21A	15.04	-70 16.02	-28 15.56	-13 15.43	-14 15.49	-1.25 16.52	-83 16.15		-30 15.67	15.08	-57 15.82	-80 16.05	-46 15.76	0.13 15.15	-47 15.76	-27 15.61	
N21B	15.71	-31 16.56	0.15 15.99	0.28 15.84	0.22 15.87	-0.81 16.93	-44 16.55		0.04 16.17	15.71	-11 16.08	-34 16.22	-05 16.12	0.56 15.59	-05 16.13	0.10 16.04	
N31B	17.05	0.49 16.14	1.06 15.64	1.21 0.60	1.18 0.72	0.12 0.70	0.50 16.59		0.88 16.28	17.05	0.97 16.36	0.83 16.16	0.93 15.92	1.46 15.40	0.92 15.95	1.01 15.84	
N35A	16.24	0.12 16.14	0.60 15.53	0.72 15.55	0.70 15.55	16.59 -0.35	16.28 -04		0.49 15.80	16.36	0.38 15.97	0.21 16.16	0.43 15.92	0.94 15.40	0.42 15.95	0.51 15.84	
"		0.09 16.54	0.61 15.92	0.70 15.80	0.68 15.80	-35 16.89	-05 16.53		0.40 16.15		0.40 16.05	0.19 16.15	0.44 16.09	0.97 15.65	0.40 16.14	0.52 16.05	
N36	17.19	0.65 16.68	1.27 16.10	1.39 15.97	1.39 16.00	0.30 17.04	0.66 16.69		1.04 16.29	17.29	1.24 16.08	1.14 16.20	1.20 16.08	1.64 15.50	1.15 16.08	1.24 16.05	
N37	17.16	0.48 16.57	1.06 16.03	1.19 15.92	1.16 15.95	0.12 16.98	0.47 16.65		0.87 16.26	17.03	0.95 16.08	0.83 16.20	0.95 16.12	1.53 15.53	0.95 16.12	0.98 16.09	
N38	17.07	0.50 16.54	1.04 15.92	1.15 15.80	1.12 15.80	0.09 16.89	0.42 16.53		0.81 16.29	16.99	0.91 16.08	0.79 16.20	0.87 16.12	1.46 15.53	0.87 16.12	0.90 16.09	
N38A	16.86	0.38 16.50	0.96 15.91	1.02 16.93	1.00 16.56	-07 16.93	0.30 16.56		0.75 16.12	16.82	0.75 16.02	0.64 16.18	0.78 16.05	1.28 15.53	0.76 16.05	0.86 15.95	
N38C	16.33	0.36 16.36	0.96 15.77	1.04 15.72	1.03 15.67	-07 16.76	0.30 16.39		0.72 16.12	16.82	0.72 15.91	0.64 16.10	0.76 15.89	1.30 15.65	0.76 15.98	0.86 15.98	
N38E	16.27	0.34 16.36	0.92 15.77	1.01 15.72	1.02 15.67	-07 16.76	0.30 16.39		0.74 16.12	16.82	0.74 15.91	0.64 16.10	0.78 15.89	1.30 15.65	0.78 15.98	0.88 15.98	
N38F	16.93	0.49 16.43	1.09 16.79	1.22 16.74	1.13 15.79	0.14 16.79	0.50 16.93		0.92 16.02	17.05	0.92 16.02	0.86 16.19	0.94 16.11	1.47 15.58	0.95 16.10	1.01 16.12	
N38H	16.99	0.50 16.35	1.09 15.67	1.17 15.69	1.14 16.73	0.14 16.73	0.51 16.93		0.87 15.99	17.23	0.87 16.07	0.86 16.15	0.94 16.15	1.49 15.65	0.95 16.12	1.00 16.12	
N39	15.21	0.52 15.77	1.09 15.37	1.19 15.30	1.14 15.26	0.15 16.38	0.51 15.98		0.94 15.52	17.05	0.94 15.67	0.86 15.90	0.94 15.59	1.50 15.16	0.96 15.68	0.97 15.45	
N39A	15.27	0.53 15.85	1.06 1.08	1.21 1.19	1.16 1.13	0.14 0.13	0.50 0.50		0.89 0.92	15.31	0.89 0.98	0.86 0.85	0.94 0.94	1.46 1.46	0.94 0.96	0.97 1.01	
N40A	15.45	0.48 15.90	1.07 15.46	1.19 15.29	1.15 15.35	0.14 16.39	0.50 16.07		0.90 15.62	15.31	0.90 15.75	0.86 15.97	0.96 15.70	1.44 15.15	0.94 15.73	0.99 15.53	
		0.66 16.35	1.24 15.67	1.30 15.69	1.33 16.73	0.28 16.73	0.64 16.35		1.00 16.07	15.47	1.00 15.75	1.04 15.97	1.12 15.70	1.60 15.15	1.11 15.73	1.10 15.53	
		0.62 15.77	1.25 15.37	1.34 15.30	1.28 15.26	0.25 16.38	0.65 15.98		0.99 15.52	15.31	0.99 15.67	1.03 15.90	1.11 15.59	1.56 15.16	1.11 15.68	1.12 15.45	
		-54 15.83	-07 15.35	0.01 15.25	0.01 15.25	-1.05 16.31	-70 16.31		-23 15.50	15.31	-40 15.71	-66 15.91	-37 15.09	0.22 15.67	-36 15.67	-15 15.46	
		-57 15.90	-09 15.46	0.03 15.29	-02 15.35	-1.03 16.39	-70 16.07		-23 15.62	15.31	-41 15.75	-66 15.97	-35 15.70	0.23 15.15	-37 15.73	-16 15.53	

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	2044.1	2779	2907	2908	4834	9842			
N7F	16.30	16.27	16.36	16.24	16.29	16.36	16.37	16.31	±.05
N7G	17.04	17.13	17.13	17.13	17.12	17.13	17.21	17.13	.05
N9F	15.04	14.93	14.98	14.91	14.98	14.96	14.87	14.95	.06
N9G	15.93	15.90	15.87	15.93	15.90	15.89	15.82	15.89	.04
N9H	15.84	15.80	15.79	15.82	15.80	15.76	15.73	15.79	.04
N9I	16.13	16.11	16.06	16.11	16.11	16.04	(15.92)?	16.09	.04
N19C	16.26	16.33	16.36	16.34	16.39	16.39	16.40	16.35	.05
N20A	16.80	16.88	16.92	16.83	16.88	16.92	16.93	16.88	.05
N21A	15.04	15.03	15.07	15.08	15.03	15.10	15.18	15.08	.05
N21B	15.69	15.71	15.71	15.67	15.70	15.71	15.76	15.71	.03
N31B	16.99	17.01	17.09	17.05	17.04	17.08	17.07	17.05	.04
N35A	16.34	16.37	16.38	16.37	16.39	16.31	16.39	16.36	.03
N26	17.26	17.29	17.32	17.33	17.26	17.29	17.29	17.29	.03
N37	16.97	17.01	17.07	17.02	17.04	17.04	17.05	17.03	.03
N38	17.01	16.99	17.01	16.97	17.00	16.98	16.96	16.99	.02
N38A	16.78	16.87	16.83	16.83	16.78	16.80	16.86	16.82	.04
N38E	16.16	16.32	16.22	16.33	16.28	16.29	—	16.27	.06
N38F	17.01	17.04	17.07	17.00	17.06	17.08	17.11	17.05	.04
N38H	17.24	17.25	17.23	17.21	17.22	17.26	17.23	17.23	.02
N39	15.27	15.22	15.14	15.22	15.15	15.20	15.17	15.20	.05
N39A	15.27	15.35	15.31	15.30	15.34	15.31	15.32	15.31	.03
N40A	15.45	15.46	15.52	15.47	15.50	15.44	15.42	15.47	.03
A21	18.00	17.95	17.94	17.98	17.99	17.98	18.02	17.98	.03
A22	17.59	17.58	17.54	17.53	17.51	17.53	17.50	17.54	.03
A24	15.21	15.29	15.29	15.32	15.32	15.29	15.33	15.30	.02
A25	17.47	17.45	17.49	17.42	17.43	17.42	17.45	17.45	.03
A26	17.63	17.64	17.62	17.68	17.76	17.78	17.62	17.68	.07
A	18.32	18.34	18.39	18.35	18.38	18.38	18.40	18.37	.03
B	20.28	20.28	(20.76)	20.49	20.46	—	20.50	20.40	.11
C	18.63	18.52	18.64	18.61	18.60	18.57	18.53	18.59	.05
D	19.17	19.23	19.01	19.17	19.21	19.24	19.20	19.18	.08
E	18.98	18.93	19.00	19.13	19.00	18.96	18.94	18.99	.07
F	18.91	18.88	18.99	19.04	19.02	18.93	18.87	18.95	.07
G	20.58	20.57	(19.81)	20.35	20.62	—	20.57	20.54	.11
H	20.32	20.41	(20.16)	—	20.17	—	20.26	20.29	.10
I	19.24	19.28	(19.50)	(19.64)	19.33	19.39	19.20	19.29	.07
J	18.47	18.45	18.38	18.54	18.60	18.45	18.43	18.47	.07
K	19.12	19.00	19.05	18.97	19.02	19.05	19.11	19.05	.06
L	20.22	20.13	(20.38)	20.15	19.96	—	20.20	20.13	.09
M	20.14	19.90	(19.74)	19.78	19.95	—	19.96	19.95	.13
N	19.01	19.05	19.05	19.06	18.99	18.94	19.07	19.02	.05
O	20.46	—	(20.07)	—	20.58	—	20.76	20.60	.15
P	20.50	—	(20.57)	—	20.76	—	20.46	20.57	.16
Q	19.66	19.78	(19.52)	19.76	19.57	19.56	19.53	19.64	.11
R	20.02	19.91	(20.09)	20.03	20.13	—	20.04	20.03	.08
S	—	—	—	20.70	20.32	—	20.47	20.50	.19
T	19.34	19.31	19.27	19.29	19.33	19.30	19.35	19.31	.03
U	17.09	17.00	17.01	16.94	17.05	17.03	17.01	17.02	.05
V	18.46	18.46	18.42	18.49	18.37	18.47	18.49	18.45	.04
W	18.28	18.31	18.28	18.35	18.24	18.24	18.18	18.27	.05
X	19.14	19.12	19.07	19.06	19.20	19.24	19.12	19.14	.07
Y	18.59	18.59	18.52	18.52	18.51	18.60	18.56	18.56	.04
Z	18.51	18.50	18.38	18.53	18.51	18.47	18.45	18.48	.05

<1921



Centering of "set" plate

(61)

Plate center of P5554 (used for pos. file) is
about $\frac{1}{3}$ way from 90 \rightarrow 92

	<u>90</u>	<u>92</u>	<u>center</u>
$x =$	-1919	-1392	-1740 μm
$y =$	+1360	+712	+1140 μm

DISKO: [STETSON.PDS]NGC2210.60I

~~off center -~~

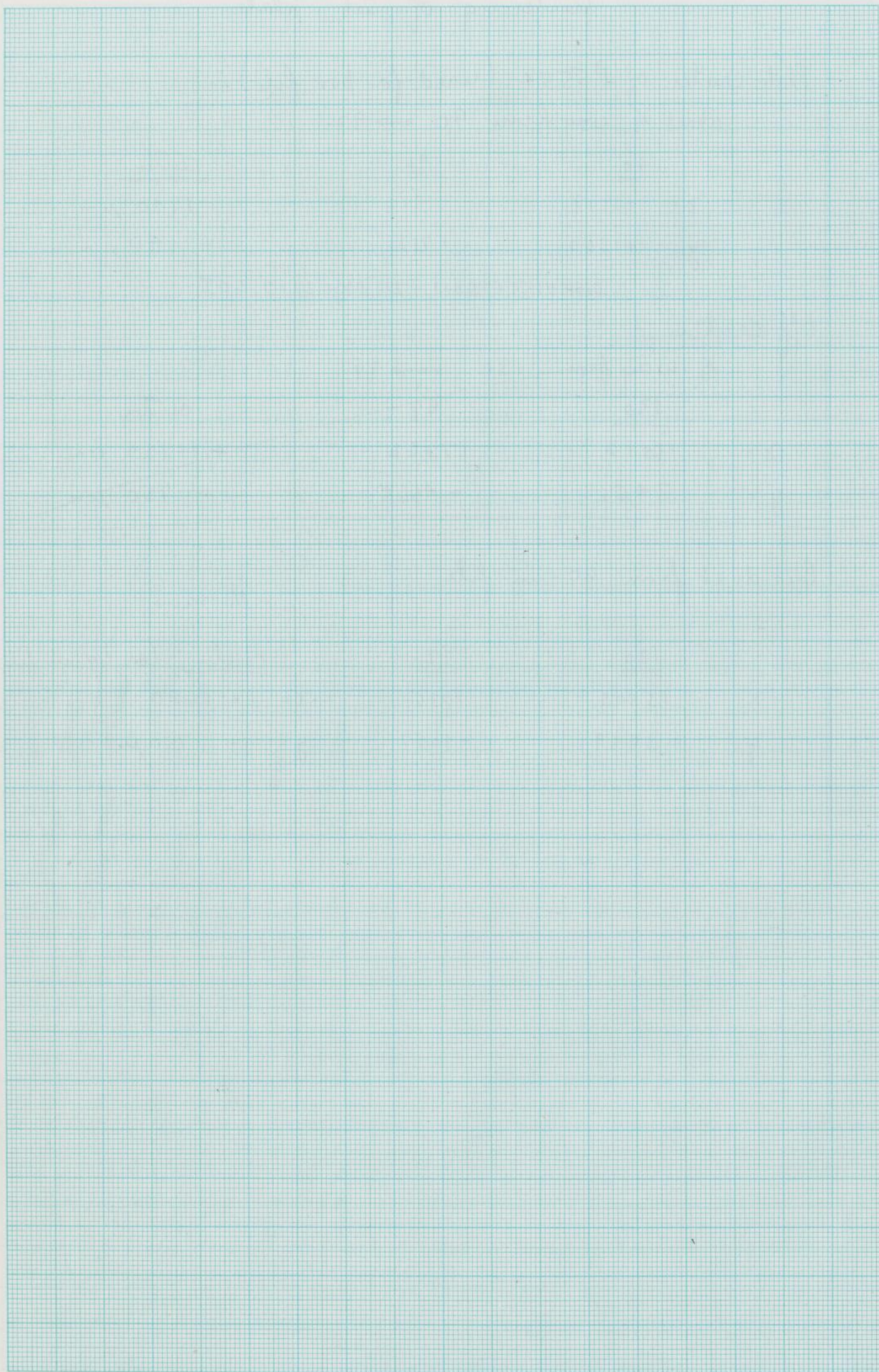
~~$\frac{1}{3}$ way from 130 \rightarrow 97~~

	<u>130</u>	<u>97</u>	<u>center</u>
$x =$	13516	17062	+14700 μm
$y =$	3451	-4665	+750 μm

But do it from 60-in file

just the same!

	<u>130</u>	<u>97</u>	<u>center</u> (on 60-in file)
$x =$	13503	17035	+14680
$y =$	3449	-4657	+750 μ



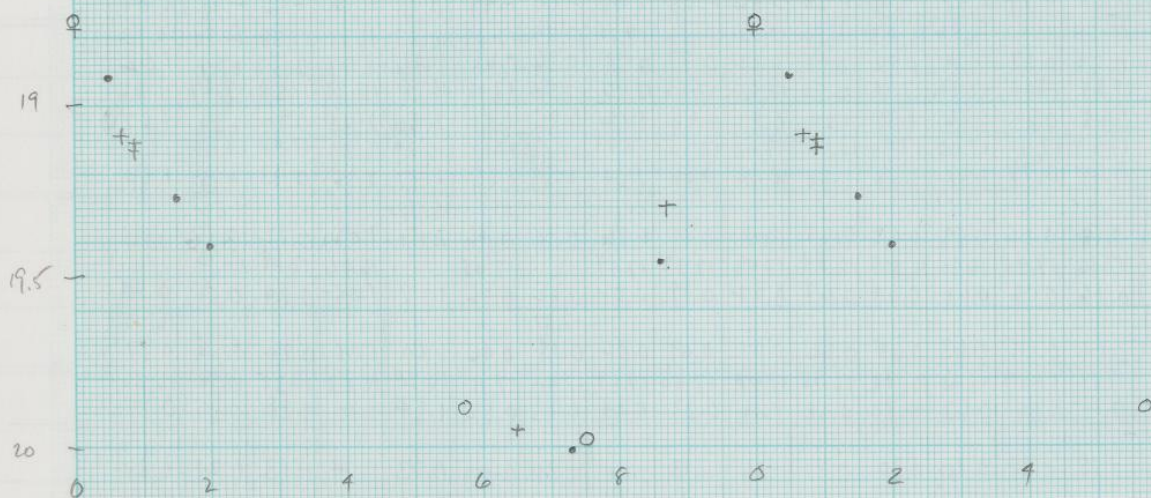
mine B calibrations

(63)

	B	6407	6413	6423	6426	6429	6446	5540	5559	5563	5564	5565	6400	6417	6420	6431
N7F	16.71	17.14	17.19	16.62	16.57	16.59	17.28	17.03	16.96	17.12	16.86	16.23	16.31	17.04	16.65	16.55
N7G	18.36	17.52	17.70	17.18	17.05	16.91	17.69	17.53	17.35	17.57	17.21	16.32	16.34	17.47	17.14	16.82
N9F	16.03	16.82	16.88	16.33	16.33	16.41	16.98	16.80	16.68	16.81	16.62	16.01	16.10	16.75	16.37	16.35
N9G	16.63	17.06	17.14	16.56	16.58	16.56	17.23	17.01	16.86	17.06	16.85	16.17	16.21	17.01	16.56	16.50
N9H	16.55	17.08	17.08	16.51	16.49	16.52	17.20	16.95	16.85	17.05	16.82	16.14	16.28	16.93	16.61	16.51
N9I	16.71	17.12	17.15	16.60	16.59	16.62	17.26	17.04	16.94	17.11	16.88	16.19	16.22	16.98	16.60	16.58
N19C	17.18	17.25	17.32	16.80	16.74	16.71	17.42	17.25	17.05	17.25	16.95	16.20	16.34	17.15	16.80	16.62
N20A	16.72	17.09	17.19	16.61	16.61	16.63	17.32	17.07	16.95	17.07	16.85	16.16	16.20	16.93	16.64	16.49
N21A	15.89	16.89	16.90	16.35	16.32	16.45	16.95	16.75	16.71	16.83	16.65	16.07	16.08	16.71	16.36	16.35
N21B	16.57	17.05	17.11	16.51	16.56	16.61	17.20	16.97	16.87	17.04	16.81	16.13	16.14	16.87	16.56	16.46
N31B	17.40	17.35	17.45	16.80	16.79	16.83	17.50	17.27	17.18	17.32	17.02	16.27	16.38	17.27	16.91	16.74
N35A	16.29	17.03	16.46	16.12	16.24	16.52	17.11	16.79	16.75	16.13	16.85	16.17	16.85	16.56	16.37	16.08
N36	17.75	16.95	16.96	16.42	16.52	16.83	16.83	16.94	16.94	16.94	16.94	16.13	16.13	16.49	16.49	16.49
N37	18.48	17.36	17.48	16.94	16.83	16.84	17.53	17.38	17.22	17.39	17.09	16.29	16.28	17.38	16.94	16.73
N38	18.41	17.55	17.65	17.12	17.10	16.88	17.66	17.56	17.36	17.53	17.18	16.18	16.23	17.58	17.17	16.86
N38A	17.51	0.93	0.83	1.36	1.38	1.60	0.82	0.92	1.12	0.95	1.31	2.30	2.25	0.90	1.31	1.62
N38E	17.63	17.53	17.63	17.00	17.02	16.83	17.65	17.53	17.33	17.52	17.13	16.24	16.26	17.48	17.13	16.91
N38F	16.95	0.88	0.78	1.41	1.39	1.58	0.76	0.88	1.08	0.89	1.28	2.17	2.15	0.93	1.28	1.50
N38H	17.81	0.14	0.06	0.59	0.63	0.67	0.03	0.19	0.33	0.15	0.46	1.19	1.02	0.22	0.58	0.80
N39	15.97	17.36	17.45	16.90	16.87	16.84	17.49	17.32	17.19	17.05	16.46	1.17	1.05	0.24	0.55	0.80
N39A	16.21	0.16	0.06	0.61	0.64	0.67	0.02	0.19	0.32	0.12	0.46	1.17	1.05	0.24	0.55	0.80
N40A	14.05	0.14	0.05	0.63	0.65	0.66	0.01	0.19	0.32	0.14	0.46	1.20	1.06	0.24	0.55	0.77
		17.41	17.59	17.00	16.91	16.95	17.47	17.40	17.19	17.40	17.11	16.29	16.53	17.35	16.94	16.86
		0.22	0.09	0.63	0.72	0.68	0.16	0.23	0.44	0.23	0.52	1.34	1.10	0.28	0.69	0.77
		-18	-28	0.30	0.30	0.31	-36	-13	-01	-21	0.00	0.73	0.74	-13	0.24	0.38
		-20	-27	0.30	0.30	0.32	-36	-12	-03	-21	0.01	0.73	0.75	-11	0.22	0.38
		-20	-27	0.29	0.30	0.32	-37	-12	-05	-21	0.01	0.73	0.72	-13	0.22	0.36
		-19	-29	0.29	0.33	0.29	-38	-13	-04	-20	0.01	0.73	0.72	-14	0.24	0.36
		-20	-28	0.30	0.31	0.32	-38	-12	-05	-21	0.01	0.74	0.73	-14	0.22	0.39
		-18	-28	0.31	0.32	0.32	-37	-11	-03	-21	0.01	0.73	0.74	-13	0.23	0.41
		0.44	0.31	0.85	0.93	1.04	0.26	0.40	0.59	0.41	0.67	1.51	1.39	0.44	0.82	1.04
		0.46	0.31	0.85	0.89	1.03	0.27	0.40	0.58	0.40	0.68	1.50	1.44	0.45	0.84	0.96
		16.79	16.89	16.38	16.34	16.45	16.95	16.79	16.68	16.81	16.65	16.00	16.01	16.69	16.34	16.37
		-82	-92	-41	-37	-48	-98	-82	-71	-84	-68	-03	-04	-72	-37	-40
		-72	-79	-25	-18	-28	-85	-63	-62	-74	-50	0.09	0.14	-62	-21	-19
		-72	-81	-25	-14	-30	-86	-62	-61	-75	-50	0.10	0.14	-62	-21	-15
		16.97	16.88	16.34	16.34	16.41	16.88	16.73	16.75	16.81	16.64	16.03	16.03	16.75	16.37	16.34
		-82	-92	-41	-37	-48	-98	-82	-71	-84	-68	-03	-04	-72	-37	-40

Just for fun $X/2$ in 12/81
= V20

				<u>.513</u>		<u>μ</u>	
5523	61.60	2.19	20.01	.73	6384	1.91	19.56
5528	61.68	1.63	19.96	.86	6387	2.09	19.82
					6390	2.30	20.07
5532	61.76	1.29	18.92	1.05	6393	2.44	20.02
5537	61.81	1.43	19.27	1.15	6396	3.01	19.7:
					6400	—	—
5540	61.84 →	7.72	19.41	1.20 ←			
5548	62.61	2.10	19.95	2.70	6407	1.87	19.95
					6410	2.01	19.68
5554	62.70	1.38	19.30	2.87	6413	2.08	19.81
5559	62.76	1.39	18.78	3.00 ←	6417	2.52	20.12
					6420	2.73	19.94
5563	62.80	1.45	19.09	3.07 ←	6423	2.86	19.9:
5564	62.81	1.91	19.13	3.09 ←	6426	—	—
					6429	—	—
5565	62.81	2.86	19.11	3.09 ←	6431	3.00	19.6:
5575	65.62	2.10	19.89	8.57			
5580	65.71	2.27	19.98	8.75			
5590	65.84	1.24	18.76	9.00			



More B calibrations, cont'd.

(65)

	B	6407	6413	6423	6426	6429	6446	5540	5559	5563	5564	5565	6400	6417	6420	6431
A21	18.90	17.57	17.68	16.94	16.72	16.88	17.82	17.68	17.34	17.63	17.22	16.30	16.43	17.56	17.19	16.76
		1.33	1.22	1.96	1.98	2.02	1.08	1.22	1.56	1.27	1.68	2.60	2.47	1.34	1.71	2.14
A22	18.26	17.49	17.63	17.12	16.96	16.76	17.68	17.52	17.35	17.51	17.15	16.25	16.28	17.48	17.15	16.93
		0.77	0.63	1.14	1.30	1.50	0.58	0.74	0.91	0.75	1.11	2.05	1.98	0.78	1.11	1.33
A24	16.21	16.95	17.02	16.47	16.43	16.49	17.06	16.83	16.83	16.92	16.71	16.11	16.14	16.81	16.42	16.39
		-74	-81	-26	-22	-28	-85	-62	-62	-71	-50	0.10	0.07	-60	-21	-18
A25	18.50	17.54	17.75	17.09	17.00	16.88	17.73	17.55	17.35	17.61	17.23	16.23	16.40	17.57	17.20	16.76
		0.96	0.75	1.41	1.50	1.62	0.77	0.95	1.15	0.89	1.27	2.27	1.90	0.93	1.30	1.74
A26	18.63	17.45	17.65	16.97	16.97	16.68	17.61	17.65	17.38	17.58	17.17	16.33	16.21	17.45	17.09	16.84
		1.18	0.98	1.46	1.46	1.95	1.02	0.98	1.25	1.05	1.46	2.30	2.42	1.18	1.54	1.79
A	19.19	17.58	17.79	17.11	16.96	16.61	17.81	17.62	17.39	17.67	17.21	16.31		17.67	17.36	16.82
		1.61	1.40	2.08	2.23	2.58	1.38	1.57	1.80	1.52	1.98	2.88	—	1.52	1.83	2.37
B	20.67	17.27	17.61		16.76			17.63	17.35	17.69	17.05	(16.37)		17.50	17.07	
		3.40	3.06	—	3.91	—	—	3.04	3.32	2.98	3.62	(4.30)	—	3.17	3.60	—
C	18.46	17.54	17.67	17.11	17.15	16.89	17.76	17.56	17.40	17.54	17.21	16.30	16.36	17.52	17.21	16.87
		0.92	0.79	1.35	1.31	1.57	0.70	0.90	1.06	0.92	1.25	2.16	2.10	0.94	1.25	1.59
D	19.85	17.67	17.62	17.11	16.68	16.72	17.81	17.25	17.46	17.59	17.30	16.27	?	17.67	17.34	16.93
		2.18	2.23	2.74	3.17	3.13	2.04	2.10	2.39	2.26	2.55	3.58	4.89	2.18	2.51	3.42
E	19.86	17.40	17.60	17.22	17.02	16.33	17.78	17.65	17.43	17.69	17.11	16.39		17.56	17.39	
		2.46	2.26	2.64	2.84	3.53	2.08	2.21	2.43	2.17	2.75	3.52	—	2.30	2.47	—
F	19.90	17.60	17.75	17.00	16.85	16.51	17.78	17.62	17.38	17.58	17.22	16.04		17.45	17.26	
		2.30	2.15	2.90	3.05	3.39	2.12	2.28	2.52	2.32	2.68	3.86	—	2.45	2.64	—
G	20.67	17.95	17.70		16.67		17.83	17.71	17.32	17.58	17.30			17.71	17.41	
		2.92	2.97	—	4.00	—	2.84	2.96	3.35	3.09	3.37	—	—	2.96	3.26	—
H	20.33	17.58	17.74	16.55	16.70		17.69	17.65	17.32	17.63	17.28	15.97		17.60	17.05	16.92
		2.75	2.59	3.78	3.63	—	2.64	2.68	3.01	2.70	3.05	4.36	—	2.73	3.28	3.41
I	19.83	17.58	17.59	16.95	17.10	16.50	17.80	17.71	17.43	17.59	17.23	16.40		17.61	17.15	
		2.25	2.24	2.88	2.73	3.13	2.03	2.12	2.40	2.24	2.60	3.43	—	2.22	2.68	—
J	19.29	17.54	17.74	17.22	17.01	16.87	17.69	17.68	17.40	17.69	17.25	16.21	16.42	17.61	17.27	16.79
		1.75	1.55	2.07	2.28	2.42	1.60	1.61	1.89	1.60	2.04	3.08	2.87	1.68	2.02	2.50
K	19.92	17.54	17.67	17.00	16.94		17.82	17.66	17.44	17.63	17.33	16.21	?	17.61	17.34	
		2.38	2.25	2.92	2.98	—	2.10	2.26	2.48	2.29	2.59	3.71	2.54	2.31	2.58	—
L	20.51	17.39	17.60	16.98	17.11		17.78	17.76	17.32	17.59	17.33			17.62	17.38	16.30
		3.12	2.91	4.53	3.40	—	2.73	2.75	3.19	2.92	3.18	—	—	2.89	3.13	4.21
M	20.63	17.45	17.61		16.63		17.75	17.58	17.03		17.18			17.51	17.17	
		3.18	3.02	—	4.00	—	2.88	3.05	3.60	—	3.45	—	—	3.12	3.46	—
N	19.61	17.69	17.78	17.04	17.01	16.43	17.79	17.74	17.48	17.70	17.37	16.19		17.63	17.31	16.50
		1.92	1.83	2.57	2.60	3.18	1.82	1.87	2.13	1.91	2.24	3.42	—	1.98	2.30	3.11
O	20.89	17.59	17.37	17.14			17.66	17.79		17.40				17.51	16.98	
		3.30	3.52	4.75	—	—	3.23	3.10	—	3.49	—	—	—	3.38	3.91	—
P	20.64	17.72	17.48	17.13				17.67	17.23	17.63	17.17			17.54	17.32	
		2.92	3.16	3.51	—	—	—	2.97	3.41	3.01	3.47	—	—	3.10	3.32	—
Q	20.36	17.44	17.44	16.98			17.71	17.69	17.44	17.54	17.27	16.13		17.57	17.59	16.62
		2.92	2.92	3.38	—	—	2.65	2.67	2.92	2.82	3.05	4.23	—	2.79	2.77	3.74
R	20.81	17.60	17.46	16.97			17.79	17.61	17.59	17.53	17.26			17.50	17.18	
		3.21	3.35	3.84	—	—	3.02	3.20	3.22	3.28	3.55	—	—	3.31	3.63	—
S	20.94	17.69	17.76	17.16	16.76		17.64	17.79	17.36	17.54	17.12			17.48	17.61	
		3.25	3.18	3.78	4.18	—	3.30	3.15	3.58	3.41	3.82	—	—	3.46	3.33	—
T	19.95	17.48	17.76	17.22	16.49	16.99	17.66	17.69	17.32	17.65	17.23	16.26		17.59	17.42	16.30
		2.47	2.19	2.73	3.46	2.96	2.29	2.26	2.63	2.30	2.72	3.69	—	2.36	2.53	3.65
U	18.45	17.55	17.70	17.08	17.09	16.78	17.64	17.57	17.34	17.59	17.14	16.23	16.17	17.54	17.22	16.85
		0.90	0.75	1.37	1.36	1.67	0.81	0.88	1.11	0.86	1.31	2.22	2.28	0.91	1.23	1.60
V	18.32	17.53	17.67	17.10	17.01	16.83	17.70	17.56	17.33	17.56	17.19	16.27	16.00	17.49	17.16	16.80
		0.79	0.65	1.22	1.31	1.49	0.62	0.76	0.99	0.76	1.13	2.05	2.32	0.83	1.16	1.52
W	19.13	17.59	17.71	17.21	17.28	16.63	17.76	17.73	17.48	17.60	17.19	16.18	16.52	17.58	17.22	16.62
		1.54	1.42	1.92	1.85	2.50	1.37	1.40	1.65	1.53	1.94	2.95	2.61	1.55	1.91	2.51
X	19.07	17.54	17.75	17.20	16.91	16.31	17.76	17.73	17.39	17.60	17.19	16.20		17.58	17.15	16.31
		1.53	1.32	1.87	2.16	2.76	1.31	1.44	1.68	1.47	1.88	2.89	—	1.49	1.92	2.76
Y	18.67	17.57	17.69	17.03	17.04	16.79	17.78	17.59	17.39	17.56	17.21	16.30	16.10	17.51	17.28	16.83
		1.10	0.98	2.64	1.63	1.88	0.89	1.08	1.28	1.11	1.46	2.37	2.57	1.16	1.39	1.84
Z	19.58	17.63	17.74	17.07	16.99	16.74	17.66	17.61	17.43	17.64	17.18	16.28		17.67	17.31	
		1.93	1.84	2.51	2.59	2.87	1.92	1.97	2.15	2.88	2.40	2.30	—	1.91	2.27	—

In NE Quadrant

recd no.

64 - 21, 84, 87, 134

11 - 28, 91

9 92

96 93

97 94

7 95

234 96

228 97

NE1 108

NE2 109

NE3 110

NE4 111

NE5 112

46 113

47 114

blend sl. to SW
blend sl. to SW

in a fairly close group

NE Stars: - by Quality Group

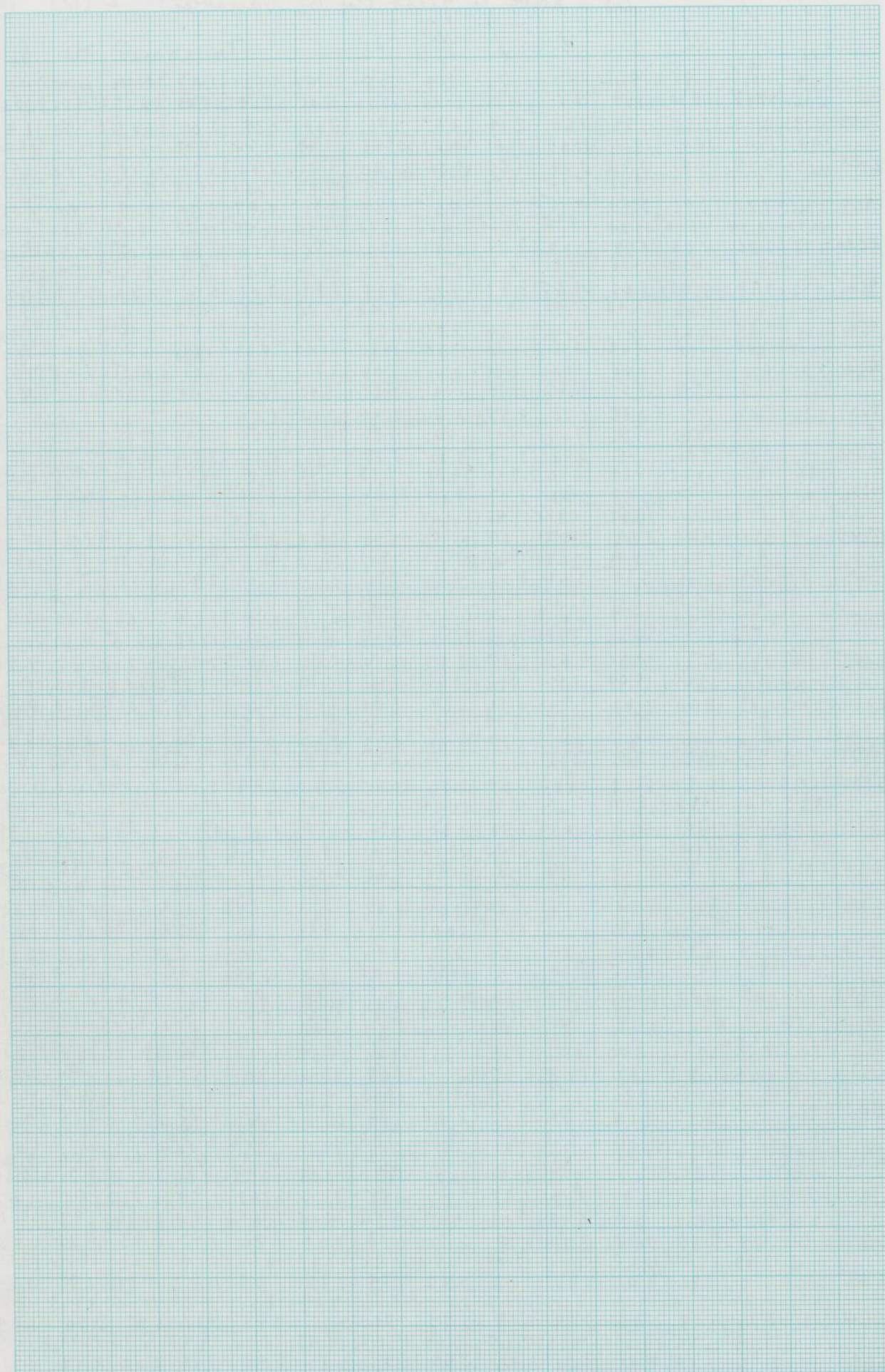
1 st	4544	19.48	18.55	19.37	18.11	19.81	20.9	27.78	19.49	18.54	19.43	18.15	20.00
	5229	19.58	18.62	19.38	18.20	19.79		48.46	19.49	18.63	19.38	18.17	19.86
>>20.9	5242	19.51	18.59	19.47	18.31	19.80		48.47	19.42	18.67	19.38	18.21	19.80
	5528	19.57	18.65	19.45	18.14	19.94		55.59	19.44	18.64	19.40	18.26	19.71
	5532	19.54	18.65	19.33	18.19	19.89		55.63	19.57	18.63	19.46	18.21	19.86
	5548	19.51	18.63	19.38	18.16	19.84		55.64	19.49	18.67	19.39	18.26	19.93
	5554	19.53	18.59	19.49	18.22	19.81		63.96	19.21	18.61	19.41	18.24	19.61
	5575	19.53	18.62	19.43	18.19	19.88		64.07	19.81	18.72	19.60	18.36	20.00
	5580	19.55	18.59	19.37	17.98	19.83		64.23	19.67	18.62	19.41	18.18	20.31
	5590	19.60	18.63	19.40	18.09	19.87		64.26	19.68	18.69	19.35	18.09	19.81
		19.54	18.61	19.41	18.16	19.85			19.52	18.64	19.42	18.21	19.89
		±.04	±.03	±.05	±.09	±.05			±.17	±.05	±.07	±.07	±.19
2 nd													
>>20.9								29.09	19.46	18.51	19.18	18.27	19.61
	492	19.45	18.64	19.41	18.33	19.85	20.9	45.45	19.36	18.57	19.18	18.30	19.41
	48.41	19.55	18.61	19.34	18.15	19.82		55.65	19.45	18.65	19.42	18.30	20.01
	5231	19.49	18.60	19.41	18.23	19.88		64.29	19.21	18.55	19.21	18.17	19.61
	5249	19.55	18.63	19.39	18.21	19.83				18.57		18.26	
	5523	19.64	18.68	19.51	18.23	19.91				±.06		±.06	
	5537	19.52	18.67	19.40	18.13	19.87							
	5540	19.57	18.60	19.47	18.20	19.84		30.44	19.25	18.49	19.41	18.23	19.61
	63.64	19.50	18.54	19.43	18.15	19.89		30.46	19.40	18.50	19.35	18.32	19.64
low?	63.67	19.73	18.89	19.54	18.49	20.00		30.47	19.49	18.60	19.15	18.26	19.63
	63.90	19.66	18.72	19.46	18.39	19.97		30.50	19.29	18.51	19.18	18.30	19.66
	63.93	19.54	18.66	19.38	18.22	19.90		30.51	19.34	18.60	19.18	18.31	19.64
	64.10	19.50	18.65	19.43	18.25	19.82		30.52	19.39	18.53	19.13	18.25	19.57
	64.17	19.55	18.61	19.33	18.27	19.78		30.53	19.30	18.66	19.38	18.41	19.72
	64.20	19.60	18.59	19.48	18.22	19.97		30.54	19.20	18.52	19.21	18.17	19.72
		19.56	18.65	19.43	18.25	19.88		31.30	19.29	18.62	19.22	18.20	19.85
		±.08	±.08	±.06	±.10	±.06		31.34	19.52	18.62	19.36	18.32	19.84
									19.35	18.57	19.26	18.28	19.68
									±.10	±.06	±.10	±.07	±.10

Let's have a first try at variables!

I (B)

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✓ RR? (4)	✓ RR? (2)	✓ hl?	✓ hl?	✓	✓	✓ hl? lp?	✓								mm?	mm?
64	11	9	96	97	7	234	228	NE1	NE2	NE3	NE4	NE5			46	47
20.6:	19.38	19.30	19.29	18.89	19.51	20.15	19.31	19.45	18.64	19.41	18.33	19.85	18.68	19.01		
3.23:	2.02	1.95	1.94	1.60	2.14	2.75	1.96	2.08	1.39	2.05	1.13	2.45	1.92	1.70		
19.9:	19.41	20.0:	19.06	20.0:	19.8:	20.2:	19.43	19.44	18.54	19.43	18.15	20.0:	18.21	19.07		
3.67:	3.18	3.91	2.82	3.84	3.65	4.08	3.20	3.21	2.30	3.20	1.93	3.82	1.98	2.83		
20.7:	19.21	18.84	19.61	19.8:	18.92	20.2:	19.41	19.46	18.51	19.18	18.27	19.6:	18.13	19.05		
5.06:	3.38	2.91	3.90	4.15	3.01	4.65	3.63	3.70	2.47	3.34	2.19	3.90	2.05	3.17		
20.42	19.34	19.00	19.24	19.95	19.24	20.06	19.38	19.48	18.55	19.37	18.11	19.81	18.38	18.15		
2.75	1.86	1.62	1.79	2.32	1.79	2.41	1.89	1.96	1.31	1.88	1.03	2.21	1.20	1.05		
20.1:	19.35	19.04	19.18	19.9:	19.26	19.6:	19.36	19.36	18.57	19.18	18.30	19.4:	18.53	18.28		
4.92	3.88	3.49	3.66	4.65	3.77	4.25	3.89	3.89	3.01	3.66	2.74	3.99	2.97	2.72		
19.49	19.19	19.86	19.42	19.97	19.79	19.92	19.48	19.55	18.61	19.34	18.15	19.82	18.76	18.25		
1.64	1.34	2.01	1.57	2.12	1.94	2.07	1.63	1.70	0.82	1.49	0.46	1.97	0.95	0.53		
20.03	19.48	19.88	19.62	18.96	19.83	19.90	19.35	19.49	18.63	19.38	18.17	19.86	18.74	18.24		
2.25	1.70	2.10	1.84	1.20	2.05	2.12	1.58	1.71	0.90	1.61	0.53	2.08	1.00	0.58		
20.0:	19.5:	19.8:	19.5:	18.87	19.7:	19.9:	19.6:	19.42	18.67	19.38	18.21	19.8:	18.76	18.21		
2.96	2.36	2.72	2.36	1.70	2.55	2.86	2.40	2.28	1.50	2.24	1.04	2.70	1.59	1.04		
—	19.6:	20.0:	19.8:	19.04	19.10	19.8:	19.3:	19.2:	18.50	19.4:	18.23	19.6:	18.50	18.27		
—	3.90	4.40	4.15	2.93	3.00	4.22	3.28	3.16	2.22	3.35	1.84	3.71	2.21	1.90		
19.61	19.11	18.95	18.89	19.12	19.41	19.88	19.33	19.40	18.50	19.35	18.32	19.64	18.43	18.27		
3.40	2.81	2.62	2.49	2.82	3.17	3.87	3.07	3.16	2.11	3.12	1.90	3.44	2.03	1.85		
19.83	18.99	18.81	18.97	19.42	19.43	19.97	19.31	19.49	18.60	19.15	18.26	19.63	18.50	18.26		
3.74	2.71	2.49	2.69	3.23	3.25	3.92	3.10	3.23	2.22	2.91	1.81	3.49	2.10	1.81		
19.56	19.15	19.85	19.41	19.69	19.82	19.66	19.11	19.29	18.51	19.18	18.30	19.66	18.52	18.24		
3.47	2.89	3.93:	3.25	3.66	3.88	3.61	2.83	3.09	2.04	2.93	1.78	3.62	2.06	1.71		
19.99	19.22	19.76	19.42	19.75	19.51	19.92	19.26	19.34	18.60	19.18	18.31	19.64	18.54	18.26		
3.76	2.72	3.42	2.97	3.40	3.09	3.65	2.77	2.87	1.98	2.67	1.66	3.25	1.91	1.61		
20.0:	19.40	19.75	19.02	20.09	18.63	19.72	19.22	19.39	18.53	19.13	18.25	19.57	18.44	18.22		
3.98:	3.15	3.61	2.66	4.05	2.15	3.57	2.92	3.14	2.02	2.99	1.70	3.37	1.91	1.66		
20.0:	19.46	19.65	19.04	19.49	18.83	19.72	19.23	19.30	18.66	19.38	18.41	19.72	18.62	18.26		
4.18:	3.29	3.55	2.60	3.30	2.31	3.66	2.91	3.02	2.10	3.14	1.81	3.67	2.05	1.66		
19.5:	—	18.71	18.95	18.99	19.5:	19.30	19.20	18.52	19.21	18.17	—	18.45	18.19	—		
→	4.04	4.38	2.87	3.21	3.27	4.00	3.73	3.58	2.60	3.59	2.10	4.28	2.49	2.13		
20.92:	19.19	19.86	19.46	19.02	19.65	20.02	19.40	19.58	18.62	19.38	18.20	19.79	18.50	18.46		
3.63:	1.96	2.60	2.21	1.82	2.59	2.76	2.15	2.32	1.49	2.13	1.18	2.53	1.40	1.37		
19.63	19.64	19.88	19.17	19.59	18.76	20.04	19.43	19.49	18.60	19.41	18.23	19.88	18.43	18.53		
2.12	2.13	2.39	1.68	2.08	1.32	2.60	1.92	1.98	1.19	1.90	0.88	2.40	1.05	1.13		
19.66	19.28	19.03	19.79	19.91	19.83	19.93	20.61	19.51	18.59	19.47	18.31	19.80	18.55	18.51		
2.22	1.90	1.70	2.34	2.46	2.38	2.48	3.28	2.08	1.36	2.05	1.15	2.35	1.33	1.29		
20.4:	19.20	19.63	18.98	18.96	19.76	20.04	19.79	19.55	18.63	19.39	18.21	19.83	18.41	18.52		
3.10	1.85	2.26	1.64	1.62	2.39	2.68	2.42	2.18	1.33	2.02	1.01	2.46	1.15	1.24		
20.5:	19.12	18.76	18.96	19.56	19.49	20.02	19.41	19.64	18.68	19.51	18.23	19.91	18.15	18.66		
2.68	1.29	0.95	1.14	1.70	1.63	2.15	1.56	1.78	0.88	1.65	0.47	2.03	0.45	0.86		
20.50	19.47	19.30	19.35	19.64	19.67	19.99	19.48	19.57	18.65	19.45	18.14	19.94	18.09	18.64		
2.54	1.64	1.51	1.55	1.78	1.80	2.07	1.65	1.72	1.05	1.63	0.73	2.03	0.70	1.04		
20.08	19.68	19.57	19.69	19.85	19.84	20.00	19.39	19.54	18.65	19.33	18.19	19.89	18.14	18.64		
2.30	1.86	1.77	1.87	2.00	1.99	2.14	1.63	1.75	1.06	1.58	0.76	2.04	0.73	1.05		
19.44	19.50	19.71	19.70	19.91	19.83	19.95	19.45	19.52	18.67	19.40	18.13	19.87	18.17	18.64		
1.58	1.64	1.83	1.82	2.03	1.95	2.07	1.59	1.66	0.92	1.55	0.53	1.99	0.56	0.90		
19.65	19.24	19.86	19.73	19.93	19.88	19.97	19.43	19.57	18.60	19.47	18.20	19.84	18.15	18.66		
1.96	1.55	2.17	2.04	2.24	2.19	2.28	1.74	1.88	1.01	1.78	0.69	2.15	0.65	1.06		
20.74	19.35	19.97	18.96	19.27	18.79	19.95	19.52	19.51	18.63	19.38	18.16	19.84	18.12	18.63		
2.89	1.58	2.13	1.25	1.51	1.11	2.11	1.72	1.71	0.98	1.60	0.64	2.01	0.61	0.98		
19.68	19.07	20.05	19.37	19.19	19.20	20.03	19.50	19.53	18.59	19.49	18.22	19.81	18.10	18.65		
1.72	1.19	2.09	1.43	1.28	1.29	2.07	1.55	1.57	0.83	1.54	0.56	1.85	0.47	0.87		
19.91	19.16	19.69	19.40	19.43	19.41	19.93	19.56	19.44	18.64	19.40	18.26	19.71	18.13	18.66		
2.48	1.74	2.26	1.97	2.00	1.98	2.51	2.13	2.01	1.26	1.97	0.93	2.28	0.83	1.28		
20.13	19.44	18.84	19.65	19.62	19.60	19.96	19.48	19.57	18.63	19.46	18.21	19.86	18.14	18.69		
2.50	1.80	1.22	2.01	1.98	1.96	2.32	1.84	1.93	1.04	1.82	0.70	2.22	0.64	1.09		
20.44	19.42	18.84	19.71	19.62	19.62	20.00	19.53	19.49	18.67	19.39	18.26	19.93	18.20	18.76		
3.21	2.20	1.63	2.48	2.39	2.39	2.77	2.30	2.29	1.47	2.17	1.09	2.70	1.04	1.55		
19.49	18.85	19.66	19.71	19.65	20.0:	19.47	19.45	18.65	19.42	18.30	20.0:	18.19	18.88	—		
—	3.26	2.59	3.45	3.51	3.43	3.99	3.23	3.21	2.38	3.18	2.02	3.99	1.91	2.62		



variables, cont d

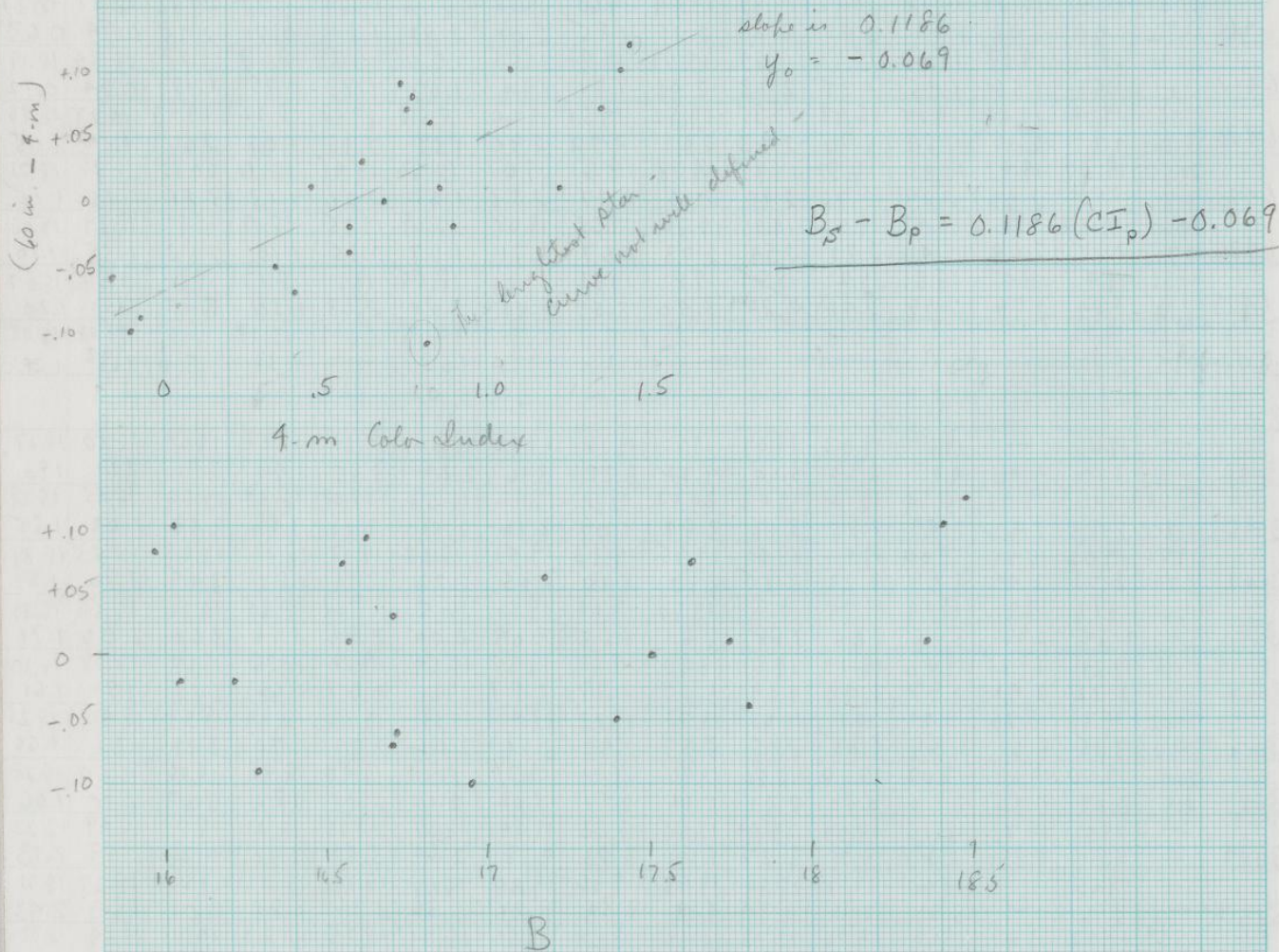
69

	64	11	9	96	97	7	234	228	NE1	NE2	NE3	NE4	NES	46	47
	19.64			19.39	19.08	18.91	19.83	19.35	19.29	18.62	19.22	18.20	19.85	18.23	18.67
S 3130	—	3.76	—	3.39	2.96	2.74	4.04	3.39	3.26	2.36	3.16	1.85	4.06	1.89	2.43
	20.42	19.67	19.95	19.60	19.27	19.09	19.98	19.50	19.53	18.62	19.43	18.19	19.88	18.16	18.71
5575	2.59	1.90	2.15	1.83	1.56	1.41	2.18	1.75	1.77	1.06	1.69	0.77	2.09	0.75	1.12
	19.65	19.12	19.98	19.81	19.53	19.42	20.08	19.44	19.55	18.59	19.37	17.98	19.83	17.97	18.65
5580	2.01	1.63	2.27	2.14	1.92	1.84	2.35	1.85	1.94	1.26	1.80	0.89	2.15	0.88	1.30
	19.60	19.00	19.92	19.71	19.78	19.75	19.94	19.38	19.52	18.62	19.36	18.32	19.84	18.36	18.90
S 3134	3.48	2.78	3.90	3.62	3.71	3.67	3.94	3.21	3.38	2.36	3.19	2.05	3.78	2.09	2.66
	20.08	19.22	19.08	19.03	19.94	19.80	20.04	19.50	19.60	18.63	19.40	18.09	19.87	18.12	18.64
5590	2.32	1.57	1.47	1.43	2.18	2.06	2.28	1.80	1.88	1.14	1.72	0.79	2.12	0.81	1.15
	19.58	18.99	19.53	19.42	18.96	19.74	19.82	19.54	19.50	18.54	19.43	18.15	19.89	18.27	18.18
6384	1.93	1.42	1.89	1.79	1.39	2.07	2.14	1.90	1.86	1.04	1.80	0.76	2.21	0.84	0.78
	19.88	19.11	19.84	19.02	19.41	20.02	20.08	19.76	19.73	18.89	19.54	18.49	20.00	18.46	18.41
6387	2.15	1.46	2.11	1.39	1.72	2.29	2.35	2.03	2.00	1.28	1.83	0.95	2.27	0.93	0.89
	20.06	19.27	19.76	18.96	19.45	19.93	19.58	19.66	19.66	18.72	19.46	18.39	19.97	18.38	18.55
6390	2.38	1.59	2.06	1.34	1.77	2.25	2.25	1.90	1.98	1.14	1.78	0.88	2.29	0.87	0.83
	20.23	19.39	19.86	19.04	19.61	20.07	19.93	19.44	19.54	18.66	19.38	18.22	19.90	18.24	18.34
6393	2.68	1.83	2.29	1.52	2.04	2.51	2.36	1.88	1.97	1.17	1.82	0.82	2.33	0.84	0.79
	20.91	19.31	19.91	19.21	19.91	19.71	19.71	19.61	19.21	18.61	19.41	18.24	19.61	18.33	18.22
6396	4.32	2.52	3.35	2.39	3.28	3.06	3.07	2.89	2.37	1.58	2.55	1.22	2.97	1.30	1.20
unseen??	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
6400	—	—	—	3.18	2.78	2.84	—	2.88	2.16	2.19	—	1.80	—	1.63	1.56
	20.27	19.60	19.84	19.66	19.96	19.63	19.85	19.52	19.81	18.72	19.60	18.36	20.00	18.40	18.27
6407	2.70	2.02	2.26	2.08	2.38	2.05	2.27	1.94	2.23	1.16	2.02	0.84	2.42	0.87	0.77
	20.30	19.55	19.19	19.47	19.96	19.62	19.78	19.41	19.50	18.65	19.43	18.25	19.82	18.32	18.14
6410	2.65	1.90	1.49	1.82	2.31	1.97	2.13	1.76	1.85	1.03	1.78	0.68	2.17	0.74	0.59
	20.35	19.41	18.79	19.18	20.12	19.99	19.84	19.60	19.75	18.72	19.59	18.37	19.96	18.41	18.27
6413	2.72	1.66	1.08	1.44	2.45	2.29	2.11	1.85	2.01	1.02	1.84	0.71	2.25	0.74	0.63
	20.41	19.11	19.17	19.03	18.92	19.84	19.69	19.42	19.55	18.61	19.33	18.27	19.78	18.34	18.19
6417	2.81	1.52	1.58	1.45	1.35	2.23	2.08	1.81	1.94	1.07	1.73	0.79	2.17	0.84	0.72
	20.51	19.04	19.48	19.15	18.93	19.95	19.92	19.51	19.60	18.59	19.48	18.22	19.97	18.29	18.16
6420	3.20	1.79	2.19	1.89	1.70	2.63	2.61	2.22	2.30	1.39	2.19	1.09	2.66	1.14	1.05
	20.51	19.07	19.47	19.43	19.37	19.91	19.78	19.61	19.67	18.62	19.41	18.18	20.31	18.36	18.21
6423	3.71	1.92	2.33	2.29	2.22	2.90	2.66	2.47	2.53	1.50	2.26	1.13	3.31	1.28	1.15
	20.61	19.26	19.62	19.47	19.42	19.91	19.70	19.65	19.68	18.69	19.35	18.09	19.81	18.39	18.09
6426	3.71	2.25	2.64	2.47	2.42	2.99	2.73	2.67	2.71	1.67	2.35	1.10	2.83	1.35	1.10
	19.31	19.41	19.41	19.51	19.21	18.84	19.81	19.21	19.21	18.55	19.21	18.17	19.61	18.18	18.07
6429	2.72	2.84	2.79	2.99	2.48	2.48	3.40	2.59	2.58	1.70	2.63	1.30	3.04	1.31	1.20
	19.61	19.31	—	—	—	—	—	—	—	18.39	—	18.18	—	18.18	18.08
6431	3.15	2.70	—	—	—	—	—	—	—	1.53	—	1.33	—	1.33	1.24
Redo S	—	19.61	—	19.81	19.03	19.09	19.81	19.28	19.20	18.50	19.34	18.23	19.61	18.50	18.27
S 3094	—	3.90	4.40	4.15	2.93	3.00	4.22	3.28	3.16	2.22	3.35	1.84	3.71	2.21	1.90
	19.63	19.13	18.95	18.84	19.12	19.43	20.03	19.34	19.42	18.52	19.38	18.34	19.66	18.45	18.29
3096	3.40	2.81	2.62	2.49	2.82	3.17	3.87	3.07	3.16	2.11	3.12	1.90	3.44	2.03	1.85
	19.82	19.02	18.84	19.00	19.43	19.45	19.95	19.33	19.51	18.62	19.17	18.29	19.63	18.53	18.29
3097	3.74	2.71	2.49	2.69	3.23	3.25	3.92	3.10	3.33	2.22	2.91	1.81	3.49	2.10	1.81
	19.60	19.17	19.91	19.44	19.74	19.91	19.70	19.14	19.33	18.55	19.21	18.35	19.71	18.56	18.29
3050	3.47	2.85	3.93	3.25	3.66	3.88	3.61	2.83	3.09	2.04	2.93	1.78	3.62	2.06	1.71
	19.98	19.24	19.75	19.42	19.74	19.51	19.90	19.27	19.35	18.64	19.21	18.35	19.63	18.58	18.30
3051	3.76	2.72	3.42	2.97	3.40	3.09	3.65	2.77	2.87	1.98	2.67	1.66	3.25	1.91	1.61
	20.01	19.41	19.76	19.04	20.11	18.65	19.73	19.23	19.40	18.55	19.13	18.29	19.58	18.47	18.25
3052	3.98	3.15	3.61	2.66	4.05	2.15	3.57	2.92	3.14	2.02	2.79	1.70	3.37	1.91	1.66
	20.01	19.50	19.68	19.02	19.50	18.80	19.76	19.24	19.31	18.64	19.40	18.41	19.76	18.60	18.28
3053	4.18	3.29	3.55	2.60	3.30	2.31	3.66	2.91	3.02	2.10	3.14	1.81	3.67	2.05	1.66
	—	19.51	19.71	18.75	19.00	19.04	19.51	19.33	19.24	18.37	19.25	18.21	19.71	18.49	18.23
3054	—	4.09	4.38	2.87	3.21	3.27	4.00	3.73	3.58	2.60	3.59	2.10	4.28	2.49	2.13
	19.65	—	—	19.40	19.10	18.94	19.85	19.36	19.30	18.68	19.24	18.23	19.86	18.27	18.71
3130	—	3.76	—	3.39	2.96	2.74	4.04	3.34	3.26	2.36	3.16	1.85	4.06	1.89	2.43
	19.59	19.02	19.91	19.69	19.76	19.73	19.91	19.38	19.51	18.61	19.36	18.30	19.81	18.34	18.90
3134	3.45	2.78	3.90	3.62	3.71	3.67	3.94	3.21	3.38	2.36	3.19	2.05	3.78	2.09	2.66

Are the 60-in plates systematically different??

60-in mags - 4-m mags

		3044	3046	3047	3050	3051	3052	3053	3054	3130	3134	mean
4.0	N7F	-.06	-.03	-.12	-.05	-.07	-.05	-.06	-.05	-.13	-.03	-.07 ± .03
23	N7G	-.07	.00	.00	+.02	+.08	.00	-.02	+.01	.00	+.11	+.01 ± .05
68	N9F	+.10	+.11	+.06	+.09	+.03	+.14	+.07	+.13	+.08	+.23	+.10 ± .06
74	N9G	+.11	+.07	+.12	+.11	+.08	+.08	+.05	+.05	+.06	+.17	+.09 ± .04
76	N9H	+.11	+.05	+.05	+.04	+.07	+.08	+.08	+.05	+.09	+.05	+.07 ± .02
62	N9I	+.06	+.04	+.07	.00	+.02	.00	.00	-.01	+.04	+.06	+.03 ± .03
83	N9C	+.04	+.12	+.05	+.02	+.09	+.06	+.07	+.04	+.02	+.06	+.06 ± .03
16	N20A	-.07	-.08	-.01	-.05	.00	-.05	-.07	-.07	-.09	-.08	-.06 ± .03
81	N21A	-.09	-.11	-.13	-.11	-.09	-.08	-.09	-.07	-.16	-.15	-.11 ± .03
86	N21B	+.04	-.05	+.04	+.01	+.01	-.01	.00	+.03	+.02	-.04	+.01 ± .03
35	N31B	-.08	-.05	-.02	-.03	-.05	-.01	-.06	-.07	-.08	-.06	-.05 ± .02
7	N35A	-.09	-.07	-.06	-.14	-.11	-.03	-.08	-.13	-.13	-.08	-.09 ± .04
46	N36	-.02	+.04	.00	+.03	+.02	-.02	+.01	-.05	+.04	+.04	+.01 ± .03
45	N37	+.09	+.10	+.09	+.09	+.11	+.20	+.10	+.05	+.20	+.16	+.12 ± .05
42	N38	+.13	+.13	+.03	+.06	+.08	+.13	+.09	+.07	+.15	+.13	+.10 ± .04
69	N36A	-.01	+.01	-.06	.00	+.01	-.01	-.07	.00	+.03	+.07	.00 ± .04
36	N36E	+.07	+.08	+.08	+.06	+.05	+.09	+.07	+.07	+.09	+.02	+.07 ± .02
10	N381F	-.07	-.12	-.06	-.07	-.11	-.13	-.13	-.05	-.13	-.16	-.10 ± .04
58	N38H	-.02	-.05	-.04	.00	-.05	-.01	-.04	.00	-.07	-.07	-.04 ± .03
77	N39	+.04	+.12	+.09	+.03	+.12	+.07	+.08	.00	+.13	+.10	+.08 ± .04
90	N39A	+.01	.00	+.03	-.05	-.07	-.05	+.03	-.01	.00	-.04	-.02 ± .04
58	N40A	+.03	+.03	-.03	-.02	-.03	+.01	-.04	-.05	.00	-.07	-.02 ± .03



N.B. The values for B_{-j} in the columns are old ones.

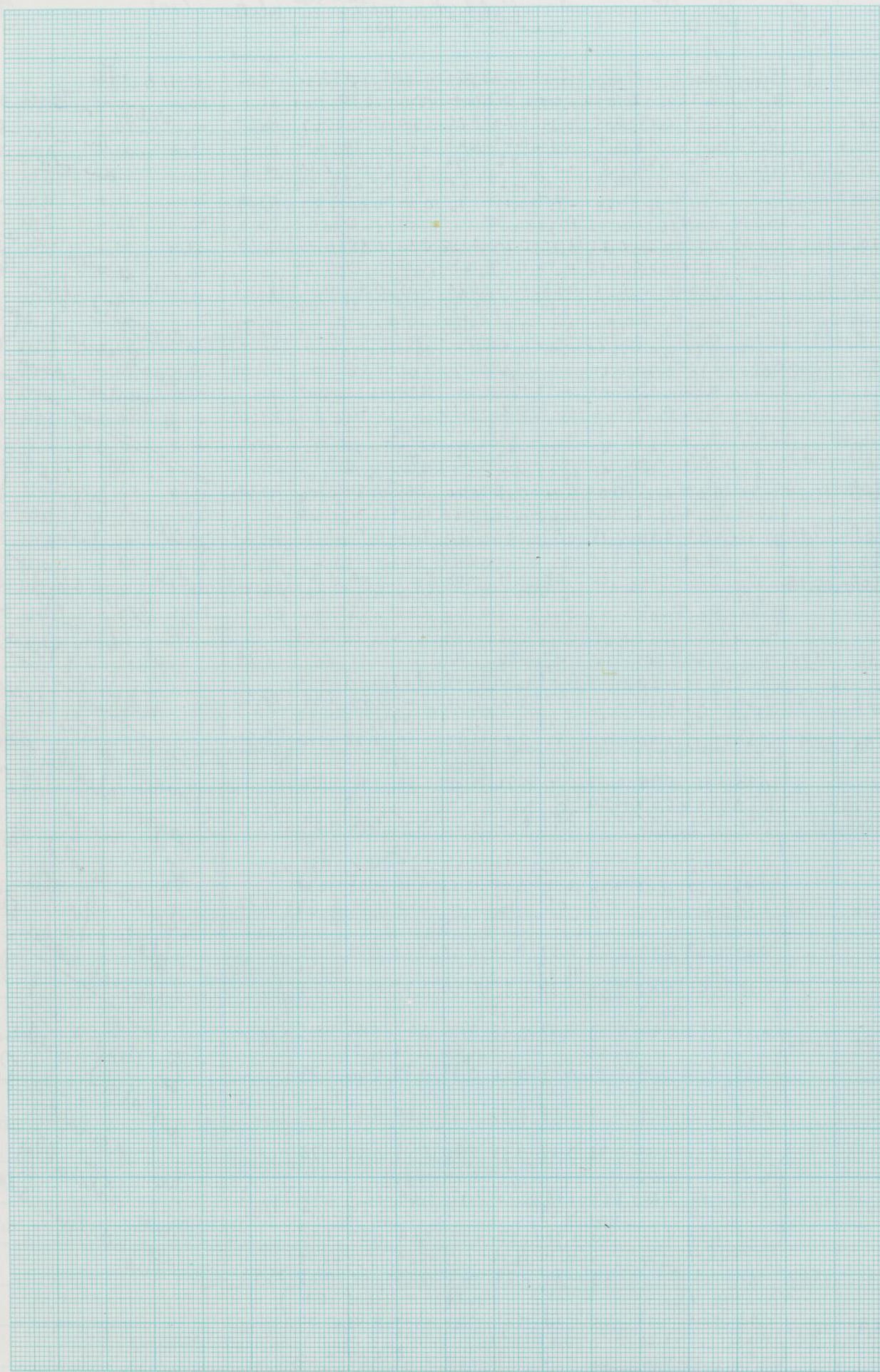
These "revised" B are
converted from the
least square equation
on the preceding page.

~~Note to myself 5/21/91:
I can't figure out
I did here!~~

what I did
The B-μ all give
the 4-m B⁺ H⁻
did I get these ??
the facing table

However, on the facing page is clearly a table of 5 maps - P maps for each std on each plate, for the Namee ~~table~~ stds must be

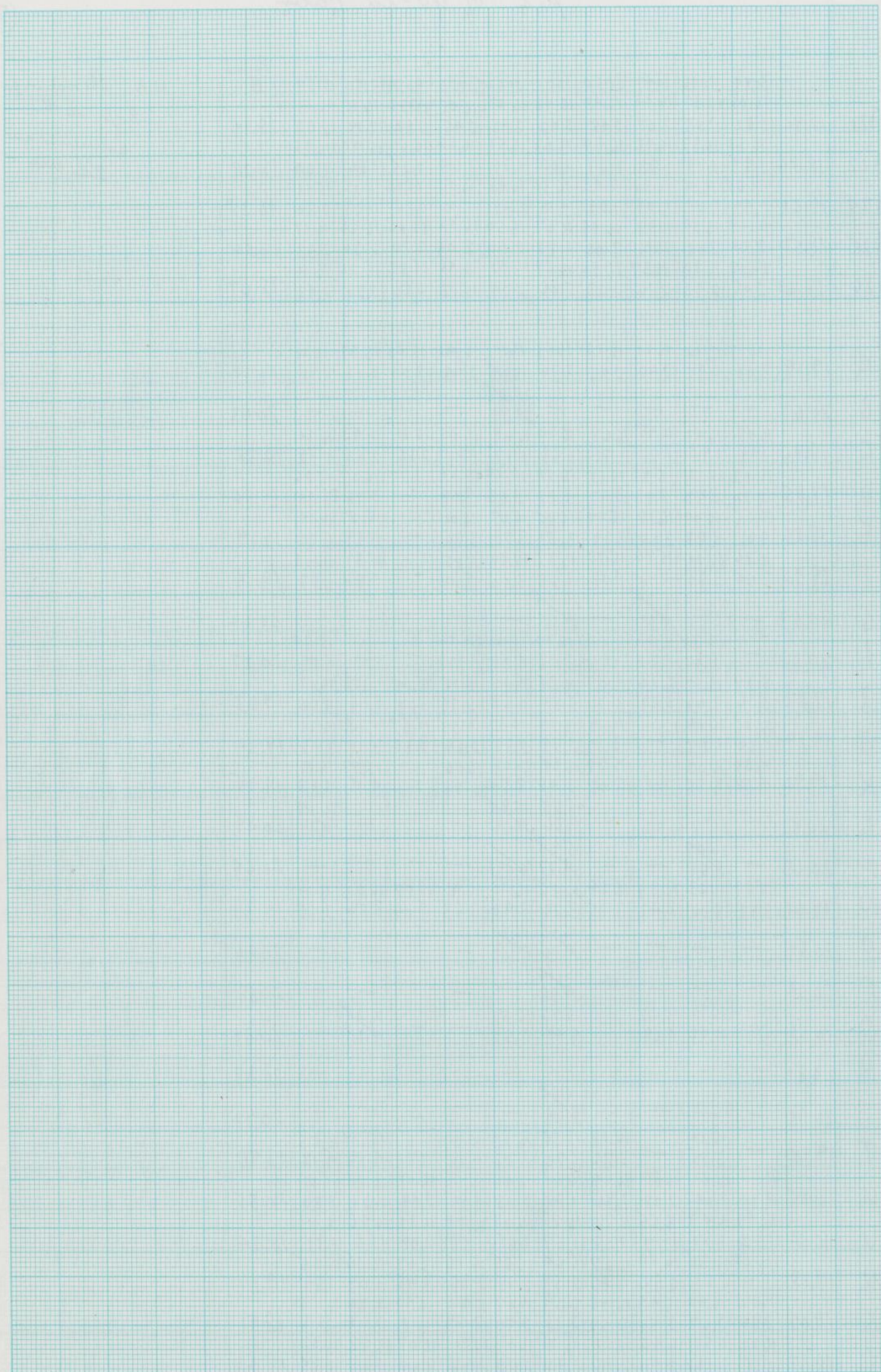
So this must be
what I used,
the "reversed" B
are actually on
the 4-m scale.



		3044	3046	3047	3050	3051	3052	3053	3054	3130	3134	Revised B
A21	18.90	16.08	16.33	16.23	16.42	16.48	16.47	16.45	15.92	16.11	16.28	
		2.52	2.57	2.67	2.48	2.42	2.43	2.45	2.98	2.79	2.62	18.94
A22	18.26	16.32	16.37	16.43	16.49	16.63	16.52	16.62	16.01	16.40	16.22	
		1.94	1.89	1.83	1.77	1.63	1.74	1.64	2.25	1.86	2.04	18.28
A24	16.21	16.65	16.25	16.30	16.43	16.31	16.40	16.31	15.96	16.12	15.91	
		-44	0.04	-0.09	-0.22	-0.10	-0.19	-0.10	0.25	0.09	0.30	16.25
A25	18.50	16.14	16.38	16.34	16.44	16.67	16.50	16.46	15.80	16.26	16.17	
		2.36	2.12	2.16	2.06	1.83	2.00	2.04	2.70	2.24	2.33	18.56
A26	18.63	16.18	16.20	16.37	16.40	16.57	16.39	16.46	15.83	16.25	16.20	
		2.45	2.43	2.26	2.23	2.06	2.24	2.17	2.80	2.38	2.43	18.67

N.B. The values for
B- μ in the
columns are
old ones -

A	19.19	16.17	16.24	16.21	16.23	16.49	16.14	16.41	15.65	16.07	16.21	19.22
		3.02	2.95	2.98	2.96	2.70	3.05	2.78	3.54	3.12	2.98	
B	20.67	—	—	—	—	—	15.93 4.74	—	—	—	—	20.63
C	18.46	16.47	16.51	16.48	16.68	16.80	16.69	16.65	16.11	16.43	16.34	
		1.99	1.95	1.98	1.78	1.66	1.77	1.81	2.35	2.03	2.12	18.38
D	19.85	16.13	16.33	15.99	15.88	16.58	16.22	15.81	—	16.07	15.86	
		3.72	3.52	3.86	3.97	3.27	3.63	4.04	—	3.78	3.99	19.86
E	19.86	15.65	16.04	16.18	15.87	16.35	16.07	16.00	—	15.37	16.14	
		4.21	3.82	3.68	3.99	3.51	3.79	3.86	—	4.49	3.72	19.89
F	19.90	16.26	16.20	15.96	15.78	16.37	16.40	15.82	—	15.39	16.03	
		3.64	3.70	3.94	4.12	3.53	3.50	4.08	—	4.51	3.87	19.94
G	20.67	—	—	—	—	—	—	—	—	—	—	20.62
H	20.33	—	15.36	16.02	—	16.70	16.02	(15.96)	—	—	15.74	
		—	4.47	4.31	—	3.63	4.31	(4.37)	—	—	4.59	20.27
I	19.83	15.87	16.17	16.16	16.07	16.24	16.25	16.08	(15.94)	15.79	16.03	
		3.96	3.66	3.67	3.76	3.59	3.58	3.75	(3.89)	4.04	3.80	19.83
J	19.29	16.15	16.22	—	16.19	16.50	16.31	16.45	15.57	16.13	16.21	
		3.14	3.07	—	3.10	2.79	2.98	2.84	3.72	3.16	3.08	19.32
K	19.92	15.34	16.07	—	15.87	16.44	16.08	16.06	—	15.77	16.09	
		4.58	3.85	—	4.05	3.48	3.84	3.86	—	4.15	3.83	19.95
L	20.51	—	—	—	—	15.85	15.85	—	—	—	16.11	
		—	—	—	—	4.66	4.66	—	—	—	4.34	20.49
M	20.63	—	16.04	—	—	15.86	—	—	—	—	—	
		—	4.59	—	—	4.77	(4.19)	—	—	—	—	20.64
N	19.61	15.64	16.23	16.19	16.26	16.35	16.13	16.08	15.57	16.05	16.06	
		3.97	3.38	3.42	3.35	3.26	3.48	3.53	4.04	3.56	3.55	19.61
O	20.89	—	—	—	—	16.18	16.20	—	—	—	—	
		—	—	—	—	4.76	4.69	—	—	—	—	20.86
P	20.64	—	—	—	—	15.76	—	—	—	—	—	
		—	—	—	—	4.88	—	—	—	—	—	20.58
Q	20.36	—	15.90	15.67	—	15.92	15.85	—	—	16.28	—	
		—	4.46	4.69	—	4.44	4.51	—	—	4.11	—	20.38
R	20.81	—	—	—	—	—	—	—	—	—	—	20.83
S	20.94	—	—	—	—	15.98	—	—	—	—	—	
		—	—	—	—	4.99	—	—	—	—	—	20.92
T	19.95	—	16.20	—	16.19	16.25	16.13	15.77	—	15.79	15.83	
		—	3.75	—	3.76	3.70	3.82	4.18	—	4.16	4.12	19.96
U	18.45	16.15	16.31	16.37	16.49	16.61	16.42	16.51	16.01	16.24	16.25	
		2.30	2.14	2.08	1.96	1.84	2.03	1.94	2.44	2.21	2.20	18.55
V	18.32	16.49	16.44	16.55	16.74	16.75	16.67	16.74	16.24	16.46	16.41	
		1.83	1.88	1.77	1.58	1.57	1.65	1.58	2.08	1.86	1.91	18.24
W	19.13	16.02	16.32	16.20	16.27	16.54	16.35	16.15	15.68	16.06	16.25	
		3.11	2.81	2.93	2.86	2.59	2.78	2.98	3.45	3.07	2.88	19.16
X	19.07	16.17	16.40	16.49	16.45	16.69	16.57	16.48	15.90	16.26	16.18	
		2.90	2.67	2.58	2.62	2.38	2.50	2.59	3.17	2.81	2.89	18.99
Y	18.67	16.32	16.51	16.46	16.52	16.76	16.65	16.71	16.07	16.38	16.32	
		2.35	2.16	2.21	2.15	1.92	2.02	1.96	2.60	2.29	2.35	18.61
Z	19.58	15.57	16.20	16.09	16.04	16.28	15.91	16.11	15.23	15.76	15.88	
		4.11	3.38	3.40	3.53	3.20	3.17	3.47	4.25	3.82	3.70	19.64



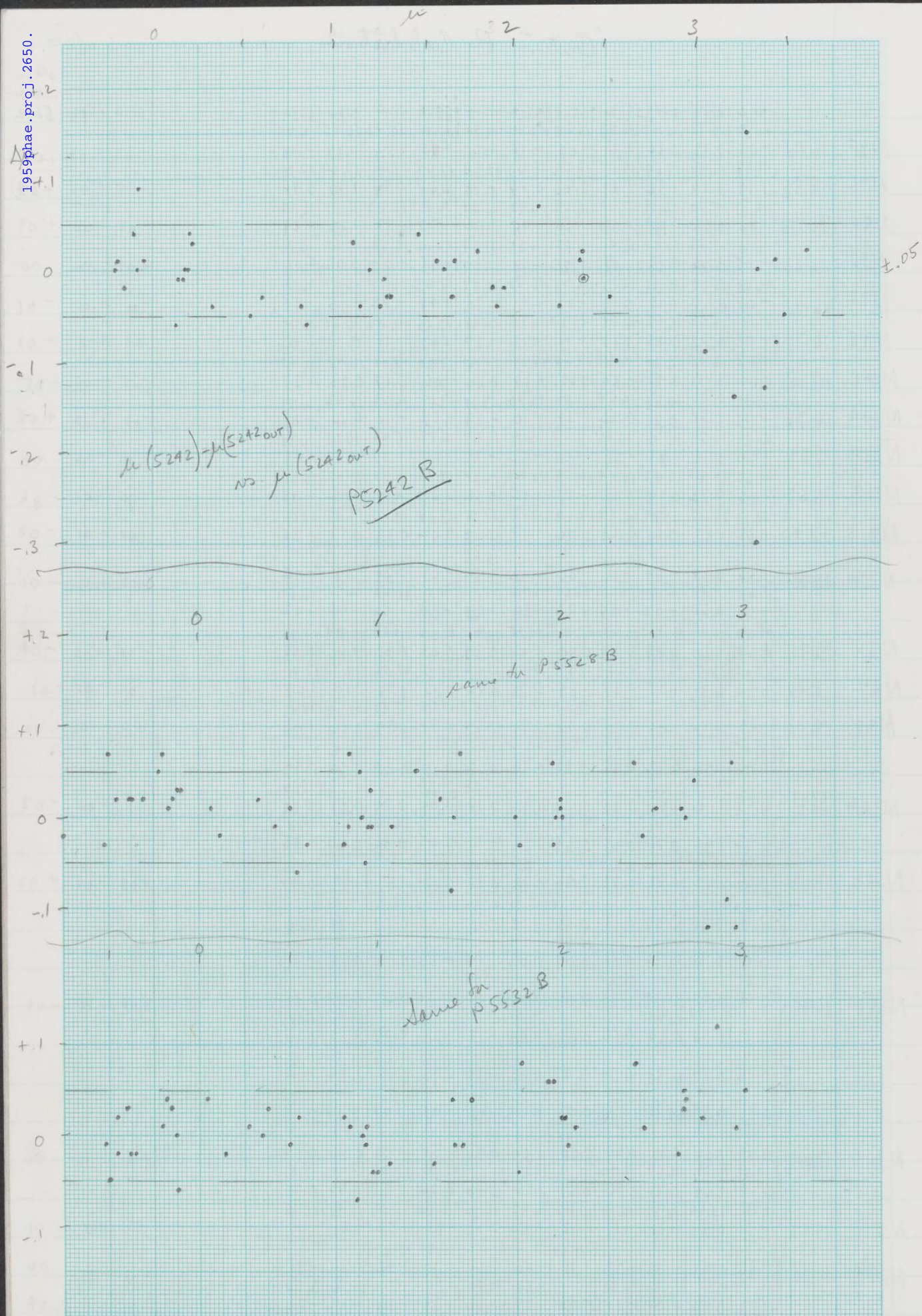
"Outer" B Calibrations

1959

old
-New
5242

1959phae:proj.2650.

		442	2778	5229	5242	5228	5332	5548	5554	5575	5580	5590	5532	5528	5242
N2F	16.71	16.74	15.92	16.49	16.53	16.80	16.89	16.99	17.11	16.77	16.53	16.74	+0.3	+0.3	.00
N2G	18.36	17.17	16.26	17.04	17.15	17.53	17.49	17.58	17.68	17.41	17.26	17.40	-0.7	+0.7	+0.4
N9F	16.03	16.39	15.70	16.19	16.11	16.53	16.99	16.69	16.80	16.54	16.25	16.42	-0.2	+0.2	+0.9
N9G	16.63	16.68	15.87	16.50	16.44	16.83	16.81	16.93	17.08	16.83	16.61	16.73	+0.9	+0.2	.00
N9H	16.55	16.63	15.88	16.42	16.41	16.77	16.76	16.89	17.03	16.77	16.50	16.69	+0.1	+0.5	-0.1
N9I	16.71	16.76	15.88	16.48	16.54	16.82	16.84	16.98	17.13	16.82	16.61	16.79	.06	+0.3	-0.1
N19C	17.18	16.83	16.03	16.70	16.64	17.06	17.04	17.18	17.24	17.01	16.75	16.91	-0.2	-0.2	-0.5
N20A	16.72	16.74	15.92	16.51	16.50	16.86	16.82	17.01	17.09	16.82	16.56	16.73	-0.2	+0.2	+0.3
N21A	15.89	16.39	15.71	16.15	16.10	16.39	16.41	16.68	16.77	16.44	16.16	16.38	+0.1	-0.2	.00
N21B	16.57	16.62	15.85	16.43	16.44	16.74	16.69	16.91	17.13	16.71	16.45	16.65	-0.6	+0.1	-0.6
N31B	17.40	17.02	16.05	16.79	16.79	17.14	17.13	17.28	17.38	17.12	16.89	17.05	+0.1	+0.1	-0.3
N35A	16.29	-0.33	0.58	-0.4	-0.6	-0.30	-0.32	16.83	-0.54	-0.65	-0.34	-0.23	+0.2	+0.2	+0.1
N36	17.75	16.63	15.70	16.32	16.34	16.60	16.62	16.94	16.62	16.35	16.51	17.20	-0.1	-0.6	-0.4
N37	18.48	-0.34	0.60	-0.2	-0.4	-0.32	-0.34	-0.53	-0.65	-0.32	-0.03	-0.22	-0.4	+0.5	-0.1
N38	18.41	17.08	16.15	16.86	16.93	17.21	17.25	17.41	17.52	17.22	16.95	17.20	.00	.00	.00
N38A	17.51	0.67	1.60	0.89	0.82	0.59	0.50	0.34	0.23	0.53	0.80	0.55	-0.1	-0.6	-0.4
N38E	17.63	17.08	16.17	17.11	17.20	17.59	17.50	17.62	17.75	17.52	17.38	17.41	-0.4	+0.5	-0.1
N38F	16.95	17.12	16.25	17.00	17.21	17.51	17.51	17.57	17.69	17.47	17.29	17.41	.00	.00	.00
N38H	17.81	1.29	2.16	1.41	1.20	0.90	0.90	0.84	0.72	0.94	1.12	1.00	+0.3	-0.1	+0.2
N39A	16.21	17.05	0.46	1.43	0.72	0.65	0.32	0.34	0.18	0.10	0.34	0.44	.00	+0.2	-0.3
N40A	16.05	0.49	1.46	0.68	0.64	0.32	0.36	0.18	0.04	0.34	0.61	0.44	+0.4	+0.1	-0.4
		0.43	1.46	0.70	0.65	0.34	0.35	0.17	0.05	0.36	0.60	0.45			
		16.98	16.13	16.82	16.84	17.21	17.25	17.36	17.51	—	—	17.16	+0.3	-0.1	+0.2
		0.65	1.50	0.81	0.79	0.42	0.38	0.27	0.12	—	—	0.47			
		0.14	0.96	0.34	0.34	0.06	0.03	-0.12	-0.23	0.07	0.34	0.10			
		0.11	0.98	0.36	0.31	0.07	0.03	-0.14	-0.23	0.08	0.34	0.11			
		16.81	16.61	16.81	16.86	17.18	17.16	17.08	17.16	17.16	17.16	17.16			
		0.14	0.99	0.34	0.33	0.05	0.06	-0.13	-0.21	0.11	0.37	0.11	+0.4	+0.1	-0.4
		0.11	0.98	0.34	0.32	0.08	0.04	-0.12	-0.20	0.07	0.36	0.10			
		0.15	0.97	0.33	0.34	0.07	0.06	-0.14	-0.22	0.10	0.34	0.11			
		0.16	0.97	0.36	0.32	0.08	0.04	-0.12	-0.22	0.07	0.37	0.08			
		0.79	1.66	0.91	0.84	0.60	0.54	0.40	0.28	0.56	0.80	0.58	+0.2	-0.3	-0.6
		17.03	16.16	16.89	16.96	17.26	17.26	17.54	17.27	17.02	17.21	17.21			
		0.78	1.64	0.92	0.86	0.59	0.56	0.40	0.26	0.53	0.78	0.61	-0.5	-0.3	+0.1
		16.31	15.64	16.17	16.16	16.49	16.47	16.70	16.80	16.49	16.27	16.38			
		-0.34	0.33	-0.22	-0.19	-0.52	-0.50	-0.73	-0.83	-0.52	-0.30	-0.41	+0.3	+0.2	.00
		-0.36	0.41	-0.10	-0.08	-0.38	-0.40	-0.61	-0.70	-0.42	-0.11	-0.31			
		16.56	15.79	16.30	16.31	16.60	16.81	16.60	16.79	16.51	16.27	16.41	+0.2	+0.2	-0.0
		-0.34	0.42	-0.08	-0.11	-0.38	-0.38	-0.60	-0.69	-0.41	-0.12	-0.32			
		16.42	15.65	16.20	16.21	16.51	16.51	16.70	16.79	16.41	16.27	16.41			
		-0.37	0.41	-0.10	-0.08	-0.38	-0.40	-0.61	-0.70	-0.42	-0.11	-0.31	+0.2	+0.2	-0.0



Outer B Calibrations

(77)

52428

		442	2778	5229	5242	5528	5532	5548	5554	5575	5580	5590	W	5532	5528	AM
A21	18.90	17.26	16.12	17.20	17.29	17.70	17.61	17.70	17.84	17.62	17.51	17.57		-0.3	+0.05	.00
		1.64	2.78	1.70	1.61	1.20	1.29	1.20	1.06	1.28	1.39	1.33				
A22	18.26	17.18	16.18	17.06	17.11	17.45	17.46	17.53	17.65	17.43	17.20	17.38		+0.2	-0.3	-0.4
		1.08	2.08	1.20	1.15	0.81	0.80	0.73	0.61	0.83	1.06	0.88				
A24	16.21	16.55	15.77	16.25	16.29	16.59	16.61	16.80	16.91	16.61	16.33	16.55		+0.3	+0.2	.00
		-34	0.44	-0.8	-0.8	-38	-40	-59	-70	-40	-12	-34				
A25	18.50	17.18	16.21	17.15	17.21	17.55	17.58	17.63	17.72	17.49	17.29	17.44		+0.1	+0.3	-0.3
		1.32	2.29	1.35	1.29	0.95	0.92	0.87	0.78	1.01	1.21	1.06				
A26	18.63	17.23	16.26	17.04	17.21	17.68	17.60	17.73	17.77	17.55	17.39	17.44		+0.1	-0.1	+0.2
		1.40	2.37	1.59	1.42	0.95	1.03	0.90	0.86	1.08	1.24	1.19				
A	19.19	17.28	16.32	17.22	17.29	17.78	17.73	17.73	17.87	17.68	17.49	17.63		-0.1	.00	-0.4
		1.91	2.87	1.97	1.90	1.41	1.46	1.46	1.32	1.51	1.70	1.56				
B	20.67	17.45	—	17.35	17.24	17.99	17.90	17.98	17.98	—	17.74	17.74		+0.2	+0.1	+0.1
		3.22	—	3.32	3.43	2.66	2.77	2.98	2.69	—	2.93	2.93				
C	18.46	17.34	16.04	17.14	17.20	17.52	17.50	17.63	17.68	17.50	17.27	17.45		-0.4	-0.1	-0.4
		1.12	2.42	1.32	1.26	0.94	0.96	0.83	0.78	0.96	1.19	1.01				
D	19.85	17.33	15.91	17.33	17.41	17.88	17.86	17.85	17.98	17.65	17.72	17.77		+0.2	.00	-0.1
		2.52	3.94	2.52	2.38	1.97	1.99	2.00	1.87	2.10	2.13	2.08				
E	19.86	17.33	16.20	17.33	17.50	17.91	17.91	17.81	17.92	17.66	17.75	17.80		+0.6	+0.6	+0.1
		2.53	3.66	2.53	2.36	1.95	1.95	2.06	1.94	2.10	2.11	2.06				
F	19.90	17.36	16.06	17.27	17.34	17.91	17.87	17.83	17.94	17.78	17.79	17.76		-0.1	-0.3	-1.0
		2.54	3.84	2.63	2.56	1.99	2.03	2.07	1.96	2.12	2.11	2.24				
G	20.67	17.26	16.26	17.26	17.29	17.89	17.99	17.79	17.93	—	—	17.68		+0.4	-1.2	-0.8
		3.41	4.41	3.41	3.43	2.80	2.68	2.88	2.74	—	—	2.99				
H	20.33	17.34	16.11	17.25	17.29	17.89	17.89	17.77	17.91	17.92	17.79	17.74		+0.1	-0.2	-0.9
		2.99	4.22	3.08	3.04	2.44	2.44	2.56	2.42	2.41	2.54	2.59				
I	19.83	17.40	16.44	17.23	17.46	17.89	17.91	17.85	17.97	17.77	17.72	17.78		+0.6	-0.3	+0.2
		2.43	3.39	2.60	2.37	1.96	1.92	1.98	1.86	2.06	2.11	2.05				
J	19.29	17.34	16.01	17.33	17.35	17.85	17.79	17.74	17.94	17.73	17.61	17.67		+0.4	+0.7	-0.2
		1.95	3.28	1.96	1.94	1.44	1.50	1.55	1.35	1.56	1.68	1.62				
K	19.92	17.35	16.21	17.24	17.42	17.93	17.85	17.88	18.03	17.87	17.73	17.80		+0.1	+0.1	-0.1
		2.57	3.71	2.68	2.50	1.99	2.07	2.04	1.89	2.05	2.19	2.12				
L	20.51	17.19	16.10	17.06	17.31	17.99	17.88	17.88	17.97	17.84	17.66	17.79		-0.2	+0.1	-1.4
		3.32	4.41	3.45	3.20	2.52	2.63	2.63	2.54	2.67	2.85	2.72				
M	20.63	17.18	16.25	17.16	17.36	17.95	17.96	17.84	18.04	17.90	17.83	17.75		+0.3	.00	+1.5
		3.45	4.38	3.47	3.27	2.68	2.67	2.79	2.59	2.73	2.80	2.88				
N	19.61	17.33	16.39	17.22	17.37	17.84	17.85	17.86	17.96	17.79	17.74	17.66		-0.4	-0.3	-0.4
		2.28	3.22	2.39	2.24	1.77	1.76	1.75	1.65	1.82	1.87	1.95				
O	20.89	17.20	16.28	17.35	17.29	17.93	17.93	17.71	18.09	17.76	17.78	17.67		+0.1	-1.2	+0.2
		3.69	4.61	3.54	3.60	2.96	2.96	3.18	2.80	3.13	3.11	3.22				
P	20.64	17.35	15.80	17.18	17.31	17.91	17.97	17.80	18.10	17.86	17.86	17.66		+0.5	+0.4	.00
		3.29	4.84	3.46	3.33	2.73	2.67	2.84	2.54	—	2.78	2.98				
Q	20.36	17.37	16.55	17.30	17.04	17.96	17.96	17.84	18.01	17.96	17.72	17.77		+0.8	+0.6	-3.0
		2.99	3.81	3.06	3.32	2.40	2.40	2.52	2.35	2.40	2.64	2.59				
R	20.81	17.43	—	17.32	17.44	17.90	17.96	17.73	18.07	17.81	17.92	17.63		+1.2	-0.9	-1.3
		3.38	—	3.49	3.37	2.91	2.85	3.08	2.74	3.00	2.89	3.18				
S	20.94	17.40	16.41	17.18	17.46	18.01	17.93	17.88	18.07	17.82	17.88	17.62		+0.5	+0.6	-0.5
		3.54	4.53	3.76	3.48	2.93	3.01	3.06	2.87	3.12	3.06	3.32				
T	19.95	17.44	16.19	17.28	17.43	17.95	17.95	17.75	17.91	17.87	17.73	17.74		+0.2	.00	-0.3
		2.51	3.76	2.67	2.52	2.00	2.00	2.20	2.04	2.08	2.22	2.21				
U	18.45	17.17	16.22	17.07	17.14	17.53	17.53	17.62	17.74	17.44	17.32	17.42		-0.1	-0.5	-0.3
		1.28	2.23	1.38	1.31	0.92	0.92	0.83	0.71	0.96	1.13	1.03				
V	18.32	17.24	16.18	17.09	17.21	17.49	17.51	17.58	17.68	17.45	17.28	17.41		+0.1	-0.1	+0.3
		1.08	2.14	1.23	1.11	0.83	0.83	0.74	0.64	0.87	1.04	0.91				
W	19.13	17.28	16.22	17.25	17.38	17.74	17.74	17.76	17.88	17.68	17.56	17.65		+0.4	-0.8	-0.2
		1.85	2.91	1.88	1.75	1.39	1.39	1.37	1.25	1.45	1.57	1.48				
X	19.07	17.47	16.25	—	17.40	17.74	17.66	17.75	17.86	17.67	—	17.62		-0.1	+0.2	+0.7
		1.60	2.82	—	1.67	1.33	1.41	1.32	1.21	1.40	—	1.45				
Y	18.67	17.35	16.18	17.18	17.20	17.60	17.62	17.68	17.72	17.55	17.31	17.51		-0.3	-0.1	+0.4
		1.32	2.49	1.49	1.47	1.07	1.05	0.99	0.95	1.12	1.36	1.16				
Z	19.58	17.29	16.21	17.31	17.45	17.84	17.80	17.85	17.99	17.79	17.67	17.74		+0.8	.00	+0.7
		1.22	2.12	1.22	1.22	0.74	0.74	0.72	0.59	0.79	0.79	0.79				

	164	110	98	199	42	39	44	6	48	45	134	231	137	1	69
S 3130	19.25 3.18	19.11 2.97	X	—	18.28 1.90	19.44 3.44	18.19 1.75	19.28 3.22	19.15 3.03	17.98 1.59	19.09 2.95	19.25 3.18	18.83 2.60	19.28 3.22	17.33 3.30
5575	19.42 1.68	19.26 1.55	20.36 2.47	20.78 2.96	18.05 0.70	19.74 1.94	18.03 0.67	19.52 1.76	19.32 1.60	17.66 0.46	19.26 1.55	19.27 1.56	18.94 1.31	19.36 1.63	19.01 1.36
5580	19.61 1.93	19.61 1.93	20.23 2.45	20.81 2.99	17.92 0.86	19.83 2.10	17.84 0.81	19.86 2.13	19.09 1.56	17.55 0.64	19.63 1.94	19.55 1.88	18.84 1.39	19.38 1.72	18.81 1.37
S 3134	19.70 3.63	19.60 3.50	20.10 4.51	— 4.92	18.17 1.92	19.75 3.70	18.18 1.93	20.03 4.11	19.19 2.98	18.23 1.78	19.63 3.54	19.33 3.15	18.73 2.48	19.54 3.42	19.12 2.89
5590	20.05 2.27	19.11 1.49	20.31 2.54	20.69 3.00	18.14 0.81	19.49 1.77	18.14 0.81	20.04 2.26	19.61 1.87	17.79 0.58	19.11 1.49	19.40 1.70	18.86 1.31	19.90 2.12	19.40 1.70
6384	19.84 2.16	19.63 1.98	—	21.0: 3.42	18.81 1.27	19.41 1.78	19.44 1.81	19.90 2.22	19.30 1.68	17.83 0.53	19.30 1.68	19.38 1.76	18.75 1.22	19.27 1.66	19.82 2.14
6387	19.92 2.19	19.67 1.95	21.0: 3.30	21.0: 3.33	18.66 1.08	19.72 1.94	19.64 1.94	20.09 1.92	19.73 2.36	17.94 2.00	19.69 0.58	19.61 1.96	19.00 1.89	19.40 1.37	19.99 1.71
6390	20.00 2.32	19.58 1.90	21.0: 3.41	20.69 3.07	18.64 1.07	19.68 2.00	19.51 1.83	20.02 2.34	19.63 1.95	18.06 0.63	19.76 2.08	19.46 1.78	19.03 1.40	19.48 1.80	19.92 2.24
6393	—	19.12 1.59	20.7: 3.35	20.7: 3.35	18.44 0.99	19.55 1.98	19.31 1.76	20.18 2.68	19.60 2.03	17.79 0.51	19.79 2.22	19.34 1.79	18.90 1.39	19.50 1.93	19.85 2.28
6396	19.88 3.19	19.01 2.08	—	—	18.30 1.27	19.84 3.14	19.50 2.70	—	19.62 2.86	17.65 0.75	19.57 2.79	19.18 2.30	18.80 1.82	19.60 2.83	19.94 3.26
6407	19.96 2.38	19.65 2.07	—	20.5: 3.06	18.58 1.02	19.54 1.96	19.46 1.88	19.70 2.12	19.08 1.51	17.95 0.51	19.88 2.30	19.45 1.87	18.91 1.34	19.77 2.19	19.17 1.60
6410	19.84 2.19	19.45 1.80	—	20.8: 3.65	18.36 2.95	19.47 0.77	19.26 1.82	19.59 1.61	19.06 1.42	17.84 0.36	19.46 1.81	19.36 1.71	18.81 1.18	19.67 2.02	19.34 1.69
6413	20.22 2.56	19.80 2.07	—	20.8: 3.90	18.52 3.26	19.74 0.84	19.45 2.00	19.86 1.70	19.36 2.14	17.94 0.37	19.31 1.56	19.60 1.85	19.01 1.28	20.38 2.69	19.65 1.90
6417	19.69 2.08	19.21 1.61	20.29 2.69	20.61 3.06	18.26 0.78	19.63 2.02	19.26 1.66	19.97 2.37	19.50 1.89	17.77 0.40	19.16 1.57	19.79 2.18	19.42 1.81	19.69 2.08	19.69 2.08
6420	20.01 2.70	19.14 1.88	20.27 2.98	20.6: 3.42	18.46 1.27	19.62 2.32	19.41 2.13	19.90 2.59	19.68 2.38	17.81 0.79	19.43 2.14	19.64 2.34	19.28 2.01	19.58 2.26	19.66 2.36
6423	19.98 2.97	19.14 2.04	—	—	18.88 1.30	19.43 2.29	19.41 2.27	19.90 2.83	19.74 2.61	17.96 0.95	19.75 2.63	19.72 2.59	19.42 2.28	19.40 2.26	19.80 2.69
6426	19.9: 2.95	19.19: 2.18	X	—	18.31 1.28	19.15 2.14	19.17 2.16	19.9: 2.93	19.19 2.18	17.81 0.88	19.67 2.69	19.63 2.65	19.29 2.29	19.29 2.28	20.0: 3.05
6429	—	18.9: 2.17	—	—	18.31 1.44	18.9: 2.14	X	19.7: 3.22	18.9: 2.11	17.53 0.72	—	19.3: 2.72	19.0: 2.33	19.0: 2.33	19.6: 3.07
6431	—	19.3: 2.66	—	—	18.43 1.57	18.86 2.05	19.4: 2.72	19.8: 3.42	19.10 2.34	17.70 0.92	—	19.4: 2.71	19.04 2.26	—	20.0: 3.66

6400

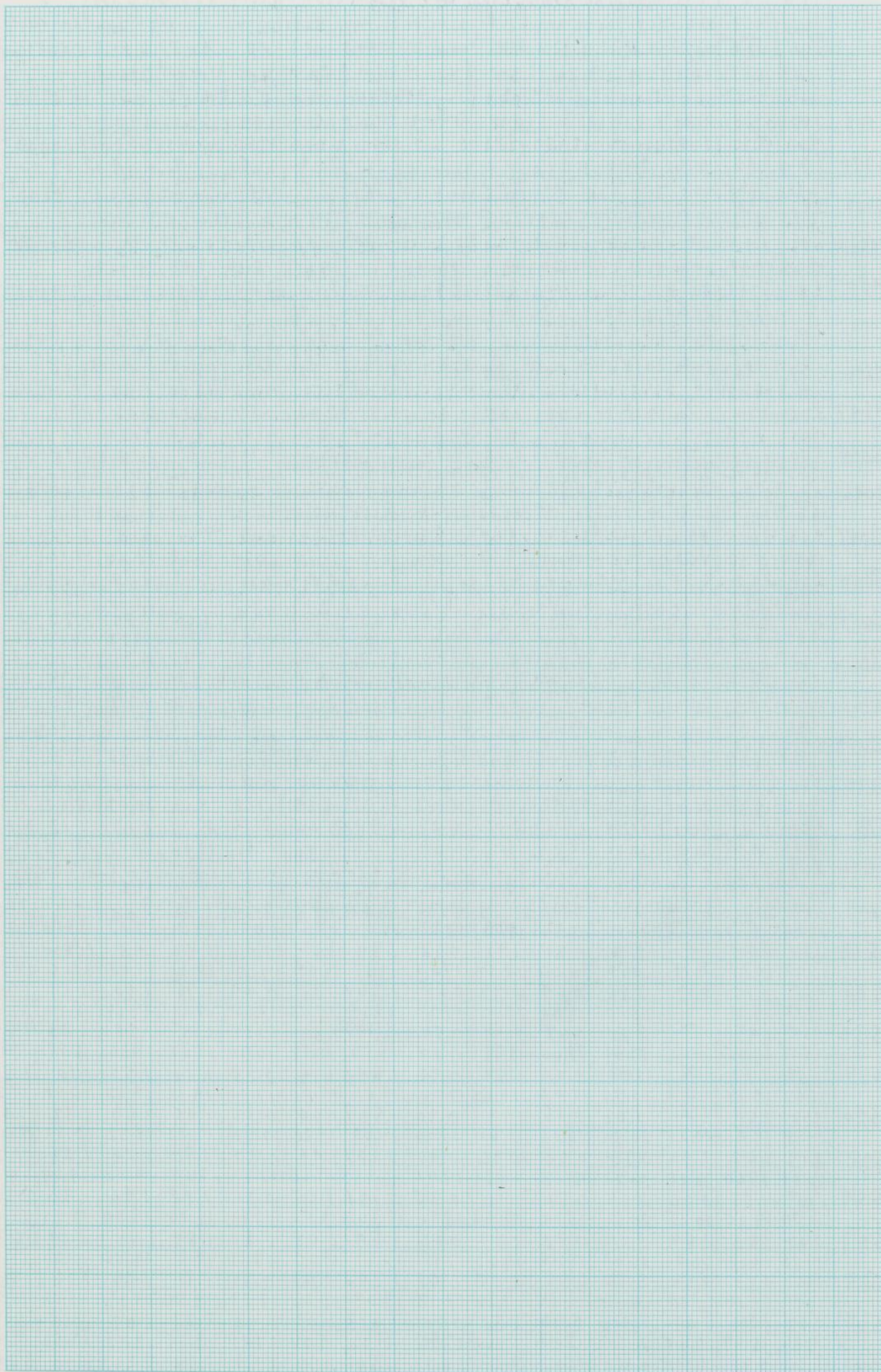
3830

Group of stars for E II(B)

$\sigma \rightarrow$ large σ_2 only
 $X \rightarrow$ wrong
 $N \rightarrow$ Error (no data?)

(19)

	RR?? l.b.	RR?	RR?	l.b.	l.b.	RR	l.b.	RR	RR	l.b.	RR	l.b.	RR	RR	RR
	164	110	98	199	42	39	44	6	48	45	134	231	137	1	69
	20.15	19.41	20.39	20.48	18.11	19.54	<u>X</u>	19.96	19.20	18.15	19.55	19.29	19.13	19.70	19.74
442	2.80	2.09	3.04	3.14	0.96	2.21	<u>X</u>	2.61	1.90	0.99	2.22	1.98	1.83	2.86	2.40
	19.6:	19.6:	20.5:	20.8:	17.98	19.7:		19.6:	19.15	17.80	19.30	19.5:	19.10	19.7:	20.0:
2778	3.42	3.35	4.26:	4.61:	1.80	3.51	—	3.40	2.94	1.65	3.09	3.24	2.89	3.51	3.76
	19.7:	19.01	—	—	17.85	19.47		19.6:	19.6:	18.01	19.44	19.7:	18.94	19.08	19.50
2909	3.97	3.12	—	—	1.77	3.72	—	2.53	3.92	1.92	3.67	4.07	3.03	3.22	3.75
	19.29	19.16	—	20.72	18.43	19.72	19.68	19.37	18.85	18.18	19.64				
4544	1.79	1.73	X	3.04	1.23	2.14	2.11	2.88	1.51	1.07	2.08	N	N	N	N
	19.6:	19.28	20.2:	—	18.66	19.7:	19.6:	—	19.05	18.26	19.47	—	—	—	—
4545	4.20	3.79	5.18	—	3.10	4.44	4.22	—	3.50	2.70	4.04	—	—	—	—
	19.73	19.20	20.58	20.53	18.19	19.01	—	19.08	19.41	17.87	19.72	19.21	19.35	19.43	19.00
4841	1.88	1.35	2.73	2.68	0.49	1.17	—	1.23	1.56	0.24	1.87	1.36	1.50	1.58	1.16
	20.05	19.12	—	X	18.14	19.00	X	19.44	19.58	17.92	19.62	19.21	19.11	19.13	19.27
4846	2.27	1.36	—	X	0.50	1.24	X	1.66	1.80	0.33	1.84	1.44	1.35	1.37	1.50
	20.3:	19.07	X	X	18.26	19.00	X	19.50	19.6:	18.02	19.40	19.25	19.11	19.20	19.38
4847	3.13	1.90	X	X	1.09	1.83	X	2.33	2.49	0.87	2.23	2.08	1.94	2.03	2.21
	19.5:	18.95	—	—	17.89	19.5:	18.27	19.6:	18.75	17.67	18.93	19.6:	18.69	19.6:	19.6:
S 3044	3.50	2.81	—	—	1.39	3.58	1.90	3.75	2.56	1.11	2.79	3.82	2.48	3.72	3.82
	19.85	19.12	20.3:	20.3:	18.13	19.38	18.35	19.90	19.25	17.77	19.42	19.31	18.80	19.01	19.98
S 3046	3.66	2.82	4.22	4.24	1.68	3.12	1.91	3.71	2.96	1.33	3.16	3.04	2.44	2.69	3.81
	19.40	19.27	19.76	—	18.15	19.52	18.30	19.65	19.43	17.71	19.73	19.35	18.66	19.17	19.70
S 3047	3.19	3.03	3.66	—	1.65	3.34	1.82	3.78	3.23	1.19	3.61	3.13	2.28	2.91	3.58
	19.37	18.94	19.87	—	18.14	19.57	18.30	19.36	18.87	17.74	19.58	19.20	19.12	19.12	18.82
S 3050	3.15	2.54	3.90	4.50	1.53	3.41	1.72	3.13	2.46	1.12	3.44	2.92	2.81	2.81	2.39
	19.44	18.88	19.93	20.4:	17.98	19.47	18.37	19.47	18.88	17.84	19.48	19.25	19.24	19.34	19.01
S 3051	2.99	2.26	3.69	4.38	1.31	3.03	1.68	3.03	2.27	1.19	3.05	2.74	2.72	2.86	2.42
	19.67	18.93	19.96	—	18.10	19.31	18.27	19.72	18.86	17.69	18.90	19.22	19.08	19.54	19.08
S 3052	3.49	2.52	3.88	4.73	1.50	3.02	1.68	3.56	2.43	1.11	2.48	2.90	2.72	3.32	2.72
	19.61	19.22	19.76	—	18.20	19.46	18.31	19.80	19.13	17.68	19.11	19.22	18.96	19.65	19.37
S 3053	3.45	2.88	3.66	—	1.57	3.24	1.69	3.73	2.75	1.09	2.72	2.89	2.50	2.50	3.10
	19.8:	19.25	—	—	18.16	19.06	18.23	—	19.39	17.70	19.07	19.06	18.85	19.45	19.35
S 3054	4.48	3.60	—	—	2.04	3.31	2.13	—	3.82	1.51	3.32	3.31	3.00	3.91	3.75
	20.15	19.49	20.26	20.56	17.99	19.75	17.46	19.80	18.99	17.66	19.18	19.77	18.87	19.24	19.71
5229	2.86	2.21	2.97	3.28	1.03	2.46	0.67	2.51	1.77	0.81	1.93	2.48	1.67	1.99	2.42
	19.82	19.37	20.21	20.52	17.98	19.53	17.42	19.96	19.14	17.68	19.60	20.07	18.82	19.57	19.82
5231	2.32	1.86	2.81	3.20	0.68	2.02	0.29	2.49	1.65	0.46	2.09	2.63	1.37	2.06	2.33
	20.09	19.39	20.14	20.61	18.01	19.73	17.58	19.34	19.65	17.66	19.68	19.61	18.93	19.82	18.70
5242	2.67	1.98	2.73	3.31	0.99	2.29	0.73	1.94	2.21	0.78	2.24	2.18	1.62	2.38	1.45
	19.56	19.39	20.27	20.6:	17.93	18.81	17.45	19.96	18.97	17.61	19.10	19.59	—	19.67	19.31
5249	2.19	2.02	2.94	3.39	0.81	1.49	0.48	2.60	1.63	0.58	1.75	2.22	—	2.30	1.55
	20.04	19.51	—	20.56	18.04	19.79	17.88	20.19	19.52	17.77	19.31	19.28	19.43	19.64	19.53
5523	2.17	1.65	X	2.76	0.31	1.91	0.18	2.34	1.66	0.09	1.46	1.43	1.58	1.78	1.67
	19.77	19.61	21.1:	20.82	18.00	18.57	17.86	19.37	19.64	17.67	19.61	19.43	19.15	19.84	19.74
5528	1.88	1.75	3.17	2.88	0.64	0.99	0.55	1.56	1.77	0.44	1.75	1.60	1.39	1.94	1.85
	19.32	19.21	—	20.80	18.04	19.16	17.90	19.24	19.03	17.65	19.71	19.36	18.90	19.73	19.79
5532	1.55	1.47	—	2.85	0.67	1.43	0.58	1.49	1.33	0.42	1.85	1.58	1.23	1.87	1.92
	19.55	19.05	—	20.62	18.06	19.39	17.87	19.50	18.94	17.71	19.17	19.36	18.87	19.42	19.84
5537	1.69	1.24	X	2.78	0.48	1.54	0.34	1.64	1.14	0.23	1.34	1.51	1.10	1.57	1.96
	19.67	19.19	—	20.77	18.02	19.62	17.82	19.62	19.00	17.71	19.13	19.32	18.98	19.35	19.86
5540	1.98	1.51	—	3.08	0.55	1.93	0.40	1.93	1.34	0.32	1.45	1.63	1.32	1.66	2.17
	19.98	19.41	20.25	20.71	18.12	18.61	17.96	20.03	19.20	17.78	19.73	19.32	18.94	19.59	18.64
5548	2.13	1.62	2.40	2.92	0.60	0.96	0.49	2.18	1.44	0.37	1.90	1.54	1.22	1.77	0.98
	20.04	19.60	20.26	20.72	18.13	19.31	17.91	20.19	19.60	17.71	19.17	19.38	19.19	19.29	19.14
5554	2.05	1.65	2.26	2.69	0.51	1.40	0.35	2.19	1.65	0.21	1.28	1.46	1.30	1.38	1.26
	19.70	19.25	20.25	20.55	18.12	19.40	17.91	19.26	19.51	17.73	19.26	19.30	19.44	19.29	19.34
5559	2.27	1.83	2.87	3.22	0.82	1.97	0.65	1.84	2.08	0.51	1.84	1.88	2.01	1.87	1.91
	19.30	19.08	20.21	20.68	18.15	19.69	17.95	18.97	19.25	17.76	19.55	19.33	19.60	19.44	19.47
5563	1.66	1.44	2.58	3.12	0.65	2.05	0.49	1.34	1.61	0.34	1.91	1.69	1.96	1.80	1.83
	19.24	19.10	20.30	20.63	18.11	19.76	17.93	19.03	19.23	17.79	19.56	19.29	19.58	19.57	19.41
5564	2.02	1.88	3.07	3.41	0.96	2.53	0.80	1.81	2.01	0.68	2.33	2.07	2.35	2.34	2.18
	19.36	18.99	20.10	20.40	18.12	19.60	17.95	19.06	19.06	17.81	19.55	19.19	19.62	19.48	19.52
5565	3.11	2.72	4.04	4.46	1.84	3.38	1.67	2.80	2.80	1.53	3.32	2.93	3.40	3.24	3.28



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Yellow values for Group I (B on Mr 67-69) I(V)

100-350
16.09

	64	11	9	96	97	7	234	228	NE1	NE2	NE3	NE4	NE5	46	47
3 441	19.99	19.14	19.29	19.13	18.84	19.20	19.07	19.61	19.48	17.47	19.32	16.59	19.67	16.91	17.12
2 2779	2.93	2.07	2.22	2.06	1.80	2.13	2.01	2.54	2.41	0.78	2.25	0.22	2.60	0.42	0.55
2 2907	19.61	19.26	19.68	18.79	19.37	19.59	19.02	19.40	19.73	17.60	19.28	16.60	—	16.50	17.54
2 2908	3.47	3.12	3.54	2.65	3.23	3.45	2.88	3.26	3.59	1.53	3.14	0.76	—	0.69	1.48
2 4834	19.81	19.10	18.63	19.49	19.41	18.66	19.04	19.45	19.44	17.66	19.15	16.61	19.62	16.31	17.11
2 4842	3.88	3.10	2.60	3.46	3.43	2.63	3.03	3.48	3.47	1.68	3.15	0.88	3.66	0.67	1.24
1 4843	20.11	19.19	18.63	19.61	19.37	18.83	18.93	19.39	19.81	17.65	19.34	16.62	19.71	16.88	17.16
2 5522	4.04	3.10	2.59	3.57	3.33	2.79	2.89	3.35	3.74	1.64	3.30	0.86	3.64	0.69	1.24
2 5555	19.28	19.09	18.73	19.17	19.20	18.72	19.09	19.43	19.71	17.56	19.37	16.55	19.91	17.13	16.39
2 5567	2.18	1.94	1.63	2.07	2.10	1.62	1.99	2.34	2.64	0.53	2.28	-0.23	2.91	0.19	-0.34
1 5576	19.31	19.06	19.35	19.21	19.45	19.34	19.00	19.39	19.51	17.60	19.16	16.49	19.61	17.12	16.36
1 5581	2.64	2.31	2.69	2.49	2.83	2.68	2.24	2.74	2.90	0.94	2.44	0.09	3.09	0.54	0.00
1 5582	19.38	19.14	19.61	19.24	19.51	19.30	19.18	19.61	19.81	17.69	19.33	16.55	19.71	17.20	16.46
1 5588	3.43	3.14	3.68	3.26	3.60	3.34	3.19	3.69	3.96	1.58	3.37	0.56	3.78	1.10	0.48
1 5592	19.81	19.07	18.78	18.86	19.21	19.21	19.09	19.51	19.51	17.60	19.31	16.66	—	16.45	16.92
1 5595	3.98	3.02	2.68	2.78	3.17	3.15	3.05	3.54	3.52	1.40	3.32	0.46	—	0.28	0.72
1 5598	19.61	18.94	19.71	19.23	19.19	19.11	19.15	19.71	19.71	17.68	19.33	16.64	19.91	16.36	16.98
1 5599	3.65	2.89	3.82	3.21	3.17	3.08	3.12	3.79	3.87	1.54	3.33	0.63	4.12	0.41	0.89
1 5607	19.91	19.18	18.77	19.51	19.28	19.27	19.16	19.51	19.61	17.59	19.32	16.58	20.11	16.36	16.97
2 5676	4.10	3.24	2.74	3.64	3.37	3.35	3.22	3.64	3.73	1.42	3.42	0.59	4.26	0.42	0.89
3 5581	20.31	19.32	19.71	19.50	19.13	19.02	19.08	19.49	19.61	17.65	19.34	16.63	—	16.35	16.87
2 5582	4.20	3.02	3.51	3.22	2.81	2.70	2.76	3.21	3.42	1.42	3.04	0.70	—	0.51	0.87
3 5581	19.30	18.96	19.62	19.68	19.16	19.24	19.08	19.50	19.71	17.57	19.26	16.45	19.91	16.22	16.92
2 5582	2.79	2.45	3.11	3.17	2.65	2.73	2.57	2.99	3.20	1.24	2.75	0.52	3.42	0.37	0.82
2 5582	19.32	18.97	19.61	19.38	19.27	19.22	19.14	19.71	19.71	17.54	19.41	16.48	20.01	16.29	16.89
2 5582	3.89	3.45	4.22	3.96	3.82	3.77	3.67	4.33	4.40	1.98	4.00	1.04	4.75	0.90	1.35

Yellow values for Group II II(V)

	164	110	98	199	42	39	44	6	48	45	134	231	137	1	69
441	19.67	19.47	20.51	20.51	15.80	19.54	—	19.62	19.10	15.23	19.46	19.39	19.11	19.49	19.45
2779	2.60	2.40	3.42	3.46	-0.24	2.47	X	2.55	2.06	-0.58	2.39	2.32	2.05	2.42	2.38
2907	19.55	19.48	20.41	20.31	16.24	19.45	—	19.57	19.14	15.39	19.29	19.73	19.14	19.60	19.47
2908	3.41	3.34	4.36	4.12	0.52	3.31	X	3.43	3.00	-0.05	3.15	3.59	3.00	3.46	3.33
4834	19.49	18.97	20.31	20.11	16.30	19.45	—	19.58	19.31	15.56	19.30	19.24	18.80	19.08	19.29
4842	3.52	2.95	4.55	4.19	0.66	3.47	X	3.61	3.32	0.18	3.31	3.24	2.78	3.08	3.30
4843	19.57	19.15	—	20.41	16.18	19.52	—	19.61	19.32	15.53	19.36	19.71	18.71	19.21	19.39
5522	3.53	3.11	—	4.35	0.55	3.48	X	3.65	3.28	0.14	3.32	3.67	2.67	3.17	3.35
5555	20.01	18.97	—	20.01	16.53	18.90	18.80	19.51	19.24	15.27	19.41	20.21	18.79	19.44	19.63
5567	3.68	1.87	X	3.10	-0.24	1.80	1.70	2.43	2.14	-1.09	2.32	3.34	1.69	2.36	2.58
5576	19.71	19.07	20.31	20.11	16.42	18.80	18.98	19.01	19.25	15.37	19.61	19.27	19.15	19.25	19.01
5581	3.21	2.33	3.97	3.70	0.04	2.04	2.22	2.26	2.55	-0.67	2.99	2.58	2.42	2.55	2.25
5582	20.11	19.14	—	19.81	16.51	19.00	19.07	19.20	19.37	15.34	19.61	19.34	19.29	19.28	19.03
5592	4.28	3.14	—	3.98	0.52	2.98	3.06	3.22	3.42	-0.37	3.76	3.38	3.32	3.31	3.01
5595	—	19.41	—	19.61	16.29	19.51	15.97	19.81	19.31	15.20	19.41	19.41	19.51	19.71	19.31
5598	—	3.44	—	3.68	0.14	3.51	-0.12	3.90	3.32	-0.70	3.40	3.40	3.55	3.76	3.26
5599	19.91	19.61	—	—	16.22	19.37	15.98	20.01	19.71	15.14	19.13	19.51	19.30	19.24	19.18
5607	4.08	3.59	—	—	0.31	3.37	0.15	4.12	3.75	-0.44	3.10	3.54	3.30	3.22	3.16
5676	19.30	18.92	—	—	16.28	19.30	16.07	19.04	18.93	15.26	19.33	19.20	19.41	19.22	19.31
5681	3.39	2.92	—	4.78	0.36	3.39	0.20	3.06	2.93	-0.38	3.43	3.26	3.57	3.29	3.41
5682	19.58	19.30	—	—	16.27	19.52	16.03	—	—	15.21	19.35	19.49	18.90	19.17	18.82
5692	3.32	2.99	4.57	4.69	0.46	3.25	0.31	X	X	-0.22	3.05	3.21	2.58	2.86	2.50
5695	19.71	19.55	20.41	20.61	16.20	19.66	16.06	19.56	19.03	15.15	19.71	19.54	18.80	19.27	18.93
5698	3.20	3.04	4.06	4.32	0.36	3.15	0.27	3.05	2.52	-0.32	3.20	3.03	2.30	2.76	2.42
5699	20.11	19.81	—	—	16.28	19.61	16.10	19.71	18.96	15.05	19.91	19.61	19.05	19.51	18.99
5707	4.68	4.40	5.23	5.80	0.89	4.27	0.77	4.34	3.44	0.05	4.54	4.27	3.56	4.17	3.48

	5	141	158	SE10	SE9	SE6	SE7	SE8	2	41	109	43	140	3	232
3130	18.94	19.78	19.41	19.31	18.27	—	—	20.01	—	19.92	18.32	20.01	19.25	—	—
	2.74	3.94	3.40	3.27	1.89	—	—	4.27	4.74	4.15	1.94	4.65	3.17	wrong*	—
5575	19.11	19.88	18.94	19.42*	—	—	—	19.07*	19.88	—	17.87	20.04	19.32	18.78	—
	1.44	2.05	1.31	1.68	—	—	—	1.91	2.05	wrong*	—	0.59	2.18	1.60	1.19
5580	19.51	19.94	18.93	—	—	—	—	—	19.74	20.48	—	17.93	20.38	20.19	18.98
	1.85	2.20	1.45	—	—	—	—	—	2.03	2.68	—	0.86	2.59	2.37	1.48
3134	19.49	19.92	19.34	19.37	18.28	—	20.21	19.73	19.04	19.41	19.96	18.27	19.49	20.11	19.12
	3.36	3.95	3.16	3.20	2.03	—	4.46	3.67	2.80	3.26	4.00	2.02	3.36	4.29	2.89
5590	19.78	19.95	18.90	19.25	18.14	20.21	20.42	19.71	19.30	19.49	19.67	17.95	19.61	20.53	19.308
	2.01	2.17	1.34	1.60	0.82	2.44	2.65	1.98	1.63	1.77	1.92	0.68	1.87	2.80	1.638
6384	19.63	19.89	19.23	19.36	18.25	20.23	20.34	19.65	19.21	—	19.11	18.44	20.14	19.59	19.02
	1.98	2.21	1.62	1.74	0.83	2.51	2.61	1.99	1.61	—	1.52	0.97	2.43	1.94	1.44
6387	19.76	20.01	19.44	19.46	18.37	20.44	20.58	19.86	19.38	20.05	19.29	18.63	20.26	19.93	—
	2.03	2.28	1.74	1.76	0.86	2.70	2.85	2.13	1.69	2.32	1.61	1.06	2.52	2.20	wrong*
6390	19.38	19.86	19.37	19.35	18.33	20.31	20.52	19.70	19.46	20.09	19.36	18.62	20.02	19.98	—
	1.70	2.18	1.69	1.67	0.83	2.63	2.86	2.02	1.78	2.41	1.68	1.06	2.34	2.30	wrong*
6393	19.11	20.00	19.23	19.34	18.23	20.21	20.41	19.69	19.55	19.91	19.15	18.41	20.13	20.01	18.89
	1.58	2.43	1.69	1.79	0.83	2.66	2.93	2.11	1.98	2.34	1.62	0.97	2.58	2.44	1.38
6396	19.25	20.04	19.40	19.29	18.18	20.08	20.41	—	19.46	—	18.94	18.45	20.31	20.21	—
	2.39	3.39	2.58	2.44	1.17	3.44	4.08	—	2.65	—	2.00	1.41	3.73	3.55	—
6407	19.53	19.62	19.35	19.31	18.29	20.21	20.44	19.79	19.53	19.96	19.31	18.55	19.67	19.28	18.85
	1.95	2.04	1.77	1.73	0.78	2.63	2.92	2.21	1.95	2.38	1.73	1.00	2.09	1.70	1.29
6410	19.41	19.53	19.16	19.25	18.24	20.27	20.33	19.59	19.56	19.44	19.21	18.45	19.57	19.38	18.77
	1.76	1.88	1.51	1.60	0.67	2.62	2.68	1.94	1.91	1.79	1.56	0.85	1.92	1.73	1.14
6413	19.84	19.63	19.50	19.48	18.39	20.22	20.71	19.77	20.04	19.51	19.45	18.63	19.84	19.75	19.05
	2.11	1.88	1.75	1.73	0.73	2.56	3.12	2.04	2.35	1.76	1.70	0.93	2.22	2.01	1.32
6417	19.65	19.57	19.24	19.23	18.21	20.27	20.45	19.64	19.61	19.42	19.18	18.46	19.93	19.95	18.76
	2.04	1.96	1.64	1.63	0.74	2.67	2.86	2.03	2.00	1.81	1.58	0.94	2.32	2.34	1.20
6420	19.62	19.56	19.34	19.23	18.17	20.44	20.24	19.68	19.23	19.69	19.14	18.48	19.98	20.10	18.95
	2.32	2.26	2.06	1.96	1.06	3.16	2.95	2.38	1.96	2.39	1.88	1.29	2.68	2.80	1.71
6423	19.58	19.68	19.33	19.27	18.21	20.41	20.61	19.74	19.20	19.74	19.12	18.36	19.89	19.95	18.87
	2.44	2.55	2.18	2.12	1.15	3.48	3.59	2.62	2.05	2.62	1.97	1.28	2.82	2.92	1.73
6426	19.25	19.71	19.06	19.22	18.12	20.21	20.21	19.73	19.17	—	19.09	18.35	19.91	20.01	18.90
	2.24	2.74	2.05	2.21	1.12	3.41	3.36	2.76	2.16	—	2.08	1.32	2.94	3.08	1.88
6429	19.03	19.61	18.72	19.12	18.00	—	—	19.41	19.21	—	18.92	18.44	19.81	19.91	19.12
	2.31	3.11	1.91	2.49	1.13	—	3.81	2.88	2.54	—	2.17	1.58	3.38	3.47	2.48
6431	19.23	—	19.00	19.27	18.18	—	20.21	19.61	19.32	—	19.13	18.48	—	—	18.74
	2.50	—	2.21	2.56	1.33	—	3.92	3.00	2.63	—	2.38	1.62	4.39	—	1.91

* mean direct edge of loop. Group of stars SE III (B)

(83)

	✓	✓	✓	redd from non - "bent"					✓	✓	✓	✓	✓	✓	✓
	5	141	158	SE10	SE9	SE6	SE7	SE8	2	41	109	43	140	3	232
442	19.17	19.63	19.28	19.36*	—	20.19*	20.46*	19.60*	19.72	19.75	19.30	19.16	19.73	19.20	18.70
	1.87	2.29	1.97	2.00	—	2.79	3.09	2.22	2.38	2.41	1.99	1.86	2.39	1.90	1.45
2778	19.26	19.39	19.26	19.33	18.19	20.1:	20.0:	19.61	19.57	19.77	18.95	18.79	19.27	19.35	wrong*
	3.05	3.18	3.05	3.09	1.96	3.99	3.86	3.38	3.36	3.56	2.74	2.58	3.06	3.14	—
2909	19.57	19.8:	19.06	19.28	18.11	19.7:	20.1:	19.9:	19.16	19.40	18.94	18.31	19.02	19.49	18.57
	3.85	4.19	3.19	3.47	2.03	3.97	4.58	4.25	3.32	3.62	3.04	2.23	3.13	3.74	2.55
4544	19.48	19.72	19.42	19.68	18.22	20.29	20.34	19.58	19.12	19.74	19.05	18.56	19.06	20.03	18.75
	1.96	2.14	1.92	2.11	1.10	2.63	2.67	2.04	1.70	2.16	1.65	1.32	1.66	2.39	1.45
4545	19.36	19.5:	20.0:	—	18.60	—	20.0:	19.6:	19.08	19.8:	19.25	18.82	19.11	19.9:	wrong*
	3.89	4.01	4.66	—	3.04	—	4.75	4.20	3.53	4.48	3.75	3.26	3.57	4.60	—
4841	19.49	19.89	19.56	19.23	18.19	20.16	20.29	19.72	19.39	20.07	18.66	18.68	20.04	19.44	19.25
	1.64	2.04	1.71	1.38	6.49	2.31	2.44	1.87	1.54	2.22	0.86	0.88	2.19	1.59	1.40
4846	—	19.77	19.62	19.29	18.16	20.00	20.50	19.70	19.78	20.13	18.65	18.66	19.19	19.80	18.81
	wrong*	1.99	1.84	1.52	0.52	2.22	2.74	1.92	2.00	2.36	0.91	0.92	1.42	2.02	1.06
4847	19.66	20.0:	19.54	19.40	18.25	20.0:	20.4:	19.61	19.87	20.4:	18.77	18.73	19.16	19.76	18.76
	2.52	2.92	2.39	2.24	1.08	2.94	3.44	2.46	2.75	3.42	1.60	1.56	1.99	2.62	1.62
S 3044	19.14	19.22	19.01	19.21	18.26	—	19.9:	19.8:	19.4:	—	19.15	18.47	19.29	19.13	—
	3.08	3.20	2.90	3.18	1.88	—	4.27	4.09	3.44	—	3.09	2.17	3.29	3.07	wrong*
S' 3046	19.55	19.52	19.07	19.18	18.19	—	wrong*	19.71	19.49	19.99	19.13	18.42	19.60	19.71	19.03
	3.31	3.27	2.76	2.88	1.74	—	—	3.50	3.24	3.82	2.83	2.00	3.37	3.50	2.71
S' 3047	19.58	19.63	19.11	19.35	18.24	20.07	20.22	19.59	19.81	19.38	19.19	18.37	19.66	19.79	19.04
	3.42	3.49	2.82	3.13	1.75	4.06	4.12	3.44	3.72	3.17	2.93	1.90	3.53	3.69	2.74
S' 3050	19.15	19.66	19.04	19.22	18.26	20.1:	19.9:	—	19.54	19.72	19.14	18.38	19.84	19.86	19.00
	2.85	3.54	2.69	2.94	1.66	4.30	3.96	—	3.38	3.63	2.84	1.82	3.84	3.88	2.63
S' 3051	19.04	19.64	19.09	19.23	18.22	19.99	20.25	19.51	19.64	19.82	19.16	18.37	19.85	19.08	19.16
	2.46	3.26	2.52	2.70	1.54	3.78	4.19	3.09	3.26	3.52	2.61	1.69	3.56	2.51	2.61
S 3052	18.89	19.54	18.92	19.10	18.19	19.91	20.10	19.54	19.48	19.80	19.24	18.42	20.05	19.15	19.25
	2.47	3.32	2.50	2.75	1.59	3.81	4.06	3.32	3.25	3.90	2.93	1.85	4.00	2.82	2.94
S 3053	19.17	19.50	18.97	19.31	18.23	19.91	—	19.56	19.05	20.00	19.13	18.44	19.88	19.44	19.23
	2.81	3.30	2.53	3.01	1.61	3.97	—	3.38	2.63	4.16	2.76	1.84	3.89	3.20	2.90
S 3054	19.25	—	18.96	19.17	18.13	—	—	—	19.02	—	18.98	18.37	—	19.6:	18.97
	3.59	—	3.15	3.47	1.99	—	—	—	3.24	—	3.18	2.32	—	4.14	3.17
5229	19.57	19.87	18.74	19.33*	18.10*	20.24*	20.55*	19.67*	19.66	20.10	18.62	18.41	19.48	20.13	18.37
	2.29	2.58	1.57	2.09	1.11	2.98	3.29	2.41	2.38	2.81	1.48	1.33	2.20	2.84	1.30
5231	19.37	19.38	18.66	19.37	18.16	20.11	20.37	19.59	19.20	19.44	18.59	18.37	19.92	18.91	18.32
	1.86	1.87	1.24	1.86	0.82	2.68	3.01	2.08	1.70	1.93	1.18	1.00	2.44	1.45	0.95
5242	19.33	19.83	18.81	19.30	18.21	20.29	20.26	19.55	19.20	19.99	18.57	18.44	20.10	20.15	18.50
	1.93	2.39	1.53	1.91	1.08	2.86	2.83	2.12	1.83	2.56	1.35	1.26	2.68	2.74	1.30
5249	19.55	19.93	18.65	19.24	18.13	20.12	20.5:	19.71	19.39	20.00	18.49	18.45	19.16	20.03	18.32
	2.18	2.57	1.35	1.88	0.95	2.77	3.16	2.34	2.03	2.64	1.21	1.18	1.81	2.67	1.08
5523	19.64	19.60	18.96	19.26	18.19	20.25	20.42	19.66	19.23	19.38	19.68	18.10	19.27	20.26	18.73
	1.78	1.74	1.14	1.42	0.44	2.40	2.60	1.79	1.39	1.53	1.81	0.36	1.43	2.42	0.92
5528	19.67	19.64	19.01	19.35	18.19	20.27	20.46	19.69	19.39	19.51	19.74	18.06	19.57	20.35	18.94
	1.80	1.77	1.29	1.55	0.76	2.33	2.50	1.82	1.57	1.67	1.85	0.67	1.72	2.41	1.24
5532	19.50	19.87	19.02	19.26	18.13	20.24	20.36	19.70	19.73	19.82	19.68	17.99	19.82	20.25	—
	1.69	1.98	1.32	1.52	0.72	2.36	2.47	1.88	1.87	1.94	1.83	0.64	1.94	2.32	wrong*
5537	19.17	19.86	18.98	19.32	18.17	20.26	20.41	19.67	19.90	19.95	19.71	18.00	19.93	20.26	18.73
	1.34	1.98	1.18	1.48	0.56	2.38	2.53	1.80	2.02	2.07	1.83	0.43	2.05	2.38	0.97
5540	19.18	19.93	19.00	19.35	18.18	20.22	20.53	19.65	19.75	19.98	19.61	17.98	19.98	19.36	18.64
	1.50	2.24	1.34	1.66	0.68	2.53	2.84	1.96	2.06	2.29	1.92	0.52	2.29	1.67	1.04
5548	19.12	19.82	18.93	19.20	18.15	20.25	20.34	19.63	19.56	20.08	19.70	18.04	19.97	19.95	18.70
	1.37	1.98	1.22	1.45	0.63	2.40	2.48	1.81	1.75	2.23	1.87	0.54	2.12	2.10	1.03
5554	19.35	19.68	18.96	19.31	18.15	20.26	20.30	19.71	19.79	20.39	19.73	18.02	19.95	20.22	18.77
	1.43	1.72	1.12	1.38	0.51	2.30	2.34	1.75	1.82	2.38	1.77	0.43	1.97	2.22	0.98
5559	19.56	19.36	18.99	19.30	18.20	20.13	20.32	19.64	19.43	19.70	19.78	18.09	19.17	20.13	18.80
	2.12	1.93	1.58	1.88	0.88	2.73	2.95	2.20	2.00	2.26	2.34	0.79	1.75	2.73	1.41
5563	19.63	19.42	18.99	19.35	18.20	20.14	20.29	19.68	19.22	19.28	19.67	18.01	19.23	20.03	18.70
	1.99	1.78	1.36	1.71	0.69	2.51	2.78	2.04	1.58	1.64	2.03	0.54	1.59	2.40	1.10
5564	19.72	19.35	19.05	19.23	18.18	20.17	20.39	19.71	19.21	19.25	19.71	18.04	19.23	19.97	18.69
	2.49	2.13	1.83	2.01	1.02	2.94	3.16	2.48	1.99	2.03	2.48	0.89	2.01	2.74	1.49
5565	19.52	19.37	19.07	19.29	18.19	—	—	19.55	19.15	19.23	19.65	18.11	19.41	19.97	18.77
	3.28	3.12	2.81	3.03	1.91	—	—	3.32	2.89	2.97	3.44	1.83	3.16	3.87	2.49

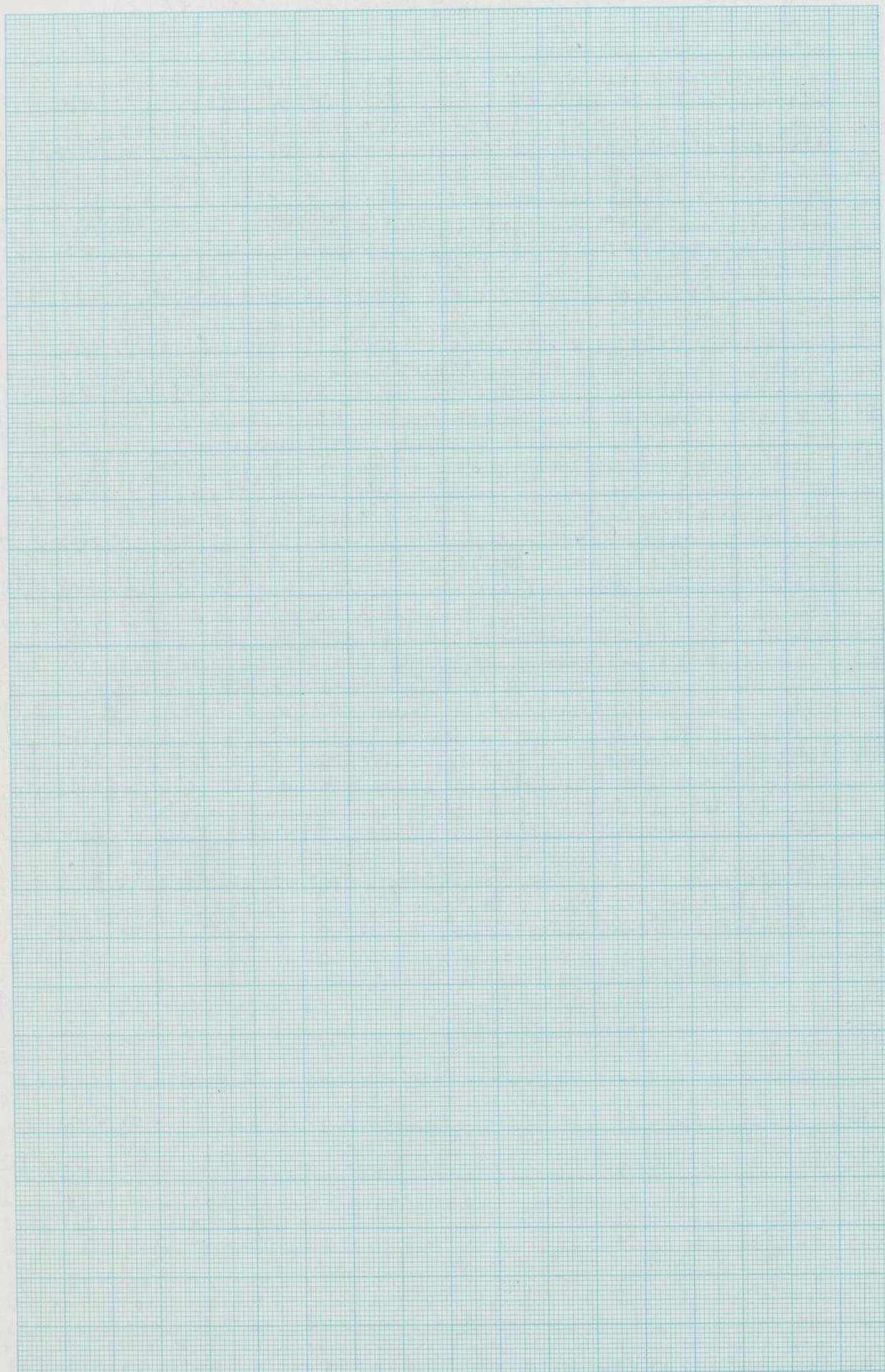
	65	37	159	100	155	SE1	SE2	SE3	SE4	SE5	66	38	201	99	249
	—	19.62	18.69	20.01	—	—	—	19.75	—	18.91	—	19.45	19.38	19.34	19.77
S 3130	—	3.21	2.41	4.40	4.58	—	—	3.90	—	2.05	4.60	3.46	3.37	3.31	3.93
	—	—	18.32	20.11	—	—	—	edge	—	—	20.06	19.39	19.49	19.47	20.03
5575	—	—	0.88	2.24	*	—	—	—	—	*	2.20	1.65	1.73	1.72	2.22
	20.32	20.06	18.16	19.86	19.65	20.09	20.87	19.88	20.80	—	19.57	18.99	19.76	19.57	19.89
5580	2.53	2.30	0.99	2.13	1.96	2.36	3.01	2.19	2.95	*	1.90	1.49	2.05	1.90	2.20
	—	—	18.81	19.77	20.11	20.03	—	20.04	—	18.47	19.57	19.45	19.96	19.70	19.92
S 3134	4.71	—	2.56	3.72	4.23	4.11	—	4.13	4.59	2.22	3.46	3.31	4.00	3.63	3.94
	19.78	19.98	18.32	19.30	19.91	20.17	20.80	19.91	20.69	18.14	19.46	19.76	20.02	19.82	19.81
5590	2.01	2.20	0.93	2.12	2.18	2.40	3.10	2.16	2.95	0.82	1.75	1.99	2.24	2.05	2.07
	20.22	19.18	18.52	19.60	20.62	20.08	20.91	19.86	20.81	18.28	20.02	19.75	19.34	19.57	19.87
6384	2.50	1.58	1.03	1.95	2.86	2.38	3.17	2.18	3.02	0.85	2.32	2.08	1.72	1.92	2.19
	20.35	19.44	18.53	19.48	20.54	20.19	—	19.86	20.68	18.26	20.05	19.92	19.45	19.89	20.05
6387	2.62	1.74	0.98	1.78	2.81	2.46	3.35	2.13	2.96	0.78	2.32	2.19	1.75	2.16	2.32
	20.18	19.58	18.46	19.50	20.20	20.07	20.77	19.84	20.58	18.25	19.96	19.88	19.50	19.84	19.97
6390	2.50	1.90	0.93	1.82	2.52	2.39	3.17	2.16	2.93	0.77	2.28	2.20	1.82	2.16	2.29
	20.39	19.93	18.59	19.69	20.13	20.10	20.71	19.92	20.71	18.24	19.96	19.94	19.51	19.82	19.80
6393	2.86	2.36	1.11	2.11	2.58	2.54	3.25	2.35	3.20	0.84	2.39	2.37	1.94	2.25	2.23
	—	19.99	18.51	20.11	—	20.31	—	19.81	—	18.17	20.00	19.99	19.43	19.78	20.21
6396	—	3.33	1.47	3.42	—	3.75	—	3.05	—	1.16	3.34	3.33	2.62	3.06	3.58
	19.65	19.65	18.63	19.50	20.42	20.09	20.81	19.91	20.71	18.24	19.66	19.39	19.93	19.81	19.92
6407	2.07	2.07	1.07	1.92	2.89	2.51	3.36	2.33	3.27	0.74	2.08	1.81	2.35	2.23	2.34
	19.51	18.69	18.53	19.49	20.49	20.03	20.62	19.62	20.66	18.23	19.65	19.40	19.85	19.21	19.84
6410	1.86	1.26	0.93	1.84	2.84	2.38	2.98	1.97	3.03	0.66	2.00	1.75	2.20	1.56	2.19
	19.40	19.06	18.56	19.70	20.35	20.23	20.58	19.93	20.69	18.31	19.80	19.73	19.69	18.96	20.07
6413	1.73	1.33	0.87	1.96	2.72	2.58	3.00	2.21	3.14	0.66	2.07	1.99	1.95	1.23	2.38
	19.67	19.48	18.55	20.09	20.19	19.97	20.51	19.85	20.66	18.29	19.93	19.83	19.28	19.15	19.89
6417	2.06	1.87	1.02	2.49	2.59	2.36	2.93	2.24	3.12	0.80	2.32	2.22	1.68	1.56	2.28
	19.96	19.58	18.54	20.12	20.39	20.16	20.81	20.05	20.61	18.23	19.98	19.94	19.23	19.36	19.93
6420	2.66	2.28	1.34	2.82	3.11	2.86	3.71	2.75	3.32	1.10	2.67	2.63	1.96	2.08	2.62
	20.02	19.82	18.46	20.00	20.41	19.87	—	19.89	—	18.15	20.11	20.04	19.25	19.40	19.95
6423	3.03	2.70	1.37	3.00	3.58	2.78	—	2.82	3.56	1.10	3.14	3.08	2.10	2.26	2.92
	20.12	19.69	18.50	20.11	—	20.21	—	20.01	—	18.29	19.83	20.21	19.31	19.60	20.21
6426	3.18	2.72	1.46	3.23	—	3.30	—	3.04	3.79	1.26	2.88	3.39	2.30	2.62	3.41
	—	19.81	18.57	19.31	19.81	—	—	19.71	—	18.20	19.71	—	19.11	19.21	—
6429	—	3.38	1.72	2.66	3.44	—	—	3.12	3.18	1.33	3.12	—	2.51	2.63	—
	—	—	18.90	19.60	—	—	—	19.63	—	17.74	—	—	—	19.51	—
6431	—	—	1.54	3.05	3.54	3.55	—	3.08	3.81	0.95	3.24	—	3.19	2.89	3.26

Group of Stars SE IV (B)

(85)

	✓	✓	✓	✓	✓	inner					✓	✓	✓	✓	inner
	65	37	159	100	155	SE1	SE2	SE3	SE4	SE5	66	38	201	99	249
442	20.09	19.82	18.70	19.39	19.96	19.99	20.53	19.77	20.52	18.26	19.60	19.50	19.56	19.27	19.86
	2.79	2.48	1.45	2.07	2.61	2.59	3.17	2.37	3.16	1.07	2.27	2.17	2.23	1.96	2.46
2778	19.30	19.28	18.89	20.41	19.30	20.21	—	20.01	20.21	18.23	19.72	19.81	18.85	19.91	19.91
	3.09	3.07	2.68	1.15	3.09	4.14	4.46	3.87	4.16	2.00	3.51	3.60	2.64	3.67	3.73
2909	19.42	19.49	18.58	19.59	19.51	—	—	19.91	—	18.17	19.19	19.71	19.91	19.62	19.91
	3.65	3.74	2.57	3.87	3.76	—	—	4.32	5.29	2.09	3.35	4.05	4.27	3.92	4.36
4544	20.05	20.18	17.86	19.33	19.85	19.93	20.63	19.80	20.61	18.04	19.06	19.88	19.85	19.30	19.82
	2.41	2.52	0.87	1.85	2.24	2.31	2.96	2.20	2.94	0.98	1.66	2.27	2.24	1.83	2.22
4545	—	19.81	18.16	19.44	—	19.81	—	19.71	19.91	18.22	19.08	19.81	19.64	19.07	19.81
	—	4.51	2.60	4.00	—	4.57	—	4.34	4.62	2.66	3.54	4.55	4.28	3.52	4.50
4841	20.21	19.29	19.04	20.04	19.89	20.20	—	19.86	20.71	18.27	19.49	18.99	19.19	19.76	19.91
	2.36	1.44	1.20	2.19	2.04	2.35	3.33	2.01	2.82	0.55	1.64	1.15	1.34	1.91	2.06
4846	20.12	18.99	19.10	20.04	*	20.25	20.81	19.88	20.53	18.24	19.31	19.44	18.99	19.77	19.82
	2.34	1.23	1.34	2.26	*	2.48	3.15	2.10	2.78	0.58	1.54	1.67	1.23	1.99	2.04
4847	20.31	19.13	19.07	20.21	20.11	19.97	—	20.21	20.41	18.27	19.26	19.41	19.08	19.89	20.01
	3.18	1.96	1.90	3.10	3.00	2.86	4.04	3.08	3.31	1.10	2.10	2.25	1.91	2.77	2.90
S 3044	—	19.65	19.33	19.67	—	—	—	—	—	18.47	19.67	18.63	19.79	19.69	19.80
	—	3.91	3.34	3.93	—	—	—	5.14	—	2.18	3.94	2.40	4.15	3.98	4.16
S 3046	20.24	19.94	19.39	20.31	20.61	20.41	—	19.76	—	18.42	19.99	19.35	20.10	19.03	19.85
	4.11	3.76	3.13	4.18	4.49	4.34	—	3.55	—	2.00	3.82	3.08	3.95	2.71	3.66
S 3047	20.04	19.92	19.26	20.04	—	20.11	—	19.79	20.24	18.36	20.02	19.49	19.62	18.98	19.79
	4.02	3.87	3.02	4.02	—	4.11	4.54	3.70	4.27	1.88	3.99	3.30	3.48	2.67	3.69
S 3050	19.48	19.17	19.22	—	—	—	—	19.88	—	18.34	19.83	19.77	19.46	19.62	19.81
	3.30	2.87	2.95	4.56	—	4.73	—	3.91	—	1.77	3.82	3.71	3.28	3.50	3.78
S 3051	19.22	19.49	19.26	—	20.41	20.18	—	19.70	—	18.46	19.39	18.77	19.72	19.69	19.76
	2.69	3.06	2.76	—	4.55	4.08	—	3.35	—	1.78	2.93	2.14	3.38	3.33	3.43
S 3052	19.32	19.81	19.31	20.13	—	19.97	—	19.78	—	18.33	19.22	18.63	19.64	19.68	19.66
	3.04	3.68	3.02	4.11	4.93	3.89	—	3.64	—	1.74	2.90	2.13	3.45	3.50	3.47
S 3053	19.77	19.77	19.17	19.80	—	19.97	—	19.72	—	18.42	19.38	19.19	19.80	19.93	19.76
	3.68	3.68	2.82	3.74	—	4.21	—	3.60	4.49	1.82	3.12	2.84	3.74	3.61	3.66
S 3054	19.53	19.71	19.34	19.48	—	—	—	19.61	—	18.32	19.25	19.33	19.71	19.71	—
	4.03	4.38	3.74	3.95	—	—	—	4.10	—	2.24	3.60	3.72	4.27	4.30	—
5229	20.20	18.86	19.04	19.70	20.29	20.09	20.77	19.86	*	18.19	19.63	20.00	19.91	19.31	19.90
	2.91	1.66	1.81	2.41	3.00	2.83	3.52	2.60	*	1.17	2.35	2.70	2.62	2.05	2.64
5231	20.22	19.57	18.99	20.01	20.17	20.09	20.71	19.94	20.55	18.23	19.94	19.11	19.61	19.52	19.84
	2.82	2.06	1.52	2.55	2.76	2.65	3.44	2.96	3.24	0.88	2.47	1.62	2.10	2.01	2.34
5242	19.57	20.11	18.92	19.88	20.22	19.89	20.67	20.02	20.40	18.23	20.06	19.92	19.94	19.89	19.93
	2.14	2.70	1.61	2.44	2.83	2.44	3.36	2.57	3.00	1.09	2.64	2.48	2.50	2.43	2.48
5249	19.85	18.97	18.90	19.83	20.19	20.05	20.60	19.89	20.48	18.19	19.35	19.42	19.91	19.82	19.93
	2.48	1.63	1.57	2.46	2.85	2.69	3.33	2.52	3.19	0.99	1.99	2.05	2.54	2.45	2.57
5523	20.10	19.39	18.39	20.07	19.61	20.22	20.81	19.94	20.71	18.30	19.67	19.98	19.35	19.86	20.01
	2.24	1.54	0.61	2.21	1.75	2.37	3.08	2.06	2.95	0.53	1.80	2.10	1.50	1.98	2.14
5528	20.14	19.70	18.25	19.59	19.61	20.22	20.99	19.89	20.72	18.11	19.85	20.14	19.69	19.96	19.95
	2.20	1.82	0.79	1.73	1.75	2.28	3.03	2.08	2.76	0.71	1.95	2.20	1.81	2.04	2.04
5532	20.34	20.09	18.29	19.70	19.64	20.12	20.76	19.91	20.66	18.27	19.93	20.14	19.88	19.77	19.90
	2.40	2.17	0.82	1.89	1.80	2.25	2.85	2.07	2.75	0.81	2.03	2.22	1.99	1.90	2.05
5537	20.40	20.11	18.34	19.90	19.60	20.14	20.68	19.91	20.67	18.20	19.96	20.10	19.86	19.62	19.94
	2.52	2.23	0.68	2.02	1.73	2.26	2.86	2.03	2.85	0.58	2.08	2.22	1.98	1.75	2.06
5540	20.24	19.98	18.24	20.01	19.59	20.19	—	19.99	20.75	18.24	20.06	19.78	19.92	19.50	20.03
	2.55	2.29	0.72	2.32	1.90	2.50	3.42	2.30	3.06	0.72	2.37	2.09	2.23	1.81	2.34
5548	19.37	18.80	18.35	19.58	19.65	20.11	20.72	19.80	20.61	18.21	20.06	19.66	19.53	19.62	19.93
	1.58	1.11	0.76	1.76	1.83	2.26	2.87	1.97	2.76	0.67	2.21	1.83	1.72	1.80	2.09
5554	19.69	19.44	18.30	19.69	19.64	20.15	20.91	19.91	20.48	18.21	19.36	20.02	19.24	19.68	19.89
	1.73	1.51	0.63	1.73	1.68	2.19	2.95	1.95	2.52	0.55	1.44	2.04	1.34	1.72	1.93
5559	19.89	19.82	18.35	19.96	19.72	20.07	20.71	19.80	20.46	18.25	19.43	19.99	19.37	19.72	19.91
	2.46	2.38	1.01	2.54	2.28	2.67	3.43	2.36	3.12	0.92	2.00	2.57	1.94	2.28	2.49
5563	20.05	19.75	18.30	20.13	19.59	20.08	20.71	19.82	20.47	18.21	19.53	20.09	19.42	19.71	19.89
	2.41	2.11	0.77	2.50	1.95	2.45	3.17	2.18	2.87	0.70	1.89	2.46	1.78	2.07	2.25
5564	19.98	19.90	18.31	20.04	19.56	20.03	20.66	19.72	20.81	18.22	19.55	20.09	19.44	19.68	20.05
	2.75	2.67	1.14	2.81	2.33	2.80	3.43	2.49	3.63	1.66	2.32	2.86	2.21	2.45	2.82
5565	20.06	19.92	18.44	20.08	19.77	20.09	—	19.80	20.41	18.22	19.48	20.01	19.41	19.74	19.94
	4.00	3.86	2.16	4.02	3.59	4.03	—	3.63	4.39	1.94	3.24	3.93	3.16	3.56	3.83

17.23



V-values for groups III(V), IV(V)

(87)

	5	141	158	SE10	SE9	SE6	SE7	SE8	2	41	109	43	140	3	232
441	19.06	19.44	16.15	18.91	17.29	20.21	20.21	18.93	19.43	19.52	15.80	17.46	19.47	19.07	16.86
	2.00	2.37	-0.4	1.86	0.66	3.10	3.16	1.88	2.36	2.45	-2.4	0.77	2.40	2.01	0.39
2779	19.08	19.31	16.24	19.06	17.45	20.41	20.31	19.16	19.50	19.81	16.20	16.99	19.10	19.24	17.48
	2.94	3.17	0.52	2.92	1.40	4.250	4.205	3.02	3.36	3.62	0.49	1.04	2.96	3.10	1.43
2907	19.08	19.48	16.24	19.01	17.43	20.21	—	18.99	19.17	19.50	16.25	16.43	19.04	19.24	16.95
	3.08	3.51	0.62	3.00	1.49	4.320	—	2.98	3.17	3.53	0.63	0.75	3.03	3.25	1.12
2908	19.12	19.51	16.23	19.08	17.52	20.11	—	18.89	19.27	19.40	16.22	16.47	19.32	19.17	17.00
	3.08	3.47	0.59	3.04	1.53	4.03	4.53	2.85	3.23	3.36	0.58	0.75	3.28	3.13	1.13
4834	19.02	19.28	16.59	18.89	17.38	20.11	20.41	19.00	19.35	19.44	15.79	16.75	19.43	19.71	16.94
	1.92	2.18	-2.0	1.79	0.38	3.17	3.445	1.90	2.26	2.35	-7.5	-0.9	2.35	2.65	0.05
4842	19.28	19.45	16.52	18.83	17.34	19.71	20.11	18.95	19.37	19.71	15.87	16.79	19.69	19.20	16.92
	2.59	2.82	0.11	2.07	0.72	3.19	3.69	2.19	2.72	3.11	-3.4	0.30	3.00	2.48	0.39
4843	19.06	19.34	16.63	19.01	17.45	19.91	20.01	19.05	19.48	19.53	15.96	16.90	19.61	19.32	17.08
	3.05	3.38	0.62	2.99	1.34	4.125	4.265	3.04	3.56	3.61	0.09	0.84	3.785	3.36	0.99
5522	19.20	19.31	16.23	19.02	17.47	20.11	—	19.05	19.61	—	16.50	16.23	19.22	19.71	17.00
	3.17	3.31	0.09	2.96	1.27	4.19	—	3.00	3.59	—	0.32	0.09	3.20	3.78	0.80
5555	19.22	19.31	16.28	18.93	17.48	20.31	—	19.11	19.81	19.81	16.49	16.20	19.71	20.11	17.07
	3.20	3.31	0.35	2.87	1.33	4.470	—	3.08	3.96	3.95	0.51	0.30	3.84	4.32	0.96
5567	19.41	19.27	16.24	18.88	17.40	—	—	18.97	19.13	19.10	16.29	16.07	19.23	20.01	17.01
	3.53	3.35	0.33	2.87	1.25	—	—	2.98	3.18	3.14	0.37	0.20	3.30	4.19	0.92
5576	19.23	19.45	16.10	18.98	17.35	20.31	—	18.99	19.70	20.01	16.15	15.95	19.91	19.37	17.05
	2.92	3.16	0.35	2.66	1.20	4.20	4.60	2.67	3.46	3.89	0.38	0.25	3.66	3.07	0.99
5581	19.36	19.55	16.03	19.05	17.36	20.21	20.41	19.02	19.45	20.21	16.01	16.01	20.21	20.11	17.22
	2.85	3.04	0.25	2.54	1.10	3.88	4.08	2.51	2.94	3.84	3.99	0.24	3.87	3.70	1.01
5582	19.34	19.61	16.25	18.92	17.52	—	—	19.16	19.38	—	—	16.35	—	—	17.39
	3.91	4.21	0.87	3.40	1.86	—	5.605	3.69	3.96	—	—	0.94	5.17	—	1.74

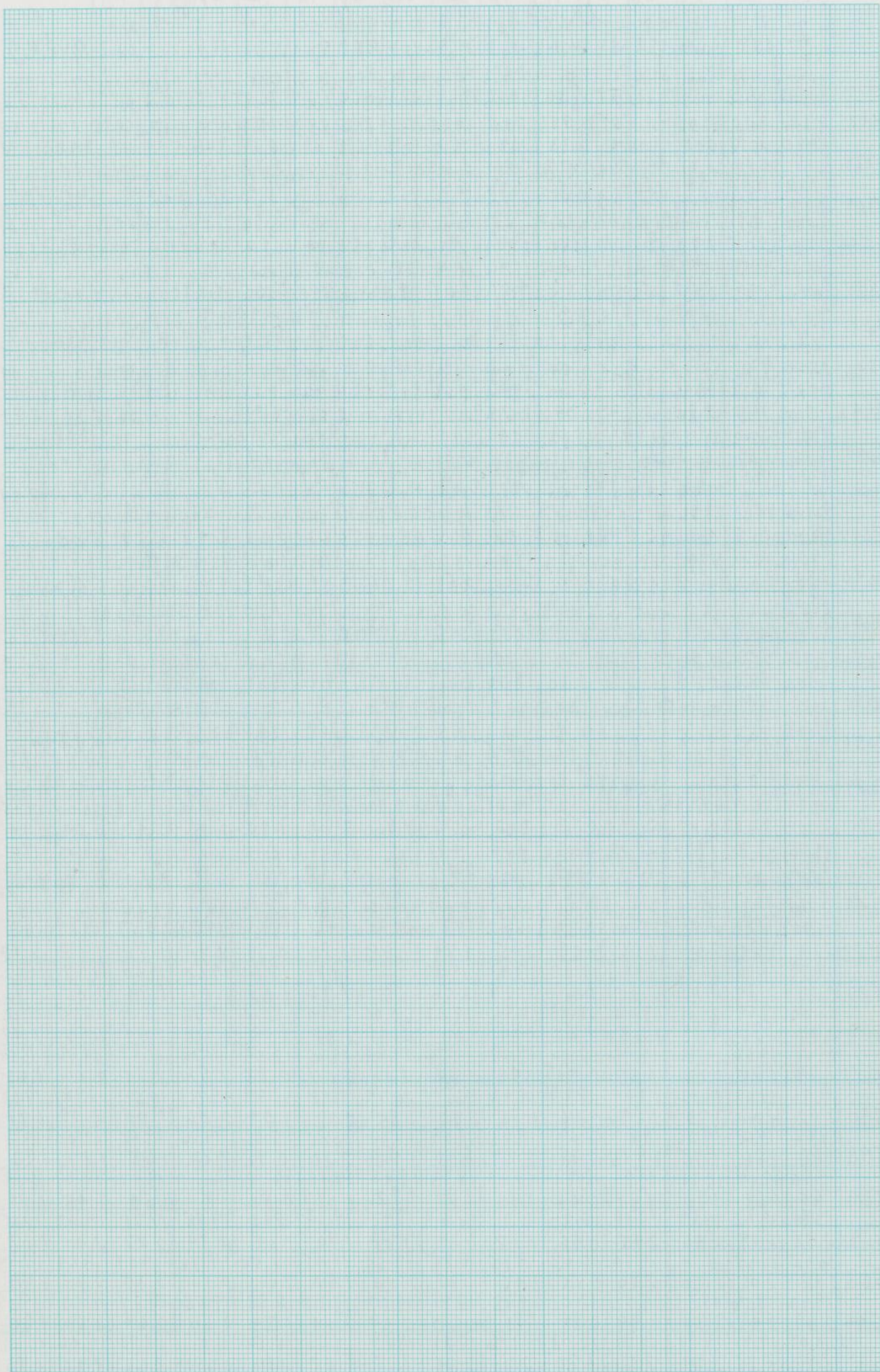
	65	37	159	100	155	SE1	SE2	SE3	SE4	SE5	66	38	201	99	249
441	19.85	19.70	16.03	19.38	16.53	19.16	19.94	19.86	20.31	16.94	19.48	19.29	19.29	19.10	19.05
	2.78	2.63	-1.1	2.31	0.18	2.09	2.87	2.79	3.26	0.44	2.41	2.22	2.22	2.04	1.99
2779	19.28	19.26	16.08	20.01	16.15	19.35	20.11	20.01	20.41	17.03	19.36	19.73	19.04	19.38	19.21
	3.14	3.12	0.41	3.84	0.46	3.21	3.92	3.82	4.435	1.07	3.22	3.59	2.90	3.24	3.07
2907	19.27	19.22	15.91	19.52	16.33	19.16	19.81	19.91	—	16.91	19.43	19.24	19.71	19.23	19.29
	3.28	3.23	0.40	3.55	0.48	3.16	3.88	3.93	4.94	1.09	3.45	3.25	3.76	3.24	3.30
2908	19.28	19.49	15.84	19.46	16.34	19.36	20.21	20.01	—	16.95	19.20	19.38	19.81	19.31	19.20
	3.24	3.45	0.36	3.42	0.66	3.32	4.16	4.00	—	1.09	3.16	3.34	3.75	3.27	3.16
→ 4834	19.40	19.26	16.12	19.91	16.40	19.39	19.91	20.01	20.11	16.94	19.71	19.38	19.21	19.06	19.13
	2.31	2.70	-5.3	2.86	-3.3	2.30	2.90	2.99	3.13	0.05	2.64	2.29	2.11	1.96	2.03
4842	19.51	18.94	16.13	19.61	16.45	19.36	19.71	—	20.31	16.88	19.23	19.01	18.98	19.41	19.10
	2.90	2.23	-1.6	3.01	0.06	2.70	3.18	*	3.81	0.36	2.52	2.26	2.22	2.77	2.36
4843	20.01	18.89	16.26	19.61	16.52	19.31	19.81	20.01	—	16.93	19.04	19.04	19.16	19.47	19.12
	4.225	2.85	0.32	3.70	0.53	3.34	3.95	4.17	—	0.87	3.03	3.03	3.17	3.54	3.12
5522	20.41	19.43	15.78	—	16.30	19.35	20.41	20.11	—	17.03	19.28	19.81	19.22	19.45	19.19
	4.46	3.46	-2.6	—	0.15	3.36	4.460	4.225	—	0.83	3.28	3.84	3.21	3.485	3.17
5555	19.81	19.45	15.69	19.71	16.23	19.40	20.01	20.21	20.11	17.05	19.41	19.69	19.24	19.63	19.30
	3.98	3.54	-0.5	3.81	0.32	3.42	4.16	4.48	4.325	0.95	3.44	3.80	3.23	3.74	3.30
5567	19.81	19.81	15.70	19.71	16.16	19.24	—	—	—	16.96	19.26	19.71	19.36	19.44	19.05
	4.05	4.04	-0.7	3.83	0.27	3.31	4.335	4.305	—	0.88	3.34	3.83	3.47	3.56	3.08
5576	20.01	—	15.62	20.11	16.20	19.31	20.11	19.91	—	16.93	19.60	19.06	19.25	19.27	19.10
	3.85	*	0.05	3.99	0.41	3.01	3.96	3.66	4.34	0.91	3.34	2.74	2.94	2.96	2.78
5581	20.01	19.81	15.38	19.65	15.93	19.35	19.81	19.91	20.41	16.74	19.28	19.00	19.43	19.30	19.23
	3.55	3.34	-1.7	3.14	0.19	2.84	3.38	3.42	4.18	0.70	2.77	2.49	2.92	2.79	2.72
5582	—	20.21	15.65	19.91	16.32	19.61	—	20.21	—	17.04	19.45	19.15	19.61	19.81	19.51
	5.04	4.79	0.46	4.55	0.92	4.20	5.03	4.82	—	1.46	4.03	3.68	4.24	4.42	4.14

	131	130	144	95	8	12	50	20	61	244	23	60	77	33	151
S 3136	19.58	19.71	19.73	19.52	18.25	19.98	19.95	19.65	19.99	18.68	19.32	19.38	19.91	19.98	—
	3.66	3.85	3.88	3.57	1.87	1.23	4.19	3.75	4.26	2.40	3.28	3.36	4.13	4.23	—
5575	19.53	19.67	19.99	19.87	18.03	19.89	19.74	19.94	19.94	18.77	19.75	19.36	19.99	19.87	—
	1.77	1.90	2.14	2.08	0.67	2.10	1.96	2.14	2.14	1.02	1.97	1.63	2.14	2.04	3.54
5580	19.55	19.60	19.90	19.99	18.37	19.98	19.75	19.83	20.09	18.62	19.76	19.84	19.68	20.00	—
	1.94	1.97	2.17	1.89	1.12	2.27	2.09	2.15	2.36	1.28	2.10	2.11	1.98	2.25	3.54
S 3134	19.66	19.62	19.95	19.50	18.53	19.76	19.88	20.08	19.95	18.70	19.65	19.97	18.89	19.87	—
	3.58	3.52	3.98	3.36	2.28	3.71	3.88	4.19	3.98	2.45	3.57	4.01	2.64	3.87	—
5590	19.91	19.63	19.84	19.65	18.42	18.77	19.88	—	19.35	18.53	20.66	19.59	19.07	19.95	—
	2.16	1.91	2.06	1.93	1.00	1.24	2.13	*	1.68	1.07	2.92	1.85	1.46	2.17	3.51
6384	19.66	19.51	19.68	20.22	18.36	19.55	19.59	19.48	19.41	18.56	19.69	19.99	19.24	19.96	20.22
	2.00	1.87	2.02	2.50	0.91	1.91	1.94	1.84	1.78	1.06	2.03	2.30	1.63	2.27	2.50
6387	19.91	19.63	19.78	20.03	18.47	19.81	19.75	19.77	19.61	18.53	19.81	19.65	19.40	19.83	20.35
	2.18	1.91	2.05	2.29	0.93	2.08	2.02	2.04	1.89	0.98	2.08	1.92	1.71	2.20	2.61
6390	19.95	19.60	20.06	19.92	18.39	19.97	19.87	19.71	19.67	18.58	—	19.50	19.52	19.84	20.22
	2.27	1.92	2.38	1.74	0.88	2.29	2.19	2.03	1.99	1.03	*	1.82	1.84	2.16	2.54
6393	19.91	19.59	20.06	19.05	18.38	20.03	19.84	19.85	19.80	18.55	—	19.41	19.70	19.95	20.41
	2.34	2.02	2.50	1.53	0.94	2.47	2.26	2.28	2.22	1.08	*	1.85	2.12	2.38	2.89
6396	20.71	19.81	20.01	18.98	18.12	19.86	19.94	19.58	19.65	18.59	—	19.45	20.01	—	—
	4.18	3.10	3.36	2.04	1.12	3.16	3.26	2.80	2.89	1.55	*	2.64	3.35	—	—
6407	20.07	19.63	19.12	19.98	18.35	19.47	18.81	18.80	19.86	18.60	19.82	19.82	19.92	19.73	20.25
	2.49	2.05	1.55	2.40	0.83	1.89	1.25	1.24	2.28	1.04	2.24	2.24	2.34	2.15	2.68
6410	19.67	19.56	19.24	20.07	18.31	19.65	19.03	18.91	20.07	18.57	19.83	19.96	19.78	19.89	20.19
	2.02	1.91	1.59	2.42	0.73	2.00	1.39	1.28	2.42	0.96	2.18	2.31	2.13	2.24	2.54
6413	19.53	19.55	19.43	20.06	18.45	19.78	19.18	19.79	20.07	18.60	19.76	20.01	19.79	19.82	20.05
	1.78	1.80	1.68	2.38	0.78	2.05	1.44	2.06	2.39	0.91	2.02	2.31	2.06	2.09	2.36
6417	19.36	19.55	19.63	20.06	18.41	20.07	19.40	19.44	19.35	18.55	19.81	19.47	18.89	19.95	20.41
	1.75	1.94	2.02	2.46	0.90	2.47	1.79	1.83	1.74	1.02	2.20	1.86	1.32	2.34	2.81
6420	19.59	19.58	19.82	20.35	18.39	20.02	19.43	19.57	19.08	18.58	19.80	19.97	18.81	19.94	20.34
	2.29	2.28	2.51	3.06	1.22	2.71	2.14	2.27	1.83	1.38	2.49	2.18	1.58	2.63	3.05
6423	19.55	19.59	19.57	19.71	18.38	19.98	19.73	—	19.19	18.49	19.87	19.52	18.86	19.81	20.30
	2.41	2.46	2.89	2.59	1.30	2.91	2.62	—	2.04	1.39	2.78	2.38	1.72	2.71	3.29
6426	19.81	19.48	19.81	19.40	18.38	20.00	19.48	19.73	19.24	18.53	19.84	19.84	19.14	19.82	—
	2.85	2.48	2.85	2.40	1.34	3.10	2.48	2.76	2.24	1.51	2.90	2.90	2.13	2.87	—
6429	20.11	19.97	19.91	18.94	19.96	19.91	19.61	—	19.42	18.50	19.41	—	19.11	19.45	19.91
	3.70	2.91	3.50	2.21	1.09	3.53	3.01	*	2.84	1.64	2.82	—	2.43	2.88	3.50
6431	—	—	19.71	18.52	18.14	19.61	20.01	—	19.61	18.69	19.81	19.81	19.71	18.41	19.81
	—	3.66	3.17	1.67	1.30	3.05	3.60	—	3.09	1.86	3.37	3.38	3.20	1.55	3.38

Yonk of stars SE/SW V (B)

(89)

	x2	outer	95	8	x3	x3	20	x2	244	23	60	outer	77	33	151
	131	130	144	95	8	12	50	61	244	23	60	77	33	151	
	20.02	19.60	19.33	19.98	18.10	19.86	19.64	19.83	20.06	18.56	—	19.34	19.71	19.72	21.0
442	2.62	2.22	2.01	2.58	0.95	2.46	2.25	2.43	2.66	1.32	*	2.02	2.37	2.38	3.76
	19.41	19.57	20.01	19.99	18.33	20.2	19.86	19.37	19.88	18.57	—	19.63	19.41	19.98	20.71
2778	3.18	3.39	3.81	3.81	2.09	4.06	3.65	3.14	3.70	2.33	*	3.42	3.20	3.78	4.62
	19.56	19.91	19.81	20.11	18.43	19.81	18.77	—	19.81	18.09	19.63	19.09	19.81	20.11	—
2909	3.84	4.27	4.11	4.60	2.37	4.08	2.82	—	4.15	2.01	3.93	3.23	4.09	4.48	—
	20.08	19.73	19.49	20.27	18.41	20.01	20.06	19.60	19.97	18.13	19.82	19.84	19.92	19.91	—
4544	2.43	2.15	1.97	2.61	1.22	2.37	2.41	2.05	2.34	1.04	2.22	2.24	2.30	2.29	*
	20.01	19.49	19.33	20.21	18.42	19.91	19.81	19.55	20.01	18.21	19.61	19.61	19.61	19.61	—
4545	4.64	4.05	3.85	5.00	2.86	4.61	4.50	4.15	4.74	2.65	4.23	4.22	4.24	4.23	—
	20.23	19.56	19.66	19.79	18.09	19.54	19.79	—	19.14	18.48	—	19.81	19.79	19.72	—
4841	2.38	1.71	1.81	1.94	0.41	1.69	1.94	*	1.29	0.72	3.41	1.96	1.94	1.87	*
	19.96	19.64	19.91	19.70	18.19	20.02	19.85	19.67	19.41	18.52	20.11	19.40	19.79	19.87	—
4846	2.18	1.86	2.13	1.92	0.54	2.24	2.07	1.89	1.64	0.80	2.34	1.63	2.01	2.09	*
	20.01	19.33	19.96	19.85	18.26	19.86	19.98	—	19.42	18.55	19.99	19.39	19.99	19.95	—
4847	2.90	2.17	2.85	2.72	1.09	2.73	2.87	*	2.26	1.38	2.88	2.23	2.88	2.84	—
	19.60	19.65	19.21	19.68	18.19	19.48	19.02	18.92	19.03	18.47	19.49	—	18.68	—	—
S 3044	3.80	3.89	3.18	3.95	1.79	3.58	2.90	2.78	2.92	2.17	3.60	—	2.46	—	—
	20.15	19.51	19.62	18.89	18.36	19.83	18.76	19.13	19.39	18.42	19.72	19.30	19.01	19.69	—
S 3046	4.01	3.26	3.39	2.55	1.92	3.63	2.40	2.83	3.13	1.99	3.51	3.02	2.69	3.47	—
	20.02	19.70	19.76	19.22	18.35	19.78	18.95	19.33	19.54	18.46	19.63	19.54	19.25	19.99	—
S 3047	4.00	3.58	3.66	2.97	1.87	3.68	2.63	3.10	3.36	2.02	3.49	3.37	3.00	3.95	—
	19.50	19.75	19.81	19.89	18.31	19.83	19.69	19.80	19.98	18.60	19.65	19.66	19.81	19.55	—
S 3650	3.32	3.69	3.78	3.93	1.73	3.83	3.59	3.77	4.11	2.10	3.53	3.55	2.79	3.39	—
	19.31	19.55	19.82	19.89	18.16	19.69	19.68	19.65	19.93	18.65	19.55	19.74	19.70	19.91	—
S 3051	2.82	3.15	3.52	3.62	1.48	3.33	3.32	3.28	3.68	1.99	3.15	3.40	3.35	3.65	—
	19.29	19.85	19.13	19.87	18.18	19.71	19.76	19.26	19.86	18.62	19.44	19.43	19.86	19.71	—
S 3052	2.99	3.73	2.80	3.76	1.59	3.55	3.61	2.96	3.74	2.12	3.19	3.18	3.74	3.54	—
	19.40	19.58	19.05	19.55	18.30	19.70	19.67	18.88	19.96	18.57	19.73	19.33	19.69	19.92	—
S 3053	3.14	3.41	2.63	3.36	1.68	3.57	3.53	2.40	4.12	2.00	3.61	3.05	3.56	3.98	—
	19.64	19.59	19.19	18.47	18.35	19.91	19.58	18.81	19.56	18.53	—	19.62	19.91	19.51	—
S 3054	4.20	4.13	3.50	2.47	2.29	4.60	4.11	2.95	4.07	2.55	—	4.17	4.64	4.00	—
	20.05	19.67	19.26	19.90	18.15	18.67	19.33	18.71	20.01	18.88	19.75	19.64	19.80	18.77	—
5229	2.79	2.41	2.00	2.64	1.14	1.53	2.09	1.56	2.75	1.70	2.49	2.36	2.51	1.59	4.12
	19.97	19.69	19.69	19.65	18.35	19.63	19.76	19.42	19.48	18.91	19.66	19.90	20.00	19.45	—
5231	2.50	2.18	2.18	2.14	0.98	2.12	2.26	1.91	1.97	1.45	2.15	2.42	2.54	1.94	—
	19.72	19.76	19.96	20.04	18.15	18.53	19.92	—	19.58	18.94	19.75	19.55	18.85	19.02	—
5242	2.27	2.31	2.52	2.59	1.04	1.31	2.47	*	2.14	1.63	2.30	2.12	1.56	2.18	4.22
	19.96	19.53	19.19	19.91	18.20	19.50	18.79	18.80	19.87	18.88	—	19.83	19.38	19.26	—
5249	2.60	2.16	1.84	2.55	1.00	2.13	1.47	1.48	2.50	1.55	*	2.46	2.02	1.90	3.92
	19.98	19.71	19.93	19.84	18.37	20.02	19.07	19.64	19.66	18.55	19.78	19.57	19.83	19.99	—
5523	2.11	1.84	2.05	1.96	0.59	2.15	1.24	1.78	1.80	0.75	1.91	1.71	1.95	2.12	—
	19.99	19.60	20.06	19.96	18.03	19.41	19.37	—	19.81	18.61	19.68	19.60	19.97	18.52	—
5528	2.07	1.74	2.13	2.05	0.66	1.59	1.56	—	1.92	1.02	1.81	1.74	2.05	0.96	3.68
	20.00	19.59	20.11	19.40	18.08	18.93	19.62	20.00	19.94	18.61	19.73	20.00	19.85	19.22	—
5532	2.14	1.79	2.19	1.63	0.69	1.27	1.81	2.14	2.08	1.03	1.90	2.09	1.97	1.47	3.50
	20.02	19.62	19.96	19.42	18.16	19.29	19.76	19.84	19.95	18.54	19.78	19.82	19.99	19.54	—
5537	2.14	1.75	2.08	1.57	0.55	1.45	1.88	1.96	2.07	0.83	1.90	1.94	2.11	1.68	3.44
	19.91	19.69	19.42	19.53	18.29	19.42	19.71	20.04	19.98	18.64	19.75	19.69	19.98	19.63	—
5540	2.22	2.00	1.73	1.84	0.76	1.73	2.02	2.35	2.29	1.04	2.06	2.00	2.29	1.94	*
	19.62	19.68	19.56	19.80	18.37	19.93	19.84	19.26	20.05	18.56	19.86	19.68	19.00	19.81	—
5548	1.80	1.86	1.75	1.97	0.78	2.09	2.01	1.50	2.20	0.92	2.02	1.85	1.27	1.97	*
	19.80	19.60	19.88	19.87	18.31	19.29	19.73	19.88	19.11	18.58	—	19.47	19.37	18.89	—
5554	1.84	1.64	1.90	1.91	0.62	1.36	1.77	1.92	1.22	0.82	*	1.54	1.45	1.07	331
	19.94	19.63	19.89	19.88	18.30	18.77	18.67	19.97	19.33	18.62	19.78	19.71	19.43	18.65	—
5559	2.52	2.19	2.46	2.45	0.96	1.38	1.29	1.55	1.90	1.24	2.34	2.27	2.00	1.27	—
	20.02	19.69	19.94	19.84	18.03	19.10	18.85	19.84	19.45	18.58	19.78	19.94	19.64	19.14	—
5563	2.38	2.05	2.30	2.20	0.55	1.46	1.23	2.20	1.81	1.00	2.14	2.30	2.00	1.50	—
	19.92	19.70	19.93	19.72	18.03	19.13	18.81	19.87	19.37	18.53	19.83	19.87	19.59	19.07	—
5564	2.69	2.47	2.70	2.49	0.88	1.91	1.60	2.64	2.14	1.34	2.60	2.64	2.36	1.85	398
	20.01	19.49	19.90	19.71	18.08	19.16	18.81	19.89	19.56	18.58	19.81	19.79	19.46	19.12	—
5565	3.92	3.25	3.77	3.51	1.80	2.90	2.54	3.75	3.33	2.30	3.65	3.62	3.22	2.86	—



SE/SW - wind

V

(91)

	131	130	144	95	8	12	50	20	61	244	23	60	77	83	151
441	19.44	18.50	19.15	19.57	17.35	19.37	19.22	18.73	19.42	16.67	—	19.31	19.43	19.59	—
2779	2.37	1.52	2.08	2.50	0.70	2.30	2.15	1.71	2.35	0.27	—	2.24	2.36	2.52	*
2907	19.10	18.45	19.37	19.66	17.54	19.63	19.51	19.16	19.31	16.66	19.66	19.44	18.94	19.46	—
2908	2.96	2.31	3.23	3.52	1.48	3.49	3.37	3.02	3.17	0.80	3.52	3.30	2.80	3.32	—
4834	19.15	18.49	19.41	19.60	17.70	19.27	18.58	19.48	19.35	16.27	19.7:	19.35	19.25	19.38	—
4842	3.15	2.45	3.43	3.63	1.71	3.28	2.54	3.51	3.36	0.64	3.74	3.37	3.26	3.40	—
4843	19.35	18.44	19.50	19.51	17.65	19.43	18.60	19.8:	19.48	16.23	19.9:	19.43	19.27	19.34	—
5522	3.31	2.40	3.46	3.47	1.64	3.39	2.56	3.77	3.44	0.59	3.90	3.39	3.23	3.30	4.43
5555	19.22	18.44	19.43	19.47	17.60	19.56	18.94	18.98?	19.60	16.60	19.8:	19.57	19.16	19.46	—
5567	2.12	1.34	2.35	2.39	0.56	2.49	1.84	1.88	2.53	-0.19	2.78	2.50	2.06	2.39	—
5576	19.6:	18.50	19.30	19.35	17.43	19.24	19.36	—	18.88	16.62	—	19.5:	19.32	19.42	—
5581	3.01	1.74	2.62	2.68	0.80	2.54	2.70	—	2.12	0.18	—	2.96	2.64	2.78	*
5582	19.7:	18.46	19.42	19.7:	17.50	19.31	19.33	19.44	19.02	16.57	—	19.6:	19.6:	19.50	—
5588	3.84	2.36	3.48	3.80	1.39	3.35	3.37	3.51	3.00	0.57	—	3.73	3.67	3.58	—
5590	19.6:	18.58	19.4:	19.4:	17.64	19.6:	18.86	19.7:	19.32	16.62	20.1:	19.35	19.4:	19.8:	—
5595	3.59	2.45	3.45	3.45	1.44	3.60	2.77	3.72	3.32	0.43	4.14	3.36	3.47	3.84	—
5598	19.36	18.55	19.52	19.6:	17.61	18.87	19.19	19.41	18.97	16.63	20.0:	19.45	19.23	18.55	—
5600	3.38	2.46	3.57	3.64	1.47	2.81	3.17	3.43	2.92	0.62	4.19	3.48	3.22	2.46	—
5602	19.6:	18.53	19.6:	19.6:	17.50	19.12	18.74	19.8:	19.17	16.62	19.7:	19.7:	19.32	19.03	—
5604	3.76	2.46	3.73	3.79	1.34	3.17	2.71	4.00	3.23	0.62	3.87	3.90	3.41	3.05	—
5606	19.29	18.46	19.45	19.47	17.56	19.58	19.31	19.55	19.50	16.66	—	19.38	19.52	19.43	—
5608	2.98	2.15	3.16	3.19	1.35	3.32	3.01	3.28	3.22	0.72	*	3.08	3.25	3.14	*
5610	19.31	18.49	19.49	19.20	17.57	19.59	19.32	19.50	19.55	16.53	19.85	19.80	19.01	19.58	—
5612	2.80	2.00	2.98	2.69	1.24	3.08	2.81	2.99	3.04	0.57	3.38	3.31	2.50	3.07	—
5614	19.20	18.50	19.6:	19.07	17.69	19.8:	19.40	19.5:	19.6:	16.58	19.7:	19.8:	18.99	19.6:	—
5616	3.74	2.90	4.21	3.58	2.03	4.39	3.99	4.10	4.24	1.11	4.30	4.37	3.48	4.23	—

VI

	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	57	239	173	219	175	58	171	210	21	89	SW1	SW2	SW3	SW4	SW5
441	19.75	16.55	—	19.98	18.31	19.56	19.20	17.07	19.37	19.47	18.65	20.02	18.61	17.35	18.83
2779	2.68	0.19	*	2.91	1.37	2.49	2.13	0.52	2.30	2.40	1.64	2.95	1.61	0.70	1.79
2907	19.79	16.91	—	20.0:	18.45	19.63	19.28	17.27	19.39	19.67	18.72	—	18.73	17.28	18.95
2908	3.65	0.98	*	3.88	2.31	3.49	3.14	1.26	3.25	3.53	2.58	—	2.59	1.27	2.81
4834	19.37	16.83	—	20.0:	18.28	19.35	19.27	17.23	19.17	19.29	18.59	20.0:	18.64	17.27	18.88
4842	3.39	1.03	*	4.05	2.24	3.37	3.28	1.33	3.17	3.30	2.55	4.11	2.61	1.36	2.86
4843	19.78	16.92	—	19.8:	18.34	19.18	19.31	17.21	19.21	19.32	18.54	20.1:	18.80	17.25	18.83
5522	3.64	1.11	*	3.81	2.30	3.14	3.27	1.28	3.17	3.28	2.50	4.07	2.76	1.31	2.79
5555	19.00	17.13	—	20.1:	18.29	19.60	19.9:	17.19	18.97	19.08	18.56	20.1:	18.62	17.29	18.76
5567	1.90	0.19	*	3.16	1.19	2.54	2.87	0.23	1.87	1.98	1.46	3.16	1.52	0.31	1.66
5576	19.8:	17.17	—	19.9:	18.31	19.26	19.16	17.14	19.50	19.27	18.70	20.1:	18.76	17.23	18.76
5581	3.20	0.58	*	3.40	1.56	2.56	2.43	0.56	2.88	2.58	1.94	3.74	2.00	0.63	2.00
5582	19.8:	17.30	—	—	18.50	19.44	19.35	17.28	19.35	19.45	18.76	—	19.00	17.31	18.94
5588	3.98	1.20	*	—	2.40	3.50	3.39	1.18	3.39	3.52	2.70	—	2.98	1.21	2.90
5590	—	16.70	—	20.3:	18.32	19.5:	19.27	17.35	—	19.35	18.79	—	18.87	17.31	19.02
5595	—	0.50	*	4.45	2.15	3.49	3.26	1.15	*	3.36	2.69	—	2.79	1.11	2.97
5598	19.8:	16.78	—	20.0:	18.31	19.7:	19.41	17.37	19.7:	19.40	18.68	20.0:	18.69	17.32	18.82
5600	3.90	0.64	*	4.20	2.20	3.85	3.44	1.23	3.80	3.43	2.60	4.28	2.61	1.18	2.76
5602	—	—	—	—	18.38	19.5:	19.5:	—	19.05	—	18.74	—	18.74	17.29	18.95
5604	—	*	*	4.78	2.28	3.59	3.58	*	3.08	4.22	2.71	4.79	2.71	1.15	2.96
5606	19.53	16.63	—	20.0:	18.33	19.48	19.27	17.18	19.59	19.42	18.59	20.2:	18.61	17.21	18.94
5608	3.26	0.70	*	3.89	2.02	3.20	2.96	1.08	3.33	3.13	2.27	4.05	2.29	1.10	2.62
5610	19.71	16.45	—	20.01	18.27	19.55	19.33	17.19	19.63	19.62	18.75	20.4:	18.68	17.18	18.86
5612	3.21	0.52	*	3.57	1.81	3.04	2.82	0.99	3.12	3.11	2.25	4.07	2.18	0.98	2.35
5614	—	16.71	—	—	18.31	20.1:	19.33	17.33	19.7:	—	18.87	—	18.80	17.27	18.84
5616	—	1.21	*	5.15	2.68	4.61	3.91	1.69	4.32	—	3.34	—	3.26	1.64	3.30

	57	239	173	219	175	58	171	210	21	89	SW1	SW2	SW3	SW4	SW5
	19.22	18.65	—	—	19.44	19.64	19.23	18.85	19.69	19.44	18.50	—	19.35	18.16	—
3130	3.13	2.35	—	—	3.45	3.74	3.15	2.63	3.81	3.44	2.16	1.80	3.32	1.77	4.7208
	20.27	20.79	—	20.48	19.45	19.89	19.37	—	19.62	19.51	18.45	20.44	19.40	18.00	19.90
5575	2.94	2.76	*	2.60	1.70	2.06	1.64	*	1.84	1.75	0.94	2.61	1.66	0.65	2.11
	19.75	18.41	—	20.38	19.37	20.00	19.33	18.70	19.95	19.89	18.39	20.50	19.42	17.89	19.98
5580	2.04	1.13	*	2.59	1.75	2.25	1.72	1.30	2.21	2.16	1.13	2.70	1.84	0.84	2.27
	—	18.79	—	—	19.68	19.98	19.39	19.01	19.81	19.78	18.65	—	19.63	18.31	20.11
3134	—	2.54	*	—	3.60	4.03	3.23	2.77	3.78	3.74	2.40	—	3.54	2.06	4.21
	20.03	18.41	—	20.42	19.38	19.94	19.18	18.60	18.90	19.09	18.36	20.39	19.47	19.95	19.82
5590	2.25	1.00	*	2.66	1.69	2.16	1.54	1.12	1.34	1.47	0.96	2.62	1.78	0.70	2.08
	19.54	18.35	—	20.48	19.30	19.77	19.23	18.70	19.51	19.69	18.56	20.35	19.40	18.09	19.86
6384	1.90	0.90	*	2.73	1.68	2.10	1.62	1.18	1.87	2.03	1.06	2.62	1.77	0.71	2.18
	19.79	18.44	—	20.43	19.32	19.88	19.22	18.71	19.50	19.12	18.58	20.42	19.38	18.01	19.77
6387	2.06	0.91	*	2.69	1.64	2.15	1.55	1.12	1.80	1.49	0.96	2.68	1.69	0.62	2.04
	20.04	18.42	—	20.28	19.31	19.82	19.06	18.66	19.55	19.10	18.48	20.28	19.33	18.00	19.82
6390	2.36	0.90	*	2.60	1.64	2.14	1.42	1.09	1.87	1.46	0.95	2.60	1.66	0.59	2.14
	20.23	18.56	—	20.43	19.34	19.95	19.17	18.97	19.68	19.26	18.50	20.43	19.56	18.01	19.83
6393	2.69	1.09	*	2.91	1.79	2.38	1.64	1.45	2.10	1.72	1.04	2.91	1.99	0.69	2.26
	20.03	18.39	—	20.51	19.42	19.94	19.12	18.64	19.97	19.51	18.53	—	19.30	18.01	19.75
6396	3.38	1.36	*	3.98	2.60	3.26	2.23	1.62	3.31	2.7108	1.49	4.45	2.45	1.03	3.02
	18.99	18.44	—	20.31	19.32	19.37	19.16	18.74	19.89	19.44	18.50	20.39	19.31	17.95	19.90
6407	1.42	0.90	*	2.75	1.74	1.79	1.59	1.18	2.31	1.86	0.96	2.86	1.73	0.51	2.32
	—	18.46	—	20.41	19.25	19.11	19.20	18.82	19.82	19.22	18.49	20.42	19.39	18.03	19.87
6410	—	0.86	*	2.76	1.60	1.46	1.55	1.19	2.17	1.57	0.89	2.77	1.74	0.50	2.22
	19.54	18.41	—	20.20	19.29	19.21	19.14	18.79	19.70	19.11	18.45	20.28	19.45	18.06	19.78
6413	1.79	0.74	*	2.54	1.54	1.46	1.40	1.08	1.96	1.37	0.78	2.64	1.70	0.46	2.05
	19.82	18.42	—	20.50	19.37	19.51	19.17	18.77	19.58	19.47	18.51	20.47	19.46	18.02	19.80
6417	2.21	0.91	*	2.92	1.76	1.90	1.58	1.21	1.97	1.86	0.98	2.88	1.85	0.59	2.19
	20.02	18.39	—	20.39	19.37	19.57	19.18	18.73	19.58	19.61	18.49	20.48	19.40	17.95	19.87
6420	2.71	1.22	*	3.11	2.11	2.27	1.92	1.51	2.28	2.31	1.30	3.20	2.12	0.90	2.56
	20.06	18.41	—	20.21	19.32	19.67	19.25	18.53	19.51	19.70	18.52	20.36	19.41	18.00	19.87
6423	3.00	1.83	*	3.19	2.17	2.55	2.10	1.43	2.37	2.58	1.42	3.36	2.27	0.98	2.78
	20.07	18.37	—	—	19.27	19.45	19.28	18.66	19.58	19.75	18.50	—	19.23	18.04	19.81
6426	3.19	1.34	*	—	2.27	2.45	2.28	1.63	2.59	2.79	1.46	—	2.22	1.06	2.86
	—	18.28	—	—	19.41	19.70	18.97	18.58	19.37	19.81	18.44	—	19.07	17.99	19.48
6429	—	1.41	—	—	2.82	3.25	2.23	1.74	2.77	3.41	1.58	—	2.38	1.12	2.93
	—	18.38	—	20.07	19.21	19.50	19.16	18.84	19.72	19.47	18.42	—	19.31	17.95	19.51
6431	—	1.52	*	3.75	2.48	2.9008	2.41	2.03	3.208	2.85	1.56	—	2.62	1.12	2.91

Group of stars SW

VI

93

	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	57	239	173	219	175	58	171	210	21	89	SW1	SW2	SW3	SW4	SW5
442	19.87	18.33	—	20.15	19.21	19.88	19.08	18.66	19.31	19.64	18.35	20.27	19.41	18.05	19.78
	2.52	1.14	*	2.80	1.91	2.53	1.79	1.42	2.00	2.30	1.14	2.88	2.05	0.91	2.38
2778	20.21	18.81	—	—	19.38	20.01	19.36	18.72	19.38	19.77	18.38	—	19.51	18.11	19.81
	3.99	2.60	*	—	3.16	3.85	3.15	2.51	3.17	3.56	2.14	4.42	3.32	1.89	3.57
2909	19.81	18.59	—	—	19.30	19.57	19.34	18.69	19.42	19.27	18.42	—	—	18.02	19.71
	4.13	2.58	*	4.89	3.50	3.85	3.55	2.71	3.65	3.46	2.36	4.80	—	1.94	4.02
4544	20.13	17.97	—	20.32	19.35	19.86	19.13	18.53	19.42	19.34	18.16	20.37	19.28	17.87	19.80
	2.48	0.94	*	2.66	1.87	2.25	1.71	1.30	1.92	1.86	1.06	2.70	1.82	0.88	2.20
4545	20.11	18.46	—	—	19.44	19.81	19.15	18.89	19.51	19.29	18.36	—	19.41	18.03	19.61
	4.84	2.90	*	—	3.99	4.42	3.62	3.33	4.08	3.81	2.80	—	3.95	2.47	4.18
4841	20.12	18.75	—	20.44	19.32	19.52	19.16	18.74	19.87	19.56	18.31	20.38	19.35	17.92	19.88
	2.27	0.94	*	2.59	1.47	1.67	1.31	0.93	2.02	1.71	0.58	2.53	1.50	0.28	2.03
4846	18.71	18.78	—	20.45	19.38	19.98	19.22	18.62	19.13	19.08	18.41	20.23	19.41	17.97	19.92
	0.97	1.03	*	2.69	1.61	2.20	1.45	0.89	1.36	1.32	0.71	2.46	1.64	0.37	2.14
4847	18.66	18.82	—	—	19.31	19.96	19.15	18.74	19.11	19.09	18.46	—	19.42	18.07	19.71
	1.49	1.65	*	—	2.15	2.84	1.98	1.57	1.94	1.92	1.29	3.55	2.26	0.92	2.62
S 3044	—	19.10	— ^{OK}	19.91	19.37	19.28	19.51	18.84	19.61	—	18.43	—	19.33	18.15	—
	—	3.01	2.96	4.24	3.41	3.28	3.56	2.67	3.69	4.37	2.11	—	3.34	1.73	4.32
S 3046	20.01	19.21	—	—	19.42	19.71	—	18.90	19.94	19.25	18.42	—	19.51	18.11	20.10
	3.84	2.92	*	—	3.16	3.49	4.51	2.56	3.76	2.97	1.99	4.29	3.26	1.66	3.95
S 3047	19.41	19.25	—	—	19.52	19.81	19.98	18.84	19.87	19.41	18.41	—	19.50	18.12	20.24
	3.21	3.00	*	4.68	3.34	3.72	3.95	2.49	3.80	3.20	1.95	—	3.32	1.61	4.27
S 3050	19.85	19.09	—	—	19.35	19.83	19.17	18.85	19.16	19.53	18.41	—	19.39	18.12	19.95
	3.86	2.77	*	4.22	3.12	3.82	2.88	2.43	2.87	3.37	1.85	4.43	3.18	1.50	4.05
S 3051	19.97	19.18	—	20.24	19.42	20.02	19.19	18.85	19.52	19.27	18.43	20.27	19.40	18.19	19.94
	3.75	2.64	*	4.18	2.96	3.82	2.65	2.23	3.10	2.77	1.75	4.22	2.94	1.51	3.70
S 3052	19.74	19.12	—	20.29	19.40	19.55	19.30	18.79	19.68	19.10	18.43	—	19.32	18.08	19.75
	3.58	2.78	*	4.34	3.14	3.33	3.00	2.34	3.50	2.76	1.87	4.60	3.03	1.48	3.60
S 3053	—	19.12	—	—	19.44	19.21	19.30	18.82	19.89	19.42	18.49	—	19.48	18.22	19.83
	4.37	2.74	*	4.40	3.21	2.87	3.00	2.33	3.92	3.18	1.89	—	3.26	1.60	3.78
S 3054	—	19.25	—	—	19.46	19.22	19.33	18.94	—	19.62	18.52	—	19.71	18.12	—
	—	3.59	*	—	3.92	3.55	3.73	3.12	—	4.18	2.54	*	4.29	1.98	—
5229	19.80	19.20	—	20.49	19.42	19.98	19.27	18.78	19.99	19.42	18.39	20.38	19.44	17.93	19.91
	2.51	1.95	*	3.20	2.15	2.20	2.01	1.60	2.70	2.15	1.32	3.12	2.19	0.98	2.65
5231	20.00	19.06	—	20.24	19.38	19.37	19.23	18.76	19.39	19.82	18.45	20.32	19.39	18.01	19.83
	2.54	1.58	*	2.84	1.87	1.86	1.73	1.32	1.88	2.33	1.06	2.94	1.88	0.70	2.34
5242	19.40	19.19	—	20.25	19.35	19.90	19.18	18.63	19.76	19.51	18.52	20.27	19.43	18.06	19.90
	1.99	1.82	*	2.86	1.95	2.46	1.74	1.40	2.32	2.09	1.30	2.84	2.02	0.98	2.45
5249	19.84	18.93	— ^{OK}	20.15	19.41	20.00	19.24	18.75	19.78	19.71	18.44	20.29	19.41	17.96	19.78
	2.47	1.60	1.87	2.80	2.04	2.64	1.88	1.44	2.41	2.34	1.17	2.96	2.04	0.83	2.41
5523	20.39	18.39	—	20.39	19.39	20.03	19.22	18.72	19.94	19.20	18.45	20.41	19.56	17.99	19.94
	2.56	0.61	*	2.57	1.54	2.16	1.38	0.91	2.06	1.36	0.66	2.59	1.70	0.27	2.06
5528	20.04	18.42	—	20.42	19.41	20.11	19.23	18.63	19.80	19.32	18.39	20.50	19.49	18.00	19.94
	2.11	0.90	*	2.48	1.59	2.17	1.45	1.03	1.90	1.52	0.88	2.54	1.66	0.64	2.03
5532	19.07	18.41	—	20.43	19.37	19.08	19.24	18.69	19.01	19.63	18.47	20.42	19.33	18.01	19.88
	1.36	0.90	*	2.48	1.59	1.37	1.49	1.09	1.32	1.79	0.93	2.53	1.58	0.65	2.03
5537	19.09	18.28	—	20.40	19.43	19.33	19.27	18.77	19.30	19.89	18.42	20.45	19.46	17.97	20.08
	1.25	0.64	*	2.52	1.58	1.49	1.43	1.00	1.46	2.01	0.74	2.58	1.60	0.41	2.20
5540	19.31	18.29	—	20.40	19.38	19.50	19.29	18.64	19.50	19.91	18.49	20.57	19.46	18.02	19.95
	1.62	0.76	*	2.71	1.69	1.81	1.60	1.04	1.81	2.22	0.92	2.88	1.77	0.55	2.26
5548	20.22	18.38	—	20.38	19.27	19.86	19.20	18.78	19.61	19.10	18.48	20.41	19.35	18.03	19.91
	2.37	0.78	*	2.54	1.50	2.02	1.44	1.09	1.79	1.37	0.86	2.55	1.58	0.55	2.07
5554	20.13	18.36	—	20.36	19.42	19.98	19.24	18.68	19.85	19.50	18.42	20.40	19.40	17.99	19.86
	2.14	0.67	*	2.35	1.49	2.00	1.34	0.91	1.88	1.56	0.70	2.44	1.46	0.39	1.90
5559	20.01	18.43	—	20.26	19.29	19.84	19.04	18.87	19.52	19.68	18.41	20.20	19.36	18.02	19.80
	2.60	1.08	*	2.88	1.87	2.41	1.63	1.47	2.09	2.24	1.06	2.81	1.93	0.74	2.36
5563	—	18.96	—	20.33	19.38	19.95	19.24	19.21	19.05	19.90	18.44	20.40	19.37	18.00	19.89
	—	1.33	*	2.71	1.74	2.31	1.60	1.57	1.41	2.26	0.88	2.80	1.73	0.53	2.25
5564	—	19.04	—	20.35	19.38	19.91	19.30	19.31	19.00	19.83	18.53	20.35	19.37	18.03	19.83
	—	1.82	*	3.12	2.16	2.68	2.08	2.09	1.78	2.60	1.34	3.12	2.15	0.89	2.60
5565	—	19.26	—	—	19.44	19.99	19.36	19.51	18.95	19.86	18.41	—	19.43	18.06	19.84
	—	3.00	*	—	3.20	3.89	3.11	3.27	2.68	3.71	2.13	4.47	3.19	1.78	3.69

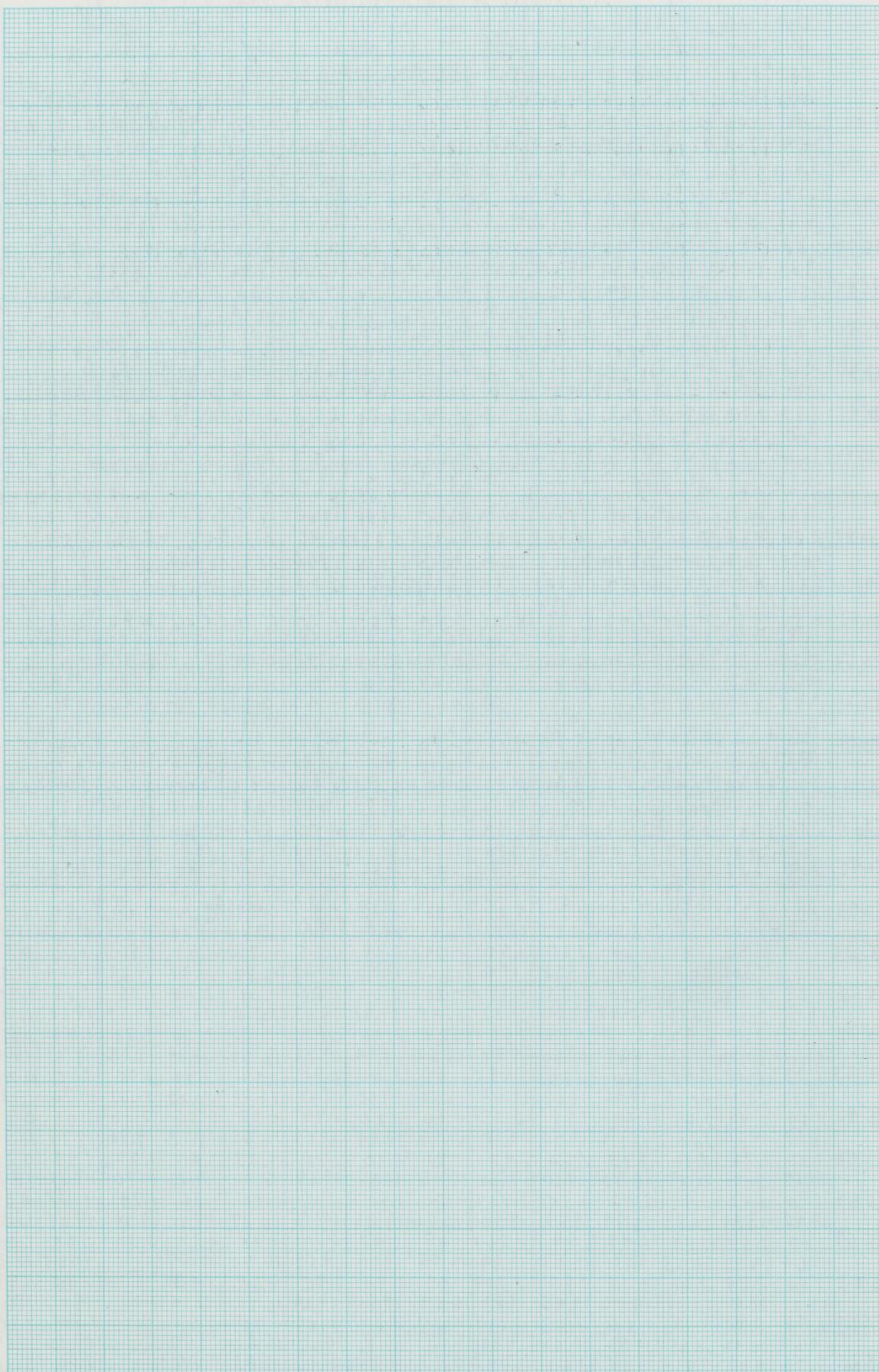
	87	52	161	SW9	SW10	86	SW7	SW8	SW6	149	83	30	59	243	174
	18.83	19.87	19.40	18.94	19.34	19.69	16.61	—	19.53	16.93	ft	19.33	19.00	18.48	19.43
S 31 30	2.60	4.07	3.39	2.75	3.31	3.81	0.38	—	3.58	0.64	4.47	3.30	2.83	2.13	3.43
	18.90	20.05	19.65	18.83	19.47	19.92	16.48	19.92	19.63	16.68	20.12	19.30	19.15	18.36	19.67
SS 75	1.28	2.19	1.86	1.21	1.72	2.08	-25	2.12	1.86	-13	2.25	1.58	1.46	0.88	1.88
	19.66	20.01	19.91	18.78	19.40	20.04	16.58	19.88	19.53	16.69	20.23	19.59	19.04	18.43	19.56
SS 80	1.97	2.26	2.17	1.39	1.82	2.28	0.10	2.19	1.92	0.13	2.45	1.91	1.57	1.16	1.89
	19.81	—	20.06	19.19	19.65	20.21	16.59	20.01	19.72	17.04	—	20.01	19.23	18.69	19.49
S 31 34	3.78	—	4.15	2.97	3.56	4.35	0.62	4.08	3.66	0.93	4.81	4.08	3.03	2.44	3.36
	19.93	19.79	20.22	18.71	19.51	20.04	16.48	19.96	19.64	16.72	19.44	19.87	19.35	18.36	19.36
SS 90	2.15	2.02	2.44	1.20	1.81	2.26	-16	2.20	1.92	-02	1.73	2.09	1.68	0.96	1.69
	19.88	20.06	19.50	18.79	19.44	19.94	16.41	19.98	19.63	17.62	20.05	19.37	19.33	18.27	19.35
63 84	2.20	2.36	1.86	1.25	1.81	2.25	-32	2.29	1.98	0.39	2.35	1.75	1.71	0.84	1.73
	19.73	18.56	19.66	18.87	19.48	19.90	16.52	19.90	19.63	17.55	20.00	19.50	19.41	18.20	19.26
63 87	2.00	1.00	1.94	1.26	1.78	2.17	-34	2.17	1.91	0.32	2.26	1.80	1.72	0.74	1.59
	18.58	18.78	19.77	18.83	19.45	19.86	16.53	19.82	19.51	17.58	20.14	19.67	19.42	18.27	19.24
63 90	1.03	1.19	2.09	1.23	1.77	2.18	-36	2.14	1.83	0.30	2.46	1.99	1.74	0.79	1.58
	18.71	19.22	20.00	18.90	19.51	20.05	16.55	19.98	19.77	17.55	20.15	19.78	19.69	18.30	19.35
63 93	1.22	1.68	2.44	1.39	1.94	2.49	-29	2.41	2.19	0.48	2.60	2.20	2.11	0.88	1.80
	19.07	19.21	—	18.77	19.39	19.46	16.48	19.95	19.46	17.62	19.59	19.55	18.28	19.23	
63 96	2.16	2.34	—	1.78	2.57	2.65	-03	3.28	2.66	0.73	2.55	2.28	2.76	1.26	2.37
	20.16	20.04	19.75	18.74	19.50	19.88	16.51	19.84	19.66	17.59	19.76	19.68	19.75	18.25	19.29
64 07	2.58	2.46	2.17	1.18	1.92	2.30	-53	2.26	2.08	0.23	2.18	2.10	2.17	0.75	1.71
	19.71	18.69	19.53	18.92	19.49	19.96	16.59	19.92	19.62	17.77	19.93	19.89	19.63	18.33	19.34
64 10	2.06	1.07	1.88	1.29	1.84	2.31	-49	2.27	1.97	0.31	2.28	2.24	1.98	0.75	1.69
	18.71	18.68	19.45	18.75	19.43	19.88	16.55	19.73	19.59	17.59	19.95	19.83	19.75	18.25	19.23
64 13	1.01	0.98	1.70	1.04	1.68	2.16	-56	1.99	1.84	0.12	2.23	2.10	2.01	0.61	1.48
	18.97	19.38	19.79	18.82	19.45	20.06	16.53	19.93	19.57	17.68	20.11	19.26	19.87	18.26	19.28
64 17	1.39	1.77	2.18	1.26	1.84	2.46	-41	2.32	1.96	0.34	2.50	1.66	2.26	0.78	1.68
	19.18	19.52	19.92	18.91	19.49	19.91	16.57	19.90	19.60	17.60	20.20	19.71	19.79	18.33	19.31
64 20	1.92	2.23	2.61	1.67	2.20	2.60	-01	2.59	2.30	0.65	2.90	1.94	2.48	1.17	2.03
	19.45	19.64	19.97	18.80	19.43	19.92	16.53	19.75	19.63	17.62	19.99	19.18	19.66	18.34	19.25
64 23	2.31	2.52	2.89	1.66	2.29	2.83	-01	2.64	2.50	0.70	2.92	2.03	2.54	1.26	2.10
	19.60	19.71	19.91	18.64	19.29	19.83	16.51	19.68	19.77	17.51	20.03	19.53	19.31	18.19	19.30
64 26	2.62	2.74	2.99	1.61	2.28	2.88	.00	2.75	2.81	0.67	3.14	2.54	2.30	1.18	2.29
	—	—	19.81	18.71	19.22	19.43	16.45	—	19.32	17.44	—	—	19.01	18.35	19.04
64 29	—	3.66	3.43	1.89	2.57	2.86	-09	—	2.71	0.66	—	*	2.31	1.38	2.34
	19.78	—	—	18.85	19.38	19.36	16.53	—	18.76	17.51	—	—	19.04	18.20	19.39
64 31	3.30	4.17	3.70	2.04	2.72	2.68	0.06	—	1.94	0.77	3.96	—	2.27	1.35	2.73

Group of stars SW/NW

VII

95

	outer					outer					outer			edge		outer	
	87	52	161	SW9	SW10	86	SW7	SW8	SW6	149	83	30	59	243	174		
442	19.78	19.82	19.58	18.79	19.40	19.81	16.52	19.84	19.54	18.12	19.73	19.57	18.99	18.59	19.12		
	2.44	2.48	2.25	1.52	2.04	2.47	-1.11	2.44	2.16	0.97	2.39	2.24	1.69	1.35	1.82		
2778	20.05	19.14	20.15	18.89	19.50	19.73	16.54	19.74	19.67	16.95	19.11	20.05	19.66	18.52	19.38		
	3.85	2.93	3.95	2.60	3.27	3.52	0.70	3.52	3.45	0.99	2.90	3.85	3.46	2.32	3.17		
2909	—	20.0	20.1	18.75	19.43	20.2	16.55	19.8	19.49	17.54	—	18.91	19.9	18.34	19.17		
	19.53	18.85	19.92	18.79	19.52	20.09	16.52	19.95	19.72	16.85	20.08	19.70	19.31	18.34	19.37		
4544	2.00	1.51	2.30	1.47	1.99	2.44	0.16	2.32	2.14	0.32	2.43	2.13	1.84	1.17	1.88		
	19.27	18.73	19.62	18.90	19.32	19.57	16.62	19.75	19.52	17.06	19.9	19.67	19.26	18.26	19.34		
4545	3.78	3.17	4.23	3.34	3.85	4.17	1.36	4.41	4.10	1.67	4.66	4.30	3.76	2.70	3.87		
	19.62	19.73	19.48	18.89	19.50	20.05	16.52	19.84	19.61	16.73	19.90	19.21	19.02	18.14	19.30		
4841	1.77	1.88	1.63	1.06	1.65	2.20	-1.73	1.99	1.76	-0.59	2.05	1.36	1.18	0.45	1.45		
	19.81	19.99	19.84	18.88	19.50	19.96	16.55	19.92	19.58	16.76	20.11	19.54	19.12	18.21	19.35		
4846	2.03	2.2	2.06	1.12	1.72	2.18	-6.5	2.14	1.80	-0.52	2.33	1.76	1.36	0.56	1.58		
	19.95	20.08	19.92	18.89	19.47	20.12	16.55	19.99	19.67	16.82	20.03	19.47	19.20	18.25	19.2		
4847	2.83	2.98	2.80	1.72	2.31	3.02	-2.5	2.88	2.53	-0.06	2.93	2.31	2.04	1.08	2.11		
	19.76	18.91	19.9	18.93	—	19.9	16.61	19.66	19.71	17.24	19.56	20.0	19.26	18.71	19.16		
S 3044	4.10	2.89	4.28	2.79	—	3.11	-0.1	3.92	4.01	0.64	3.72	4.53	3.25	2.51	3.10		
	20.03	19.47	19.50	18.90	19.33	19.98	16.64	20.2	19.68	17.18	19.96	19.45	18.87	18.70	19.31		
S 3046	3.87	3.22	3.25	2.56	3.06	3.81	0.37	4.02	3.46	0.80	3.79	3.19	2.53	2.33	3.04		
	19.90	19.76	19.84	18.99	19.39	19.79	16.56	19.88	19.61	17.17	—	19.22	19.12	18.60	19.09		
S' 3047	3.84	3.65	3.76	2.67	3.18	3.70	0.19	3.81	3.46	0.70	—	2.96	2.83	2.19	2.80		
	19.74	19.02	—	18.96	19.37	19.23	16.65	19.90	19.65	17.19	19.28	19.41	19.40	18.69	19.12		
S 3050	3.67	2.66	—	2.57	3.15	2.96	0.15	3.95	3.53	0.59	3.03	3.20	3.19	2.23	2.81		
	19.82	19.34	20.3	19.01	19.42	19.45	16.63	19.93	19.59	17.27	19.56	19.34	19.39	18.73	19.24		
S 3051	3.52	2.86	4.21	2.42	2.96	3.01	0.24	3.69	3.20	0.72	3.16	2.86	2.92	2.09	2.72		
	19.88	19.40	19.52	18.84	19.25	19.48	16.64	19.97	19.48	17.17	19.76	19.34	19.30	18.61	19.02		
S' 3052	3.77	3.14	3.29	2.40	2.94	3.25	0.19	3.89	3.25	0.64	3.61	3.06	3.01	2.10	2.64		
	19.81	19.79	19.55	18.92	19.43	19.70	16.56	20.0	19.62	17.16	19.88	19.62	19.82	18.74	19.33		
S' 3053	3.75	3.72	3.36	2.46	3.19	3.58	0.20	4.14	3.46	0.67	3.88	3.46	3.76	2.23	3.05		
	—	—	—	18.91	19.38	19.62	16.56	—	19.54	17.19	—	—	19.52	18.75	19.27		
S' 3054	—	—	—	3.08	3.80	4.18	0.52	—	4.05	1.04	4.60	4.64	4.02	2.86	3.63		
	19.85	20.42	19.77	18.87	19.54	19.66	16.44	19.79	19.58	17.39	20.29	19.87	19.70	18.76	19.37		
5229	2.56	3.13	2.48	1.69	2.28	2.38	0.05	2.53	2.32	0.63	3.00	2.58	2.44	1.60	2.10		
	19.97	19.19	20.01	18.74	19.56	19.92	16.56	19.89	19.57	17.31	20.11	19.30	19.79	18.78	19.44		
5231	2.50	1.69	2.55	1.31	2.05	2.44	-2.5	2.41	2.06	0.22	2.68	1.80	2.29	1.34	1.93		
	19.91	20.23	19.47	18.80	19.53	19.02	16.55	19.81	19.60	17.38	19.91	19.23	19.28	18.89	19.45		
5242	2.47	2.83	2.05	1.52	2.10	1.69	0.10	2.36	2.16	0.61	2.47	1.85	1.90	1.59	2.03		
	19.84	19.32	19.99	18.77	19.57	19.74	16.48	19.90	19.65	17.31	20.06	19.97	19.19	18.71	19.44		
5249	2.47	1.96	2.63	1.45	2.20	2.37	-1.2	2.53	2.28	0.39	2.70	2.61	1.84	1.40	2.07		
	19.39	19.77	20.18	18.86	19.53	19.77	16.49	20.01	19.72	16.60	19.78	19.86	19.62	18.33	19.30		
5523	1.54	1.90	2.33	1.04	1.67	1.90	-0.79	2.14	1.85	-0.72	1.91	1.98	1.76	0.56	1.46		
	18.92	20.02	20.21	18.87	19.58	19.90	16.50	19.98	19.69	16.82	20.01	19.33	19.64	18.42	19.64		
5528	1.23	2.09	2.27	1.20	1.73	1.99	-0.20	2.06	1.82	-0.06	2.08	1.53	1.78	0.90	1.77		
	19.45	20.01	20.36	18.80	19.51	20.02	16.45	19.91	19.63	16.58	20.12	19.54	19.68	18.39	19.57		
5532	1.65	2.10	2.42	1.17	1.72	2.11	-2.4	2.06	1.82	-1.9	2.20	1.72	1.84	0.88	1.75		
	19.70	20.06	20.36	18.89	19.60	19.97	16.52	19.94	19.73	16.62	20.14	19.83	19.73	18.42	19.37		
5537	1.82	2.18	2.48	1.10	1.73	2.09	-4.8	2.06	1.85	-4.2	2.26	1.95	1.85	0.74	1.52		
	19.73	20.11	20.38	18.85	19.57	19.92	16.50	19.95	19.68	16.60	20.27	19.69	19.72	18.30	19.37		
5540	2.04	2.42	2.69	1.21	1.88	2.23	-4.4	2.26	1.99	-3.8	2.58	2.00	2.03	0.77	1.68		
	18.98	19.80	20.01	18.82	19.40	19.18	16.62	19.94	19.59	16.62	19.17	19.38	19.76	18.33	19.35		
5548	1.26	1.96	2.16	1.13	1.62	1.42	-3.2	2.10	1.78	-3.3	1.41	1.52	1.93	0.75	1.57		
	19.19	20.11	20.19	18.90	19.50	19.66	16.46	19.91	19.69	16.70	19.72	19.70	19.25	18.38	19.38		
5554	1.30	2.12	2.19	1.06	1.55	1.70	-5.4	1.95	1.73	-4.0	1.76	1.74	1.33	0.67	1.46		
	19.45	19.94	20.22	18.84	19.37	19.70	16.62	19.86	19.54	16.77	19.81	19.74	19.01	18.38	19.36		
5559	2.02	2.52	2.84	1.44	1.94	2.26	-2.9	2.43	2.10	-1.8	2.37	2.30	1.60	1.04	1.93		
	19.64	19.98	20.23	18.91	19.50	19.84	16.54	19.94	19.59	16.71	20.07	—	19.09	18.33	19.33		
5563	2.00	2.34	2.61	1.28	1.86	2.20	-4.9	2.30	1.95	-3.8	2.43	—	1.45	0.79	1.69		
	19.71	20.05	20.38	18.86	19.45	19.83	16.54	19.86	19.69	16.71	20.14	—	19.06	18.36	19.34		
5564	2.48	2.82	3.15	1.65	2.23	2.60	-2.7	2.63	2.46	-1.5	2.91	—	1.84	1.18	2.12		
	19.47	20.12	20.31	19.92	19.52	19.92	16.57	20.16	19.67	16.82	19.97	—	19.12	18.39	19.49		
5565	3.46	4.08	4.32	2.65	3.29	3.79	0.41	4.14	3.46	0.63	3.87	—	2.86	2.11	3.18		



V measures, groups VII + VIII

(97)

	✓	✓	✓	N	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	87	52	161	SW9	SW10	86	SW7	SW8	SW6	149	83	30	59	243	174
441	19.52	19.64	19.64	17.58	19.53	19.53	15.86	19.01	19.62	16.16	19.45	19.58	18.87	16.55	19.26
	2.45	2.57	2.57	0.85	2.46	2.46	-2.1	1.95	2.55	-0.04	2.38	2.51	1.83	0.19	2.19
2779	19.75	18.94	19.76	17.50	19.81	19.40	15.95	19.05	—	15.39	19.18	19.47	19.33	16.64	19.70
	3.61	2.80	3.62	1.44	3.66	3.26	0.32	2.91	3.73	-0.05	2.96	3.33	3.19	0.79	3.56
2907	19.62	19.43	19.68	17.25	19.58	19.47	15.98	19.07	19.81	15.91	19.81	19.43	19.10	16.47	19.18
	3.66	3.45	3.72	1.75	3.62	3.50	0.44	3.07	3.92	0.40	3.90	3.45	3.10	0.78	3.18
2908	19.71	19.61	19.71	17.70	19.53	19.71	15.89	19.02	19.91	15.93	19.81	19.91	19.14	16.45	19.22
	3.68	3.60	3.65	1.68	3.49	3.64	0.36	2.98	3.82	0.39	3.80	3.86	3.10	0.74	3.18
4839	19.40	19.52	19.62	17.63	19.59	19.59	15.88	19.14	19.60	15.44	19.91	19.10	19.40	16.22	19.30
	2.31	2.45	2.55	0.59	2.52	2.52	-0.69	2.04	2.53	-0.98	2.85	2.00	2.31	-0.46	2.20
4842	19.24	19.36	19.30	17.64	19.45	19.51	15.89	19.12	19.61	15.50	19.46	19.15	18.76	16.21	19.32
	2.53	2.70	2.62	0.97	2.83	2.90	-0.32	2.39	3.01	-0.58	2.84	2.42	2.00	-0.11	2.64
4843	19.39	19.71	19.21	17.68	19.34	19.71	15.97	19.21	—	15.49	19.61	19.61	18.85	16.28	—
	3.44	3.76	3.23	1.57	3.38	3.81	0.10	3.23	4.03	-0.26	3.68	3.65	2.80	0.34	—
5522	19.36	19.88	—	17.62	—	19.28	15.94	18.91	—	15.14	19.33	—	19.30	16.40	—
	3.37	3.40	3.94	1.42	3.61	3.28	-0.14	2.84	4.36	-0.74	3.34	—	3.30	0.23	3.54
5555	19.19	19.61	19.52	17.63	19.52	19.22	15.92	19.13	—	15.22	19.56	19.61	18.97	16.44	19.61
	3.16	3.74	3.58	1.48	3.58	3.20	0.11	3.10	—	-0.38	3.62	3.72	2.92	0.47	3.75
5567	19.41	19.71	—	17.66	19.61	19.61	15.98	19.01	—	15.28	—	—	18.79	16.38	19.41
	3.52	3.84	4.11	1.49	3.76	3.73	0.13	3.03	4.26	-0.36	3.85	—	2.77	0.44	3.57
5576	19.00	19.61	19.40	17.67	19.50	19.52	15.95	19.00	19.71	15.31	19.71	19.25	18.81	16.54	19.81
	2.68	3.39	3.11	1.43	3.22	3.25	0.25	2.68	3.49	-0.15	3.50	2.94	2.49	0.64	3.52
5581	19.40	19.68	19.66	17.64	19.72	19.54	15.79	19.16	19.73	15.27	19.80	19.56	18.91	16.32	19.54
	2.89	3.17	3.15	1.30	3.22	3.03	0.10	2.65	3.23	-0.24	3.31	3.05	2.40	0.44	3.03
5582	19.37	19.71	19.61	17.64	19.71	19.81	15.84	19.12	19.81	15.19	19.91	19.81	18.96	16.40	19.51
	3.94	4.32	4.21	1.98	4.37	4.41	0.59	3.65	4.38	0.14	4.47	4.43	3.44	0.98	4.09

	152	177	53	NW3	NW2	NW1	NW4	85	241	55	28	148	NW5	51	245
441	20.00	18.98	19.29	16.28	18.94	18.15	17.90	19.28	19.50	—	19.48	16.59	16.83	—	19.30
	2.93	1.92	2.22	0.03	1.89	1.25	1.07	2.21	2.43	*	2.41	0.22	0.37	-1.36	2.23
2779	19.91	18.94	19.02	16.41	18.98	18.14	18.01	19.01	19.50	—	19.16	16.85	17.05	—	19.12
	3.77	2.80	2.88	0.63	2.84	2.01	1.89	2.87	3.36	*	3.02	0.94	1.08	-1.84	2.98
2907	19.81	19.00	18.97	16.41	18.96	18.11	17.95	18.92	19.55	—	19.08	16.87	17.00	—	19.42
	3.85	2.99	2.96	0.74	2.95	2.08	1.93	2.90	3.58	*	3.08	1.06	1.16	-1.99	3.44
2908	—	18.87	18.94	16.34	18.98	18.06	17.95	19.16	19.61	—	19.18	16.83	17.00	—	19.25
	4.12	2.83	2.90	0.66	2.94	2.02	1.91	3.12	3.61	*	3.14	1.01	1.13	-2.03	3.21
4839	19.81	19.00	19.09	16.43	18.97	18.21	17.89	19.02	19.53	—	18.78	16.69	17.09	—	19.11
	2.81	1.90	1.99	-0.31	1.87	1.11	0.82	1.92	2.46	*	1.68	-0.13	0.16	-2.36	2.01
4842	19.81	19.00	19.10	16.47	19.04	18.17	18.00	19.16	19.41	—	19.41	16.69	17.07	—	19.21
	3.22	2.25	2.36	0.07	2.29	1.44	1.28	2.43	2.77	*	2.78	0.23	0.50	-2.05	2.49
4843	—	19.20	19.03	16.50	19.04	18.25	18.00	—	—	—	19.51	16.74	17.17	—	19.18
	—	3.21	3.01	0.51	3.02	2.14	1.89	—	*	*	3.62	0.71	1.08	-1.86	3.19
5522	19.35	19.06	19.12	16.47	19.14	18.24	18.05	—	—	—	—	16.43	17.10	—	18.91
	3.36	3.01	3.08	0.29	3.10	2.06	1.86	3.66	3.64	*	3.83	0.26	0.90	-1.53	2.84
5555	—	19.05	18.96	16.41	19.15	18.17	17.91	19.18	19.61	—	19.44	16.41	17.15	—	19.40
	3.82	3.01	2.91	0.45	3.12	2.06	1.78	3.16	3.65	*	3.47	0.45	1.03	-1.16	3.42
5567	—	19.00	19.00	16.46	19.21	18.33	18.26	—	—	—	—	16.59	17.32	—	18.65
	3.62	3.02	3.02	0.50	3.27	2.23	2.14	—	—	*	3.88	0.60	1.18	-1.08	2.60
5576	19.61	18.91	19.05	16.42	19.00	18.15	18.02	19.56	19.64	—	19.46	16.39	17.09	—	18.85
	3.36	2.59	2.73	0.56	2.68	1.85	1.73	3.29	3.39	*	3.18	0.54	1.02	-0.82	2.53
5581	19.65	19.06	18.82	16.34	19.02	—	—	19.71	19.60	—	19.53	16.34	17.10	—	19.11
	3.14	2.55	2.31	0.45	2.51	5.48	—	3.20	3.09	*	3.02	0.45	0.93	-0.85	2.60
5582	—	18.97	18.81	16.41	19.01	18.18	17.96	—	19.33	—	19.51	16.46	17.19	—	19.06
	4.21	3.46	3.27	0.99	3.51	2.54	2.30	4.43	3.90	*	4.09	1.02	1.58	-0.47	3.57

	152	177	53	NW3	NW2	NW1	NW4	85	241	55	28	148	NW5	51	245
	19.92	19.80	19.17	17.49	19.74	19.72	18.82	19.66	19.21	19.07	19.40	19.92	16.79	15.9	19.07
S 3130	4.14	3.97	3.06	1.13	3.89	3.13	2.58	3.77	3.12	2.92	3.40	4.15	0.52	-1.8	2.92
	19.91	19.84	19.97	17.48	19.81	19.25	18.90	19.92	19.41	19.41	19.91	19.52	16.81	16.63	19.10
5525	2.12	2.05	1.72	0.33	2.02	1.54	1.26	2.08	1.67	1.67	2.07	1.76	-0.5	-4.9	1.42
	19.96	19.82	18.90	17.35	19.74	19.37	18.88	—	19.36	—	19.83	19.53	16.90	16.02	19.33
5580	2.25	2.14	1.43	0.52	2.08	1.80	1.46	*	1.74	*	2.10	1.87	0.27	-1.9	1.77
	19.91	19.97	19.13	17.66	20.02	19.55	19.22	—	19.51	—	19.94	20.11	16.95	—	19.78
S 3134	3.93	4.01	2.90	1.42	4.10	3.44	3.02	—	3.38	—	3.97	4.17	0.87	0.10	3.35
	19.97	19.80	19.29	17.91	19.78	19.28	18.88	20.07	19.48	—	18.71	19.52	16.86	15.99	19.61
5590	2.21	2.06	1.62	0.37	2.04	1.62	1.32	2.29	1.76	*	1.20	1.80	0.05	-4.1	1.90
	20.85	19.76	19.03	17.42	19.79	19.26	18.85	19.36	19.33	—	19.83	20.40	16.85	15.84	19.65
6384	3.04	2.09	1.45	0.27	2.12	1.65	1.30	1.74	1.71	*	2.15	2.66	-0.6	-6.6	1.99
	20.54	19.76	19.16	17.34	19.86	19.24	18.81	19.50	19.37	—	19.86	20.37	16.81	15.95	19.76
6387	2.80	2.03	1.50	0.18	2.13	1.57	1.21	1.80	1.68	*	2.13	2.63	-1.6	-6.4	2.03
	20.45	19.80	19.30	17.48	19.64	19.20	18.84	19.54	19.36	—	19.73	19.97	16.88	15.81	19.22
6390	2.78	2.12	1.63	0.24	1.96	1.54	1.24	1.86	1.68	*	2.05	2.29	-1.4	-7.6	1.56
	20.61	19.82	19.58	17.46	19.87	19.37	18.96	19.88	19.41	—	19.94	20.15	16.93	15.89	18.99
6393	3.16	2.24	2.01	0.28	2.30	1.81	1.44	2.31	1.85	*	2.37	2.60	-0.6	-6.9	1.47
	—	—	19.84	17.35	20.13	19.31	18.78	19.68	19.51	—	20.17	20.16	16.90	15.87	18.88
6396	4.46	—	3.14	0.54	3.50	2.17	1.79	2.93	2.72	*	3.54	3.53	0.24	-4.2	1.92
	20.44	19.70	18.99	17.47	19.75	19.25	18.86	19.90	19.35	—	19.12	19.96	16.84	15.87	19.25
6407	2.92	2.12	1.42	0.13	2.17	1.67	1.30	2.32	1.77	*	1.55	2.38	-3.1	-9.2	1.67
	20.68	19.66	19.05	17.68	19.89	19.35	18.97	20.13	19.41	—	19.38	20.23	17.00	15.93	19.37
6410	3.05	2.01	1.41	0.24	2.24	1.70	1.33	2.48	1.76	*	1.73	2.58	-2.3	-9.0	1.72
	20.46	19.75	18.91	17.45	19.75	19.23	18.83	20.02	19.39	—	19.97	20.17	16.86	15.94	19.47
6413	2.86	2.01	1.19	0.02	2.01	1.48	1.12	2.32	1.64	*	1.72	2.51	-3.6	-9.4	1.72
	20.63	19.67	19.14	17.52	19.86	19.35	18.86	19.60	19.42	—	19.67	20.03	16.87	15.98	19.47
6417	3.08	2.06	1.55	0.23	2.25	1.74	1.29	1.99	1.81	*	2.06	2.43	-1.9	-7.4	1.86
	20.61	19.65	19.29	17.48	19.85	19.35	18.87	19.36	19.38	—	19.69	20.30	16.85	15.88	19.67
6420	3.36	2.35	2.01	0.57	2.54	2.07	1.64	2.08	2.10	*	2.39	3.01	0.17	-4.4	2.37
	20.71	19.69	19.40	17.40	19.77	19.24	18.88	19.31	19.28	—	19.87	20.02	16.85	15.99	19.63
6423	3.69	2.57	2.26	0.56	2.66	2.09	1.74	2.16	2.13	*	2.77	2.95	0.21	-3.8	2.50
	20.61	19.78	19.31	17.39	19.80	19.14	18.81	19.24	19.29	—	19.61	19.94	16.83	15.87	19.62
6426	3.86	2.84	2.30	0.59	2.84	2.13	1.79	2.23	2.28	*	2.63	2.44	0.21	-4.2	2.64
	—	19.81	19.40	17.36	19.25	18.81	18.55	19.30	19.28	—	19.60	—	16.90	15.92	—
6429	—	3.37	2.81	0.59	2.62	2.03	1.70	2.68	2.65	*	3.10	—	0.25	-4.9	3.78
	—	19.51	19.80	17.32	19.44	19.10	18.78	19.79	19.24	—	20.05	20.05	16.88	16.09	19.65
6431	3.70	2.92	3.33	0.63	2.82	2.34	1.96	3.31	2.52	—	3.64	3.65	0.31	-2.7	3.12

Group of stars NW

VIII

99

	OK?	✓	0											✓	2 images
	152	177	53	NW3	NW2	NW1	NW4	85	241	55	28	148	NW5	51	245
	20.20	19.80	19.38	17.34	19.60	19.21	18.80	19.49	19.19		19.72	20.55	16.73	15.21	19.67
442	2.80	2.40	2.06	0.40	2.40	1.88	1.53	2.16	1.89	*	2.38	3.22	0.02	-80	2.28
	—	19.63	19.13	17.37	19.80	19.38	18.74	20.01	19.66	18.85	19.54	19.95	16.89	—	19.59
2778	—	3.40	2.92	1.31	3.59	3.15	2.50	3.81	3.45	2.64	3.33	3.75	0.96	-76	3.36
	20.13	19.85	19.23	17.37	19.53	19.10	18.89	19.25	19.45	19.28	19.48	19.83	17.01	—	19.57
2909	4.52	4.18	3.40	1.34	3.80	3.24	2.97	3.43	3.69	3.47	3.72	4.18	0.93	-1.34	3.85
	20.08	19.76	19.38	17.46	19.88	19.11	18.82	19.45	19.27	19.34	18.64	19.50	16.87	—	19.60
4544	2.43	2.17	1.89	0.65	2.27	1.69	1.49	1.94	1.81	1.86	1.37	1.98	0.33	-1.40	2.05
	19.97	19.67	19.29	17.58	19.65	19.28	18.87	19.48	—	18.98	18.58	19.40	16.99	—	19.60
4545	4.74	4.30	3.80	2.07	4.27	3.80	3.32	4.04	—	3.43	3.02	3.94	1.62	-91	4.21
	20.12	19.65	19.31	17.49	19.75	19.30	18.77	19.55	19.35	19.45	19.83	19.96	16.85	—	19.50
4841	2.27	1.80	1.46	-0.05	1.90	1.45	1.05	1.70	1.50	1.60	1.98	2.11	-51	-1.90	1.65
	20.14	19.84	19.02	17.45	19.84	19.24	18.92	19.43	19.36	*	19.77	19.96	16.88	—	19.70
4846	2.37	2.06	1.26	-0.03	2.06	1.47	1.16	1.66	1.59	1.82	1.99	2.18	-44	-1.87	1.92
	—	19.79	18.96	17.53	19.83	19.38	18.88	19.64	19.44	*	19.73	20.01	16.89	—	19.66
4847	—	2.66	1.79	0.48	2.70	2.22	1.71	2.50	2.28	2.42	2.59	2.90	-01	-7.42	2.52
	19.68	19.71	19.39	17.64	19.81	19.27	19.02	19.79	19.45	*	19.72	19.69	16.90	—	18.97
S 3044	3.95	4.01	3.43	1.07	4.19	3.25	2.90	4.15	3.53	2.57	3.17	3.97	0.28	-1.51	2.84
	20.13	19.91	18.93	17.58	20.03	19.33	18.94	20.08	19.27	20.10	18.69	19.90	16.97	—	19.10
S 3046	3.98	3.73	2.60	1.15	3.86	3.06	2.61	3.92	2.99	3.95	2.31	3.71	0.63	-85	2.79
	19.98	19.76	18.82	17.53	19.75	19.29	18.88	19.48	19.27	—	18.91	19.95	16.86	—	19.42
S 3047	3.95	3.66	2.46	1.02	3.64	3.05	2.54	3.29	3.03	*	2.57	3.90	0.43	-95	3.21
	19.77	19.69	19.15	17.60	19.61	19.25	18.73	19.82	19.33	—	19.85	19.82	16.87	—	19.44
S 3050	3.71	3.60	2.85	0.98	3.48	2.98	2.28	3.81	3.10	—	3.86	3.81	0.33	-1.00	3.24
	19.75	19.68	19.32	17.64	19.87	19.43	18.90	19.89	19.29	*	19.69	19.88	16.94	—	19.42
S 3051	3.42	3.32	2.83	1.01	3.59	2.98	2.38	3.63	2.79	—	3.34	3.61	0.47	-81	2.97
	19.85	19.64	19.35	17.54	19.71	19.18	18.88	19.83	19.13	—	19.71	19.65	16.88	—	19.52
S 3052	3.73	3.45	3.08	0.97	3.54	2.86	2.45	3.70	2.79	—	3.54	3.46	0.39	-96	3.30
	19.96	19.56	19.42	17.58	19.88	19.43	19.03	20.11	19.45	—	19.89	19.85	16.85	—	19.45
S 3053	4.07	3.37	3.17	1.00	3.89	3.19	2.61	4.36	3.22	*	3.91	3.82	0.42	-89	3.22
	—	19.71	19.35	17.63	—	19.42	18.96	—	19.52	—	—	—	16.87	—	19.54
S 3054	4.51	4.37	3.75	1.44	4.83	3.87	3.16	—	4.01	*	—	—	0.78	-57	4.05
	19.85	19.72	19.21	17.44	19.82	19.29	18.86	19.39	19.43	—	19.28	19.78	16.89	16.41	19.53
5229	2.59	2.46	1.96	0.66	2.56	2.05	1.68	2.12	2.16	*	2.02	2.49	0.31	0.03	2.27
	19.89	19.81	19.45	17.43	19.88	19.26	18.77	19.54	19.42	—	19.67	19.50	16.87	16.41	19.63
5231	2.41	2.31	1.94	0.30	2.40	1.76	1.33	2.03	1.91	*	2.16	1.99	-06	-35	2.12
	19.93	19.70	18.95	17.55	19.86	19.25	18.89	20.06	19.41	19.58	19.82	19.68	17.05	16.40	19.71
5242	2.48	2.25	1.63	0.65	2.41	1.87	1.59	2.64	2.00	2.15	2.38	2.24	0.38	0.02	2.26
	19.82	19.85	19.25	17.44	19.85	19.19	18.90	19.93	19.46	—	18.96	19.52	16.84	16.38	18.82
→ 5249	2.45	2.48	1.89	0.47	2.48	1.84	1.57	2.56	2.09	*	1.62	2.15	0.09	-1.8	1.50
	20.12	19.82	19.12	17.49	19.87	19.26	18.88	19.83	19.43	—	20.03	19.51	16.88	15.93	19.26
5523	2.26	1.94	1.29	-1.1	1.99	1.42	1.06	1.95	1.58	*	2.16	1.65	-53	-1.18	1.42
	20.00	19.77	18.94	17.34	19.86	19.26	18.84	19.53	19.37	—	18.87	19.51	16.80	15.92	19.53
5528	2.08	1.88	1.24	0.25	1.96	1.48	1.18	1.69	1.56	*	1.19	1.67	-04	-51	1.69
	20.05	19.70	19.23	17.32	19.71	19.24	18.80	19.59	19.34	18.85	19.04	19.49	16.82	15.87	19.60
5532	2.18	1.88	1.48	0.22	1.89	1.51	1.17	1.76	1.57	1.20	1.34	1.68	-05	-55	1.80
	19.99	19.81	19.44	17.54	19.78	19.31	18.97	19.74	19.43	*	19.28	19.57	16.88	15.96	19.55
5537	2.11	1.93	1.60	0.13	1.90	1.47	1.17	1.86	1.58	1.10	1.44	1.70	-26	-81	1.69
	20.01	19.73	19.60	17.41	19.70	19.20	18.81	19.69	19.31	*	19.34	19.43	16.84	15.91	19.70
5540	2.32	2.04	1.91	0.12	2.01	1.51	1.18	2.00	1.62	1.42	1.65	1.74	-24	-81	2.01
	20.02	19.75	19.55	17.41	19.82	19.21	18.86	19.98	19.39	—	19.86	19.59	16.94	15.87	19.62
5548	2.18	1.92	1.74	0.14	1.99	1.46	1.17	2.13	1.60	*	2.02	1.77	-14	-73	1.81
	19.76	19.25	19.13	17.47	19.83	19.31	18.85	20.04	19.46	—	19.84	19.53	16.90	15.96	19.73
5554	1.80	1.33	1.25	0.06	1.87	1.38	1.02	2.05	1.53	*	1.87	1.59	-27	-83	1.77
	20.02	19.73	18.87	17.44	19.76	19.23	18.87	19.92	19.29	—	19.80	19.51	16.96	15.91	19.11
5559	2.61	2.29	1.47	0.29	2.32	1.81	1.47	2.50	1.87	*	2.36	2.08	-04	-79	1.69
	20.01	19.78	19.08	17.51	19.96	19.46	19.22	—	—	—	20.01	19.81	16.96	15.89	18.91
5563	2.37	2.14	1.44	0.16	2.32	1.82	1.58	—	—	*	2.37	2.17	-22	-90	1.28
	20.05	19.87	19.13	17.53	19.98	19.53	19.22	—	—	*	19.96	19.77	16.99	15.95	18.83
5564	2.82	2.64	1.91	0.47	2.75	2.30	2.00	—	—	*	2.73	2.54	0.06	-68	1.62
	19.99	19.88	19.10	17.63	19.93	19.43	19.29	—	—	*	19.89	19.77	16.97	15.87	18.88
5565	3.89	3.74	2.84	1.35	3.81	3.19	3.03	—	—	*	3.76	3.59	0.76	-13	2.61

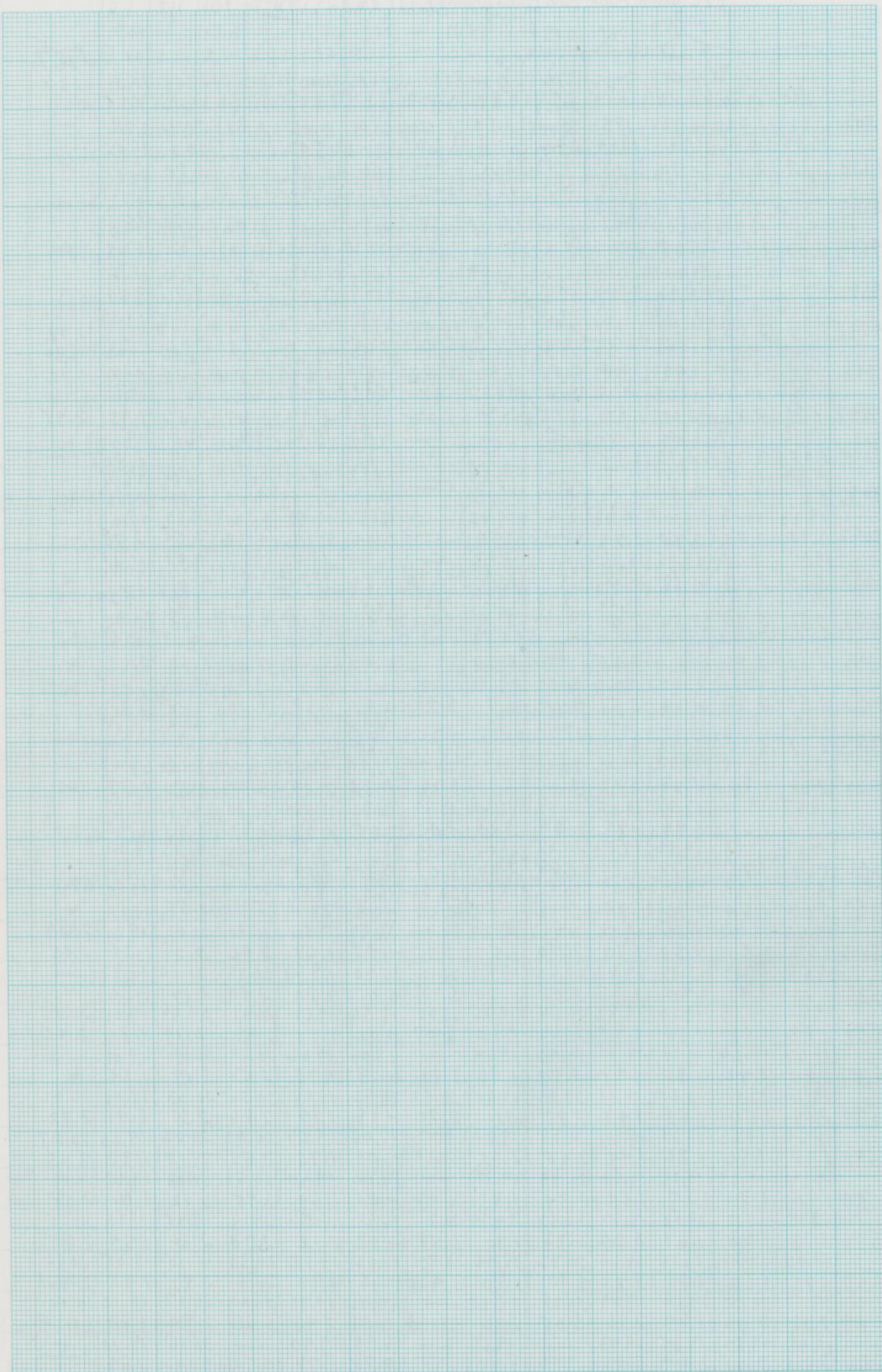
	27	311	104	79	176	62	22	NW6	NW7	NW8	NW9	NW10	237
	19.44	19.27	19.08	19.28	19.76	19.25	—	16.89	19.59	20.0	19.87	19.11	—
S 3130	3.44	3.21	2.94	3.23	3.92	3.17	—	0.61	3.67	4.24	4.07	2.97	*
	19.75	19.23	19.17	19.71	20.57	19.35	20.40	19.02	19.57	20.39	20.07	19.10	20.75
5575	1.94	1.53	1.48	1.91	2.67	1.62	2.57	0.07	1.81	2.56	2.26	1.42	2.90
	19.20	19.29	19.09	19.87	20.45	19.16	20.81	16.99	19.57	20.38	20.13	19.01	20.56
5580	1.63	1.69	1.56	2.14	2.65	1.66	2.96	0.32	1.95	2.60	2.39	1.55	2.75
	18.89	19.66	19.29	19.74	20.21	19.47	—	16.94	19.81	20.2	20.03	19.21	—
S 3134	2.64	3.58	3.10	3.69	4.35	3.33	—	0.86	3.78	4.41	4.11	3.00	—
	19.22	19.19	19.04	19.21	20.55	19.66	20.73	16.98	19.53	20.33	20.05	18.99	20.50
5590	1.57	1.55	1.44	1.56	2.82	1.94	3.01	0.12	1.83	2.56	2.29	1.40	2.73
	19.47	18.88	19.10	19.68	20.47	19.61	20.58	16.97	19.50	20.81	20.05	19.00	19.62
6384	1.83	1.83	1.51	2.02	2.73	1.96	2.84	0.00	1.86	3.10	2.35	1.43	1.97
	19.51	18.88	19.11	19.78	20.34	19.85	—	16.95	19.62	20.68	20.11	19.01	19.68
6387	1.81	1.27	1.46	2.05	2.60	2.12	3.18	-0.06	1.90	2.97	2.37	1.38	1.96
	19.48	18.84	19.10	19.72	20.25	19.86	20.42	17.00	19.54	20.69	19.98	19.02	19.59
6390	1.80	1.24	1.46	2.04	2.57	2.18	2.74	-0.06	1.86	3.07	2.30	1.39	1.91
	19.51	18.97	19.17	19.91	20.35	19.92	—	16.97	19.58	20.5	20.17	18.99	19.74
6393	1.94	1.45	1.64	2.24	2.82	2.35	—	-0.03	2.01	3.34	2.62	1.47	2.16
	19.15	18.95	18.98	19.26	20.42	19.63	—	16.99	19.69	—	—	19.05	19.44
6396	2.26	2.01	2.05	2.41	3.85	2.87	—	0.29	2.95	4.59	—	2.13	2.63
	19.24	18.84	19.04	19.32	20.40	18.97	—	16.96	19.65	20.5	20.13	19.00	19.69
6407	1.66	1.28	1.47	1.74	2.86	1.40	—	-2.23	2.07	2.98	2.55	1.43	2.11
	19.19	18.87	19.15	19.38	20.44	19.11	20.53	16.97	19.60	20.62	20.00	19.07	19.77
6410	1.54	1.24	1.50	1.73	2.79	1.46	2.88	-2.25	1.95	2.98	2.35	1.42	2.12
	19.25	18.85	19.04	19.48	19.98	19.31	20.50	16.98	19.70	20.57	20.04	19.00	19.74
6413	1.50	1.13	1.31	1.73	2.27	1.56	2.90	-2.29	1.96	2.99	2.35	1.27	2.00
	19.30	18.97	19.23	19.72	20.30	19.66	—	16.99	19.59	20.70	20.09	19.13	19.81
6417	1.70	1.39	1.63	2.11	2.70	2.05	3.77	-1.11	1.98	3.17	2.49	1.54	2.20
	19.23	18.73	19.14	19.70	20.32	19.65	—	16.95	19.60	20.46	20.08	18.99	19.69
6420	1.96	1.51	1.88	2.40	3.03	2.35	3.85	0.23	2.30	3.18	2.77	1.75	2.39
	19.42	18.85	19.02	19.69	20.5	19.88	—	17.00	19.58	—	20.00	19.06	19.74
6423	2.27	1.71	1.87	2.57	3.48	2.79	3.85	0.30	2.45	4.02	2.93	1.91	2.63
	19.27	18.74	18.92	19.44	20.5	19.95	20.4	16.93	19.43	—	19.82	18.92	19.62
6426	2.26	1.72	1.90	2.44	3.72	3.03	3.59	0.28	2.43	—	2.87	1.90	2.64
	19.27	18.74	18.86	19.09	—	—	—	17.05	19.51	—	—	18.79	19.32
6429	2.65	1.93	2.09	2.40	—	—	—	0.36	2.98	—	—	2.01	2.70
	19.37	18.79	18.98	19.35	—	20.0	—	16.95	19.53	—	20.0	19.01	19.86
6431	2.71	1.97	2.19	2.67	—	3.63	—	0.36	2.95	—	3.65	2.23	3.43

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Group of stars NW IX

(10)

	case!											may be blend	
	27	211	104	79	176	62	22	NW6	NW7	NW8	NW9	NW10	237
	18.94	19.08	19.08	19.14	20.39	18.82	20.89	16.89	19.53	20.37	19.96	19.04	
442	1.66	1.79	1.79	1.84	3.04	1.54	3.60	0.11	2.16	2.99	2.56	1.73	—
	19.55	18.95	19.11	19.34	—	18.99	—	17.03	19.42	—	20.01	19.05	
2778	3.34	2.74	2.90	3.13	4.53	2.75	—	1.06	3.19	4.73	3.88	2.81	*
	19.20	18.64	18.93	19.71	—	19.68	—	16.99	19.45	—	19.81	18.99	
2909	3.36	2.64	3.02	4.03	—	4.00	—	1.02	3.69	—	4.09	3.10	—
	19.57	18.93	19.02	19.61	20.44	19.68	21.11	16.89	19.57	20.70	19.99	19.02	
4544	2.03	1.57	1.63	2.06	2.77	2.11	3.41	0.34	2.03	3.02	2.35	1.63	*
	—	—	19.01	19.40	—	19.54	—	16.95	19.48	—	19.71	18.89	
4545	—	—	3.46	3.94	—	4.12	—	1.59	4.05	—	4.36	3.34	—
	19.52	19.98	19.18	19.84	—	19.53	20.84	16.96	19.55	20.54	20.02	19.14	19.57
4841	1.67	2.13	1.33	1.99	—	1.68	2.99	—	1.70	2.69	2.17	1.29	1.72
	19.66	19.82	19.26	19.26	20.35	19.75	20.29	16.96	19.62	20.56	20.06	19.02	19.70
4846	1.88	2.04	1.49	1.49	2.58	1.97	2.52	—	1.84	2.81	2.28	1.26	1.92
	19.56	19.93	19.23	19.11	20.61	19.87	20.21	16.95	19.59	—	19.97	19.10	19.60
4847	2.41	2.81	2.07	1.94	3.55	2.74	3.07	0.04	2.44	3.67	2.86	1.93	2.45
	19.13	19.29	19.05	19.48	—	—	—	16.89	19.69	19.81	19.81	19.09	—
S 3044	3.65	3.28	2.94	3.58	—	—	—	0.27	3.97	4.21	4.19	3.00	—
	19.34	19.33	19.19	19.73	20.31	19.89	—	16.93	19.61	20.61	20.04	19.15	—
S 3046	3.07	3.06	2.90	3.52	4.21	3.70	—	0.60	3.38	4.63	3.88	2.85	*
	19.23	19.19	19.01	19.82	—	19.92	—	16.87	19.49	20.31	19.67	19.01	—
S 3047	2.98	2.93	2.70	3.74	—	3.86	—	0.44	3.30	4.38	3.54	2.70	—
	19.44	19.22	19.05	18.95	—	19.49	—	16.86	19.47	19.87	19.97	19.01	—
S 3050	3.24	2.94	2.70	2.56	—	3.31	4.68	0.32	3.28	3.90	4.09	2.65	*
	19.42	19.37	19.19	19.16	19.90	19.54	20.51	16.86	19.66	20.51	19.87	19.24	—
S 3051	2.96	2.90	2.65	2.61	3.65	3.13	4.62	0.41	3.29	4.65	3.60	2.72	—
	18.94	19.20	19.01	19.18	—	19.58	—	16.91	19.40	—	19.75	18.96	—
S 3052	2.53	2.88	2.62	2.85	—	3.37	—	0.42	3.14	4.66	3.60	2.56	*
	18.94	19.28	19.22	19.67	20.01	19.78	—	16.85	19.77	19.92	19.92	19.05	—
S 3053	2.49	2.97	2.88	3.53	4.24	3.70	4.48	0.42	3.68	4.00	4.08	2.75	—
	18.90	19.35	19.14	—	—	19.63	—	16.90	19.48	—	—	19.05	—
S 3054	3.07	3.75	3.42	4.50	—	4.18	4.57	0.80	3.95	4.75	—	3.29	—
	19.66	19.14	19.12	19.46	20.30	19.21	20.75	16.94	19.65	20.57	20.08	18.99	—
5229	2.38	1.90	1.88	2.18	3.01	1.98	3.50	0.34	2.39	3.31	2.82	1.79	*
	19.67	19.10	18.96	19.25	20.19	19.82	20.70	16.90	19.58	20.30	19.99	18.95	—
5231	2.16	1.61	1.49	1.75	2.79	2.32	3.42	—	2.07	2.92	2.53	1.48	—
	19.22	19.08	19.14	19.82	20.27	20.05	20.44	16.99	19.57	20.28	20.13	19.06	—
5242	1.84	1.73	1.78	2.38	2.88	2.60	3.05	0.34	2.14	2.85	2.69	1.72	—
	19.45	18.98	19.11	19.09	20.42	18.90	20.62	16.92	19.51	20.51	20.19	18.97	—
5249	2.08	1.64	1.76	1.74	3.12	1.57	3.36	0.14	2.14	3.22	2.85	1.63	*
	19.53	19.15	19.16	19.56	20.33	19.37	20.71	16.99	19.53	20.30	20.07	19.07	20.29
5523	1.67	1.31	1.32	1.70	2.50	1.52	2.95	—	1.67	2.46	2.21	1.24	2.45
	19.58	19.18	19.16	19.83	20.52	19.59	21.11	16.90	19.67	20.39	20.10	18.96	—
5528	1.73	1.41	1.40	1.93	2.58	1.74	3.15	0.01	1.80	2.44	2.17	1.26	*
	19.68	19.23	19.10	19.83	20.56	19.75	21.01	16.96	19.62	20.41	20.06	19.05	20.35
5532	1.83	1.48	1.38	1.95	2.61	1.92	3.07	0.02	1.81	2.52	2.19	1.36	2.46
	19.67	19.26	19.18	19.31	20.40	19.84	—	17.00	19.62	20.39	20.07	19.05	—
5537	1.80	1.42	1.35	1.47	2.52	1.96	3.31	—	1.75	2.51	2.19	1.24	*
	19.78	19.18	19.21	19.11	20.52	19.80	20.40	16.92	19.68	20.55	20.03	19.08	20.41
5540	2.09	1.50	1.52	1.43	2.83	2.11	2.71	—	1.99	2.86	2.34	1.41	2.72
	18.89	19.23	19.11	19.20	20.28	19.84	—	17.05	19.57	20.41	20.02	19.04	20.27
5548	1.18	1.46	1.36	1.44	2.43	2.01	3.21	—	1.76	2.55	2.18	1.32	2.43
	19.19	19.24	19.16	19.58	20.34	19.22	—	17.00	19.60	20.31	20.08	19.03	20.59
5554	1.30	1.34	1.27	1.63	2.34	1.33	3.07	—	1.64	2.35	2.12	1.16	2.58
	19.14	19.10	19.02	19.70	20.30	19.14	20.71	16.98	19.56	20.14	19.98	18.94	20.25
5559	1.72	1.68	1.61	2.26	2.93	1.72	3.58	—	2.12	2.74	2.56	1.54	2.87
	19.40	19.26	19.15	19.86	20.32	19.44	20.41	17.02	19.58	20.39	20.15	19.05	20.36
5563	1.76	1.62	1.51	2.22	2.70	1.80	3.42	—	1.94	2.78	2.52	1.41	2.75*
	19.51	19.28	19.19	19.99	20.28	19.49	—	17.02	19.71	20.49	20.17	19.10	20.40
5664	2.28	2.06	1.97	2.76	3.05	2.26	3.88	0.08	2.48	3.26	2.94	1.88	3.17*
	19.44	19.27	19.25	19.93	—	19.53	—	16.99	19.90	—	20.16	19.10	—
5565	3.20	3.01	2.99	3.81	—	3.30	—	0.78	3.77	4.50	4.14	2.84	—



V measures, groups IX, X

(103)

	27	211	104	79	176	62	22	NW6	NW7	NW8	NW9	NW10	237
	18.89	16.63	17.72	19.11	20.2	18.77	20.5	17.04	18.58	20.4	20.07	17.81	-
441	1.85	0.24	0.94	2.05	3.16	1.24	3.43	0.50	1.59	3.31	3.00	1.00	*
	19.09	16.65	17.90	19.32	20.0	18.94	—	17.13	18.61	20.5	19.9	17.81	
2779	2.95	0.79	1.79	3.18	3.89	2.80	4.56	1.15	2.47	4.41	3.79	1.71	*
	18.97	16.68	17.83	19.44	20.1	19.16	—	17.13	18.61	—	20.0	17.86	-
2907	2.95	0.93	1.82	3.46	4.20	3.16	4.58	1.25	2.58	4.59	4.03	1.85	*
	18.83	16.68	17.85	19.35	—	19.19	—	17.13	18.61	—	20.1	17.84	
2908	2.79	0.90	1.82	3.31	4.24	3.15	—	1.22	2.57	4.65	4.07	1.81	*
	18.77	17.18	17.91	19.15	20.2	19.48	—	17.13	18.59	20.5	20.1	17.86	17.76
4834	1.67	0.24	0.83	2.05	3.17	2.40	—	0.19	1.49	3.60	3.12	0.79	0.70
	19.14	17.17	18.03	19.29	20.0	19.23	20.3	17.17	18.60	20.1	20.1	17.77	17.81
4842	2.41	0.58	1.31	2.60	3.46	2.52	3.92	0.58	1.84	3.54	3.56	1.09	1.12
	19.24	17.23	18.17	19.42	—	19.22	20.1	17.18	18.80	20.0	19.8	17.82	17.83
4843	3.26	1.13	2.06	3.48	—	3.24	4.30	1.08	2.74	4.18	3.93	1.71	1.72
	19.07	16.71	17.82	19.15	19.9	19.00	—	17.14	18.59	20.0	20.0	17.81	18.29
5522	3.03	0.51	1.62	3.12	4.00	2.94	—	0.94	2.46	4.06	4.07	1.60	2.12
	18.82	16.73	17.76	19.47	—	18.97	—	17.17	18.69	20.2	19.9	17.79	18.25
5555	2.75	0.69	1.62	3.51	5.11	2.92	—	1.05	2.61	4.42	4.05	1.65	2.14
	19.13	16.75	17.82	19.6	—	19.16	—	17.22	18.59	—	—	17.84	18.36
5567	3.17	0.72	1.65	3.70	4.22	3.21	4.41	1.09	2.53	—	—	1.67	2.26
	19.35	16.79	17.84	19.45	20.3	19.14	20.3	17.26	18.70	20.3	20.0	17.87	18.51
5576	3.05	0.81	1.57	3.17	4.12	2.82	4.17	1.13	2.38	4.10	3.82	1.60	2.19
	18.83	16.72	17.83	19.43	20.3	19.04	20.5	17.13	18.59	20.2	20.1	17.74	18.44
5581	2.32	0.69	1.45	2.92	3.94	2.53	4.25	0.95	2.10	3.84	3.68	1.38	1.96
	18.68	16.75	17.87	19.52	—	19.03	—	17.25	18.65	—	—	17.83	18.40
5582	3.11	1.24	2.21	4.12	5.16	3.53	—	1.62	3.08	—	—	2.17	2.79

	94	187	29	54	82	88	80	24	25	103	18
	—	19.49	18.63	—	15.72	19.44	19.66	19.74	20.4	19.39	18.79
441	*	2.42	1.63	*	-29	2.37	2.59	2.67	3.42	2.32	1.76
	—	19.73	18.66	—	15.90	19.42	19.51	19.76	20.3	19.42	18.66
2779	*	3.59	2.52	*	0.29	3.28	3.37	3.62	4.14	3.28	2.52
	—	19.06	18.71	20.3	15.99	19.43	19.69	19.54	19.63	19.34	18.88
2907	*	3.05	2.68	4.40	0.45	3.45	3.73	3.57	3.67	3.35	2.86
	—	19.12	18.78	—	15.97	19.52	19.52	19.62	20.1	19.25	—
2908	*	3.08	2.74	*	0.41	3.48	3.48	3.58	4.10	3.21	*
	—	18.87	18.44	—	16.16	19.27	19.71	19.9	20.1	19.03	—
4834	*	1.77	1.34	*	-50	2.17	2.66	2.86	3.18	1.93	*
	—	19.24	18.70	—	15.79	19.48	19.58	19.57	20.1	19.35	—
4842	*	2.54	1.94	*	-39	2.86	2.98	2.97	3.72	2.69	*
	—	19.47	18.97	—	15.86	19.8	19.55	—	—	19.64	—
4843	—	3.54	2.94	*	0.01	3.94	3.64	4.28	—	3.77	*
	—	19.01	18.76	—	16.07	19.33	19.45	19.36	—	—	18.61
5522	*	2.96	2.66	*	-04	3.34	3.48	3.37	—	—	2.48
	—	19.59	18.38	—	17.60	19.32	19.9	19.59	20.0	18.96	18.90
5555	*	3.65	2.28	*	1.46	3.32	4.06	3.65	4.26	2.91	2.84
	—	19.6	19.6	—	18.29	19.46	18.88	19.6	—	19.9	19.6
5567	*	3.78	3.71	—	2.18	3.57	2.87	3.79	—	4.06	3.77
	—	19.12	18.80	20.3	15.69	19.42	19.80	19.76	20.4	19.43	18.80
5576	*	2.80	2.48	4.12	0.09	3.13	3.58	3.52	4.28	3.14	2.48
	—	19.45	18.39	—	15.64	19.55	18.71	19.89	20.1	19.59	18.82
5581	*	2.94	1.91	*	0.00	3.04	2.21	3.42	3.72	3.08	2.31
	—	—	18.52	—	15.68	19.7	18.84	19.6	—	19.5	19.12
5582	*	—	2.93	—	0.48	4.36	3.31	4.23	—	4.12	3.65

	94	187	29	54	82	88	80	24	25	103	18
	19.75	18.77	19.37	—	16.20	19.33	19.61	19.96	—	19.32	—
S 3136	3.91	2.51	3.35	4.65	0.05	3.29	3.70	4.21	—	3.29	*
	—	19.10	19.93	19.56	16.08	19.92	20.14	20.16	20.29	19.87	19.03
5575	*	1.43	2.09	1.79	-46	2.08	2.27	2.28	2.41	2.04	1.38
	20.25	19.61	19.23	19.63	16.05	20.15	18.65	20.17	20.39	19.92	19.23
5580	2.47	1.93	1.65	1.94	-21	2.38	1.27	2.40	2.60	2.18	1.65
	18.80	19.81	19.85	—	15.96	19.85	19.04	20.11	—	19.81	—
S 3139	2.55	3.78	3.84	4.70	0.19	3.84	2.80	4.28	4.69	3.78	*
	19.07	20.03	19.14	19.40	15.81	20.00	19.64	19.60	20.45	19.89	—
5590	1.46	2.25	1.51	1.70	-53	2.22	1.89	1.86	2.70	2.11	*
	—	20.15	19.36	—	16.07	20.10	19.88	20.12	20.29	19.18	18.28
6384	*	1.44	1.74	*	-52	2.39	2.20	2.41	2.56	1.58	0.85
	—	20.24	19.24	20.81	15.89	19.79	19.99	20.03	20.54	19.30	18.56
6387	*	2.50	1.57	3.17	-67	2.06	2.25	2.29	2.80	1.62	1.00
	—	20.15	19.23	20.60	16.13	19.93	20.15	20.07	20.49	19.38	18.65
6390	—	2.47	1.57	2.96	-59	2.25	2.47	2.39	2.82	1.70	1.08
	18.87	20.14	19.93	20.65	16.11	19.39	20.10	20.11	20.24	19.53	18.92
6393	1.36	2.59	2.36	3.19	-56	1.83	2.54	2.55	2.70	1.96	1.41
	18.71	20.48	19.35	—	15.86	18.74	19.75	19.66	20.12	19.39	18.91
6396	1.71	3.92	2.51	—	-42	1.74	3.02	2.91	3.49	2.56	1.96
	—	—	19.42	20.81	16.62	19.83	19.92	19.95	20.47	19.74	18.64
6407	*	—	1.84	3.30	-46	2.25	2.34	2.37	2.96	2.16	1.08
	—	20.04	19.89	—	16.60	20.07	20.16	20.05	20.12	19.69	18.30
6410	*	2.39	2.24	*	-48	2.42	2.51	2.40	2.47	2.04	0.72
	19.08	19.69	19.43	20.81	16.55	19.88	20.02	19.96	20.37	19.65	18.54
6413	1.34	1.94	1.68	3.27	-56	2.16	2.33	2.25	2.74	1.90	0.86
	18.83	20.08	19.35	20.49	16.50	19.97	20.01	20.17	20.41	19.82	18.97
6417	1.27	2.48	1.75	2.90	-43	2.37	2.41	2.57	2.81	2.21	1.39
	19.14	19.92	19.81	20.40	16.36	19.82	20.14	20.13	20.61	20.02	19.09
6420	1.88	2.61	2.50	3.12	-14	2.51	2.84	2.83	3.28	2.71	1.84
	19.23	20.16	19.53	—	16.29	19.73	19.97	19.95	20.51	19.68	19.24
6423	2.08	3.12	2.39	*	-18	2.62	2.88	2.87	3.54	2.56	2.09
	19.51	19.18	19.02	—	16.22	20.09	19.21	19.80	20.15	19.11	19.48
6426	2.52	2.17	2.01	*	-19	3.22	2.20	2.84	3.31	2.10	2.48
	—	18.49	19.02	—	16.13	18.61	18.52	19.21	—	18.83	19.12
6429	*	1.63	2.32	—	-33	1.85	1.66	2.56	—	2.06	2.44
	—	—	18.85	—	16.19	18.94	18.69	—	—	18.83	19.34
6431	*	—	2.04	—	-21	2.14	1.86	—	4.51	2.02	2.66

my 8

Group of stars NW/NE

X

all outer 105

last group!?

(excl. for central?)

	94	187	29	54	OK?	OK?	OK	OK?	25	103	18
	20.13	19.64	19.33	—	16.33	19.79	19.73	20.11	20.50	19.65	19.45
442	2.78	2.30	2.01	*	-1.23	2.45	2.39	2.76	3.16	2.31	2.13
	20.16	20.15	19.50	20.76	16.35	19.87	19.99	20.31	—	19.58	19.15*
2778	3.96	3.95	3.28	4.55	0.56	3.66	3.79	4.08	—	3.37	2.94*
	18.61	19.48	—	—	16.52	—	20.21	19.81	19.81	19.59	19.21*
2909	2.61	3.72	—	—	0.67	5.34	4.58	4.16	4.11	3.81	3.38*
	—	19.45	19.24	20.63	16.22	20.24	19.24	19.72	—	19.40	—
4544	*	1.94	1.79	2.96	0.01	2.58	1.79	2.14	—	1.90	*
	—	19.10	19.26	—	16.62	19.75	19.22	19.33	—	19.29	—
4545	—	3.56	3.77	—	1.36	4.41	3.73	3.85	—	3.80	—
	—	19.35	19.48	—	16.11	20.18	19.99	20.00	20.09	19.50	—
4841	*	1.50	1.63	*	-98	2.33	2.14	2.15	2.24	1.65	*
	—	18.95	—	19.23	16.21	18.93	20.13	20.26	20.16	19.80	—
4846	—	1.19	*	1.46	-85	1.17	2.35	2.49	2.38	2.02	*
	—	18.90	19.22	19.44	16.20	18.79	20.17	20.17	20.28	19.80	—
4847	—	1.73	2.06	2.28	-50	1.62	3.07	3.07	3.18	2.67	*
	19.64	—	19.34	—	16.75	19.60	—	19.24	—	19.43	—
S 3044	3.78	*	3.34	—	0.13	3.78	—	3.21	—	3.50	*
	20.25	19.36	19.35	20.27	16.77	19.75	18.48	19.56	20.61	18.85	18.46
S' 3046	4.12	3.09	3.08	4.15	0.47	3.54	2.06	3.32	4.76	2.51	2.04
	—	18.74	19.55	—	16.70	19.90	18.58	19.58	19.96	19.10	—
S 3047	*	2.37	3.39	—	0.30	3.84	2.17	3.42	3.93	2.81	*
	19.31	19.70	19.13	—	16.20	18.92	19.96	19.82	20.03	19.56	—
S 3050	3.06	3.61	2.82	—	-21	2.52	4.07	3.50	4.21	3.41	*
	19.61	19.76	19.77	20.10	16.37	19.18	18.84	19.36	20.25	19.53	—
S 3051	3.22	3.43	3.45	3.95	0.04	2.63	2.22	2.88	4.19	3.12	*
	19.75	19.53	19.14	20.16	16.39	19.22	18.52	19.15	19.72	19.62	18.57
S 3052	3.60	3.31	2.81	4.16	-01	2.90	1.98	2.82	3.56	3.42	2.05
	—	19.06	19.14	—	16.29	19.58	19.05	19.53	—	19.69	18.51
S 3053	4.33	2.65	2.77	—	-01	3.41	2.64	3.34	—	3.56	1.92
	—	18.67	19.44	—	16.33	19.70	19.41	19.42	—	19.45	18.94
S' 3054	—	2.75	3.90	—	0.33	4.31	3.85	3.87	—	3.91	3.13
	19.93	19.46	19.17	19.49	16.05	19.38	18.72	20.24	20.18	19.96	19.33
5229	2.64	2.18	1.92	2.21	-16	2.11	1.55	2.95	2.89	2.67	2.07
	—	19.81	19.42	19.39	15.99	19.76	19.67	20.07	20.22	18.89	—
5231	*	2.31	1.91	1.88*	-63	2.26	2.16	2.63	2.82	1.43	*
	19.85	19.29	19.83	19.73	16.52	19.72	19.05	19.89	20.44	19.67	—
5242	2.41	1.90	2.39	2.29	0.11	2.28	1.71	2.45	3.09	2.23	*
	—	20.02	19.60	19.38	16.51	19.32	19.70	20.14	20.35	19.84	—
5249	*	2.66	2.23	2.01	-10	1.96	2.33	2.79	3.03	2.47	*
	—	19.09	19.52	19.46	16.68	19.79	20.16	19.91	20.22	19.88	18.85
5523	*	1.26	1.66	1.61	-66	1.92	2.31	2.03	2.37	2.00	1.03
	19.97	19.66	19.27	19.35	16.76	19.94	20.15	20.01	20.24	19.90	19.37
5528	2.05	1.79	1.48	1.54	-10	2.02	2.21	2.08	2.30	1.99	1.56
	19.25	20.19	19.23	19.86	16.62	20.16	20.20	20.37	20.94	—	—
5532	1.50	2.26	1.98	1.98	-17	2.24	2.27	2.43	2.99	—	—
	19.47	20.18	19.82	19.18	16.54	20.25	20.08	20.63	—	—	—
5537	1.61	2.30	1.94	1.35	-47	2.37	2.20	2.80	3.33	—	—
	19.36	20.08	19.56	19.21	16.56	20.05	18.89	20.98	—	—	—
5540	1.67	2.39	1.87	1.52	-41	2.36	2.24	2.79	3.29	—	*
	—	19.26	19.87	19.39	16.29	18.98	20.14	19.47	20.24	19.91	19.25
5548	—	1.49	2.03	1.60	-73	1.26	2.29	1.67	2.39	2.06	1.48
	19.42	19.72	19.21	19.38	—	19.65	20.29	19.84	20.37	19.06	19.17
5554	1.49	1.76	1.31	1.46	—	1.69	2.29	1.87	2.36	1.20	1.28*
	18.82	19.86	19.94	19.37	—	19.71	20.20	19.83	20.50	19.28	—
5559	1.43	2.43	2.52	1.94	—	2.27	2.81	2.40	3.16	1.86	*
	—	—	—	—	—	19.93	18.68	20.17	20.51	19.58	—
5563	*	—	—	—	—	2.29	1.08	2.54	2.92	1.94	*
	—	—	20.23?	—	—	20.07	18.79	20.31	20.52	19.64	—
5564	*	—	3.00	—	—	2.84	1.58	3.08	3.29	2.41	*
	19.37	19.70	19.92	19.98	18.38	20.03	18.71	20.06	—	19.59	—
5565	3.12	3.50	3.80	3.88	2.10	3.95	2.43	4.00	—	3.37	*

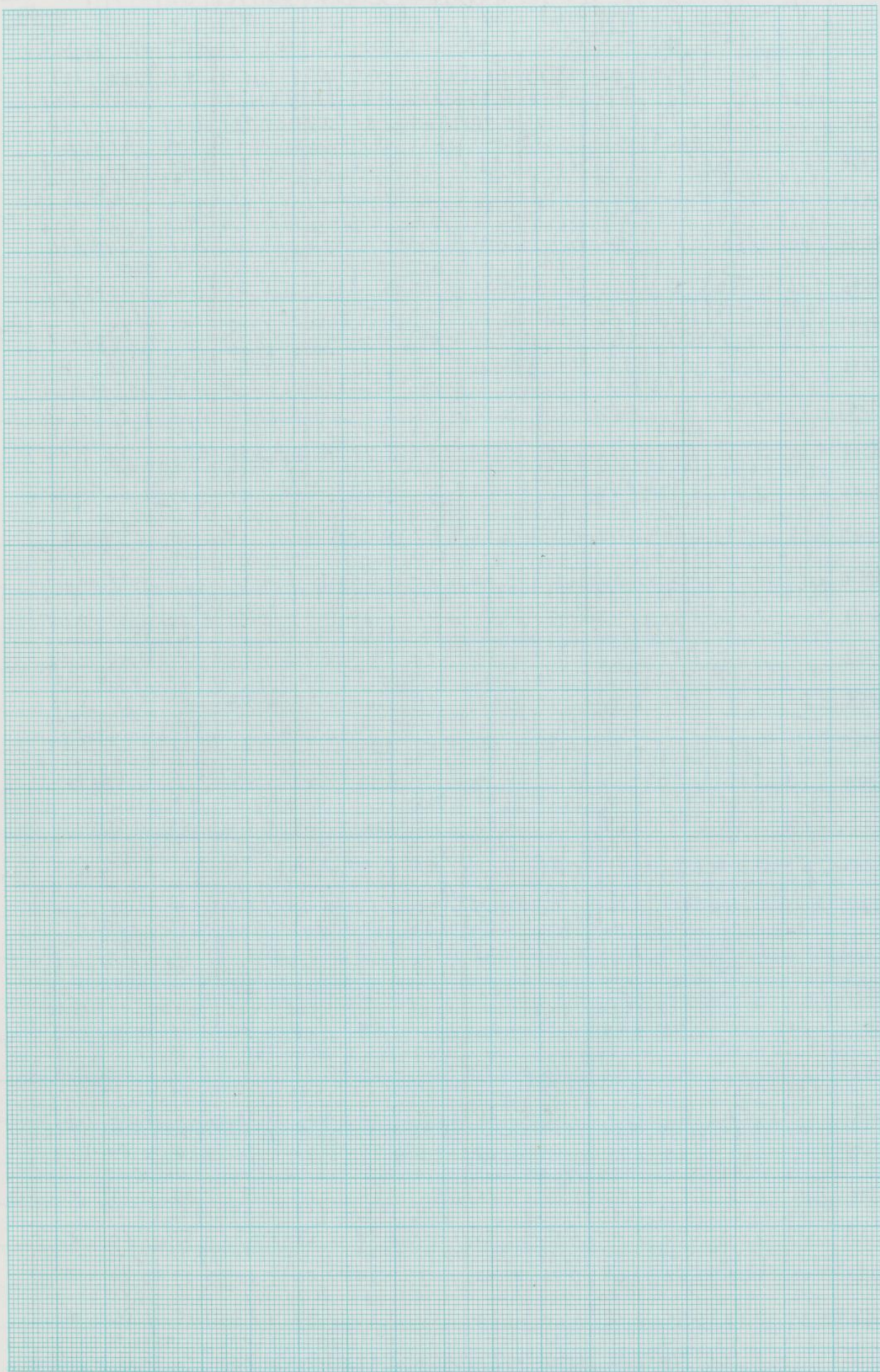
	4	40	67	184	NE10	49	NE6	NE7	NE8	NE9	143	204	117
S 3130	19.78 3.94	19.66 3.77	18.84 2.61	19.28 3.22	17.60 1.23	— -57	18.67 2.38	19.78 3.94	—	18.97 2.79	19.71 3.84	18.64 2.34	18.63 2.32
5575	20.19 2.31	20.23 2.35	19.12 1.44	19.27 1.56	17.55 0.37	— -1.12	18.78 1.17	19.87 2.08	20.09 2.28	19.01 1.35	20.05 2.19	18.41 0.94	19.02 1.37
5580	* 2.49	20.27 1.91	19.59 1.70	19.30 0.61	17.51 -78	—	18.59 1.26	19.77 2.11	20.01 2.29	18.93 1.49	19.94 2.20	18.39 1.12	19.40 1.77
S 3134	19.73 3.67	— —	19.69 3.62	19.35 3.17	17.62 1.39	— -50	18.87 2.62	19.97 4.01	20.15 4.19	19.05 2.81	19.92 3.95	18.69 2.44	19.66 3.58
5590	18.97 1.39	20.60 2.88	19.96 2.18	19.29 1.62	17.51 0.43	— -1.02	18.73 1.21	19.89 2.14	20.05 2.29	18.93 1.36	20.09 2.31	18.42 1.00	19.74 1.98
6384	20.20 2.48	19.52 1.88	19.60 1.95	19.39 1.76	17.60 0.38	15.87 -64	18.75 1.22	19.90 2.22	20.12 2.41	18.94 1.38	19.98 2.29	18.39 0.93	19.74 2.07
6387	20.40 2.66	19.50 1.80	* —	19.42 1.73	17.58 0.34	15.82 -71	18.75 1.16	19.95 2.22	20.19 2.45	19.05 1.41	20.14 2.40	18.40 0.88	19.81 2.08
6390	20.19 2.51	19.33 1.66	* —	19.25 1.58	17.61 0.32	15.93 -70	18.67 1.10	19.83 2.15	19.90 2.22	18.92 1.31	19.92 2.24	18.38 0.87	19.67 1.99
6393	20.15 2.60	19.31 1.76	* —	19.32 1.77	17.64 0.40	— -73	18.75 1.25	19.81 2.23	20.14 2.59	18.96 1.44	20.08 2.52	18.38 0.94	19.74 2.16
6396	20.71 4.19	19.05 2.14	* —	19.07 2.16	17.52 0.66	— -50	18.68 1.66	19.96 3.29	20.39 3.81	18.99 2.06	19.86 3.16	18.33 1.30	—
6407	* 1.66	19.24 —	19.34 —	17.60 1.76	— 0.24	18.75 -1.10	19.96 1.19	20.23 2.38	19.03 2.65	19.56 1.46	18.41 1.98	19.06 0.88	1.49
6410	19.91 2.26	19.34 1.69	19.26 1.61	19.29 1.64	17.68 0.24	— -1.08	18.78 1.15	19.73 2.08	19.98 2.33	18.97 1.33	19.61 1.96	18.39 0.80	19.11 1.46
6413	19.99 2.28	19.45 1.70	19.66 1.91	19.38 1.63	17.64 0.15	— -1.11	18.71 1.01	19.74 2.00	20.02 2.32	19.02 1.29	19.92 2.20	18.39 0.73	19.21 1.46
6417	20.06 2.46	19.27 1.67	19.93 2.32	19.31 1.71	17.74 0.38	— -1.02	18.76 1.20	19.97 2.36	20.04 2.44	19.00 1.42	19.98 2.37	18.33 0.83	*
6420	20.13 2.83	19.24 1.97	19.95 2.64	19.29 2.01	17.64 0.68	— -63	18.72 1.50	19.83 2.52	19.97 2.66	18.98 1.74	20.03 2.72	18.39 1.22	*
6423	20.16 3.12	19.33 2.18	19.89 2.80	19.14 1.99	17.57 0.67	— -62	18.69 1.56	19.72 2.61	19.84 2.74	18.97 1.83	20.04 2.98	18.36 1.28	20.16 3.12
6426	20.45 3.76	19.16 2.15	* —	19.05 2.04	17.63 0.75	— -66	18.64 1.61	19.78 2.82	19.74 2.78	18.83 1.81	20.05 3.17	18.49 1.45	19.36 2.368
6429	19.55 3.03	19.16 2.99	* —	18.75 1.95	17.58 0.76	— -62	18.53 1.67	19.60 3.18	19.86 3.46	18.57 1.72	19.50 2.96	18.31 1.44	*
1431	— 2.715	19.37 —	19.31 —	17.55 2.61	— 0.80	18.69 -58	19.74 1.86	19.80 3.24	18.90 3.33	— 2.10	18.28 —	* 1.43	*

after (large boxes)

group of stars NE **XI**all program stars
outer

107

	4	40	67	184	NE10	49	NE6	NE7	NE8	NE9	143	204	117
492	19.88 2.53 20.03	19.51 to sk 2.18 19.34	19.52 2.19 20.29	19.34 2.02 19.26	17.72 0.66 17.65	15.97 -4.0 —	18.82 1.54 18.67	19.73 2.34 19.87	20.13 2.73 20.21	19.04 1.73 18.95	19.71 2.37 19.05	18.87 1.60 18.86	18.61 1.38 18.75
2778	3.83 18.87 2.95	3.14 19.19 3.36	4.09 — —	3.05 19.13 3.28	1.52 17.64 1.58	-4.8 — 0.04	2.43 18.71 2.74	3.68 19.91 4.27	4.16 19.95 4.35	2.71 18.91 3.00	2.84 19.93 4.29	2.65 18.56 2.54	2.54 19.16 3.32
2909	19.28 1.82 19.56	19.67 to sk 2.10	*	19.37 1.88 19.42	17.66 6.76 17.76	— -9.4 —	18.56 1.32 18.73	19.74 2.16 19.62	20.10 2.45 —	18.86 1.52 18.93	19.69 2.12 19.45	18.67 1.39 18.71	19.74 2.16 19.65
4544	4.16 20.34 2.49	— — —	— 19.83 1.98	3.96 19.69 1.84	2.23 — —	-20 — -1.67	3.17 18.86 1.64	4.24 — —	— — —	3.38 18.99 1.15	4.00 — *	3.15 18.97 1.13	4.27 19.52 1.67
4545	4841	2.49	—	1.98	1.84	—	1.67	1.64	—	1.15	*	1.13	1.67
4846	18.89 1.13	20.57 2.07	2.12	19.99 2.13	18.33 0.50	-1.66	18.96 1.15	— 2.16	20.21 2.31	19.09 1.30	19.67 1.83	19.14 1.19	19.66 *
4847	1.72 19.80	3.39 19.13	*	2.88 19.60	1.16 19.30	-1.18	1.79 18.66	3.48 19.57	3.14 19.81	1.92 19.01	2.53 19.65	1.97 18.96	2.52 19.41
S 3044	4.16 19.98	3.05 19.12	3.78 19.59	3.16 19.16	1.06 17.73	-1.29	2.44 18.68	3.73 19.80	4.18 20.09	2.90 18.89	3.90 19.90	2.83 18.90	3.46 19.61
S 3046	3.81 19.86	2.81 —	3.36 19.60	2.86 19.19	1.29 17.61	-5.58	2.30 18.74	3.60 19.72	3.94 19.74	2.55 18.96	3.71 19.55	2.56 18.88	3.38 *
S 3047	3.79 19.12	— 19.15	3.45 19.63	2.93 18.99	1.10 17.66	-7.9	2.37 18.73	3.60 19.70	3.63 19.94	2.64 18.96	3.38 19.46	2.54 18.89	*
S 3050	2.81 19.32	2.85 19.12	3.51 19.70	2.62 19.24	1.04 17.61	-7.78	2.28 18.75	3.60 19.66	4.04 19.96	2.58 18.94	3.27 19.61	2.48 18.99	2.04 18.70
S 3051	2.84 19.44	2.56 19.05	3.35 19.83	2.72 19.05	0.99 17.62	-5.55	2.11 18.72	3.29 19.81	3.73 19.88	2.33 18.84	3.22 19.65	2.39 18.80	2.05 18.85
S 3052	3.19 19.86	2.68 19.17	3.70 19.84	2.68 19.27	1.05 17.72	-6.4	2.24 18.78	3.67 19.77	3.76 19.91	2.40 18.97	3.46 19.64	2.34 18.86	2.42 19.39
S 3053	3.84 —	2.81 19.05	3.80 19.52	2.96 19.35	1.12 17.67	-6.63	2.28 18.76	3.68 19.71	3.97 —	2.53 19.00	3.49 19.56	2.38 18.87	3.13 19.40
S 3054	4.69 19.05	3.28 19.39	4.02 19.99	3.75 19.19	1.48 17.67	-3.33	2.87 18.70	4.35 19.80	— 20.08	3.21 18.97	4.08 20.00	3.03 18.81	3.84 19.84
5229	1.82 19.92	2.12 19.94	2.70 *	1.94 19.13	0.81 17.58	-2.7	1.55 18.63	2.54 19.81	2.82 19.99	1.77 18.95	2.71 19.96	1.62 18.65	2.55 *
5231	2.01 2.58	19.46 2.04	19.76 2.32	19.30 1.91	17.67 0.72	15.78 -2.8	18.66 1.41	19.75 2.30	20.05 2.60	18.97 1.65	19.85 2.41	18.70 1.45	19.35 1.95
5242	19.72 2.35	19.22 1.86	*	19.32 1.96	17.57 6.56	— -6.7	18.65 1.35	19.94 2.58	20.06 2.70	18.91 1.58	19.86 2.49	18.70 1.39	19.53 2.16
5249	19.95 2.07	19.43 1.58	19.77 1.90	19.41 1.56	17.74 0.07	— -1.53	18.76 0.95	19.91 2.03	20.12 2.26	19.04 1.21	20.12 2.26	18.56 0.76	*
5523	20.20 2.26	19.46 1.63	to sk *	19.76 1.87	17.78 0.51	— -8.2	18.68 1.07	19.92 2.01	20.03 2.11	18.92 1.23	20.03 2.10	18.49 0.94	19.91 2.00
5528	18.77 1.14	19.32 1.55	19.58 1.75	19.24 1.49	17.58 0.38	— -8.2	18.68 1.08	19.84 1.99	20.05 2.18	19.00 1.32	20.02 2.11	18.44 0.92	18.60 1.03
5532	19.15 1.33	19.49 1.63	*	19.30 1.46	17.59 0.16	— -1.18	18.77 1.00	19.87 1.99	20.06 2.18	18.99 1.19	19.26 1.42	18.53 0.82	18.95 1.15
5537	19.38 1.64	19.51 1.82	*	19.18 1.50	17.52 0.19	— -1.20	18.66 1.06	19.82 2.13	19.96 2.27	18.96 1.30	18.94 1.28	18.34 0.80	19.01 1.34
→ 5540	20.00 2.15	19.39 1.60	20.09 2.24	19.54 1.73	17.89 0.45	— -1.08	18.73 1.06	19.82 1.99	20.09 2.24	18.97 1.26	19.80 1.96	18.43 0.82	19.42 1.63
5548	20.17 2.17	19.41 1.48	19.22 1.32	19.34 1.42	17.64 0.16	— -1.25	18.74 0.94	19.92 1.96	20.06 2.10	19.06 1.18	20.01 2.03	18.47 0.75	*
5554	20.22 2.83	19.47 2.04	19.39 1.96	19.43 2.00	17.80 0.56	— -1.25	18.75 1.36	19.91 2.48	19.99 2.58	19.09 1.67	19.92 2.50	18.59 1.20	*
5559	20.13 2.50	19.26 1.62	19.44 1.80	19.33 1.69	17.68 0.28	— -1.46	18.78 1.17	19.88 2.24	20.09 2.46	18.98 1.35	19.91 2.27	18.46 0.90	—
5563	20.30 3.07	19.32 2.10	19.62 2.39	19.40 2.18	17.69 0.60	— -1.30	18.79 1.58	19.89 2.66	20.20 2.97	19.05 1.83	19.98 2.75	18.55 1.36	*
5564	20.14 4.11	19.44 3.20	19.85 3.70	19.37 3.12	17.68 1.40	— -7.7	18.85 2.58	19.77 3.59	20.11 4.06	19.00 2.73	19.94 3.83	18.46 2.18	—
5565													



V measures, group XI

(109)

	4	40	67	184	NE10	49	NE6	NE7	NE8	NE9	143	204	117
441	19.57	19.26	19.43	18.60	16.66	—	17.60	19.14	19.25	17.92	19.50	16.58	18.75
	2.50	2.19	2.36	1.60	0.26	-95	0.86	2.07	2.18	1.08	2.43	0.21	1.72
	19.64	19.33		18.66	17.02	—	17.64	19.00	19.37	17.92	19.01	16.94	18.68
2779	3.50	3.19	*	2.52	1.06	-90	1.56	2.86	3.23	1.81	2.87	1.00	2.54
	18.99	19.36		18.69	16.92	—	17.62	18.90	19.50	17.90	19.75	16.73	18.70
2907	2.97	3.37	3.80	2.66	1.10	-49	1.64	2.88	3.53	1.88	3.82	0.96	2.67
	18.91	19.34		18.63	16.90	—	17.59	19.06	19.23	17.90	19.83	16.68	18.80
2908	2.87	3.30	*	2.59	1.06	-56	1.59	3.02	3.19	1.87	3.79	0.90	2.76
					16.93	—	17.59	19.18	19.50	18.13	20.41	17.62	
4834	—	—	*	—	0.04	-1.84	0.55	2.08	2.42	1.03	3.54	0.58	*
	19.76	19.57		19.22	17.38	—	17.66	19.22	19.26	18.01	19.20	17.07	19.18
4842	3.20	2.98	*	2.50	0.76	-1.27	0.99	2.50	2.57	1.29	2.48	0.50	2.46
				19.44	17.67	—	17.82	19.32	—	18.12	19.48	17.15	
4843	—	4.47	*	3.51	1.56	-1.03	1.71	3.36	—	2.01	3.56	1.06	*
	19.81	19.37		18.70	16.96	—	17.53	18.96	19.34	17.98	19.61	16.50	19.39
5522	3.92	3.39	*	2.59	0.76	-1.18	1.33	2.90	3.35	1.78	3.65	0.32	3.41
	20.01	—	19.20	18.59	16.94	—	17.53	19.00	19.24	17.93	19.71	16.42	19.31
5555	4.19	—	3.18	2.51	0.86	-96	1.38	2.95	3.23	1.80	3.80	0.45	3.31
	—	19.71	19.61	18.83	17.01	—	17.66	19.13	19.29	17.99	19.71	16.50	19.61
5567	4.25	3.84	3.78	2.81	0.92	-94	1.49	3.18	3.38	1.84	3.82	0.53	3.71
	19.91	20.41		18.78	16.87	—	17.63	19.10	19.30	17.99	19.79	16.50	18.96
5576	3.71	4.25	*	2.46	0.87	-85	1.40	2.78	2.99	1.71	3.55	0.61	2.64
	19.82	20.13	19.60	18.64	16.94	—	17.69	19.12	19.28	18.05	19.62	16.45	19.27
5581	3.34	3.73	3.09	2.14	0.83	-77	1.34	2.61	2.77	1.63	3.11	0.52	2.76
	20.11	—	19.47	18.62	17.00	—	17.62	19.05	19.37	18.01	19.61	16.48	19.13
5582	4.79	—	4.07	3.04	1.43	-40	1.96	3.55	3.95	2.35	4.19	1.04	3.66

④

from all stds

$$(B-V)_p - (B-V)_{PEP} = -.2106 CI_p + .137$$

from N stds

$$(B-V)_p - (B-V)_{PEP} = -.2964 CI_p + .168$$

example: for CI_p	~ 0.2	~ 1.0
<u>all</u> stds	$+0.095$	$-.074$
<u>N</u> stds	$+0.109$	$-.128$

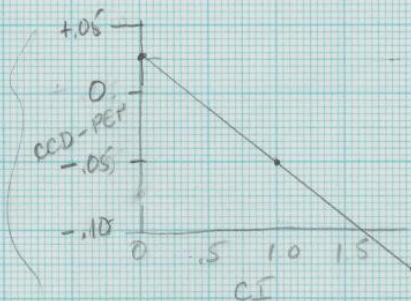
to reconvert magnitudes to PEP system

look at $B_p - B_{PEP}$ (i.e. N stds) and $B_p - B_{CCD}$

$$B_p - B_{CCD} = -.0564 CI_p + .044$$

$$B_p - B_{PEP} = -.1333 CI_p + .070$$

$$\therefore B_{CCD} - B_{PEP} = -.0769 CI_{CCD} + 0.026$$



V values - split up.

$$V_p - V_{CCD} = -0.0739 (B-V)_p + 0.051$$

$$V_p - V_{PEP} = -.1631 (B-V)_p + 0.098$$

Discussion of color corrections

(111)

① from page 50: (use N standards only)

$$B_p - B_{PEP} = -.1333 CI_p + .070$$

② from page 70:

$$B_S - B_p = +.1186 CI_p - .069 \quad (\text{for the bright standards})$$

$$\approx B_S - B_{PEP} = -.0147 CI_p \quad (\text{i.e. no sig. diff. for RR's?})$$

③ from page 50: (N standards only)

$$V_p - V_{PEP} = -.1631 CI_p + .098$$

Note ① for all stds: $B_p - B_{PEP} = -.0925 CI_p + .058$

for N stds $B_p - B_{PEP} = -.1333 CI_p + .070 \quad (\text{i.e. p.e.p.})$

for a star with $CI_p \sim 0.2 \quad \sim +1.0$

all: $B_p - B_{PEP} = +.040 \quad -.034$

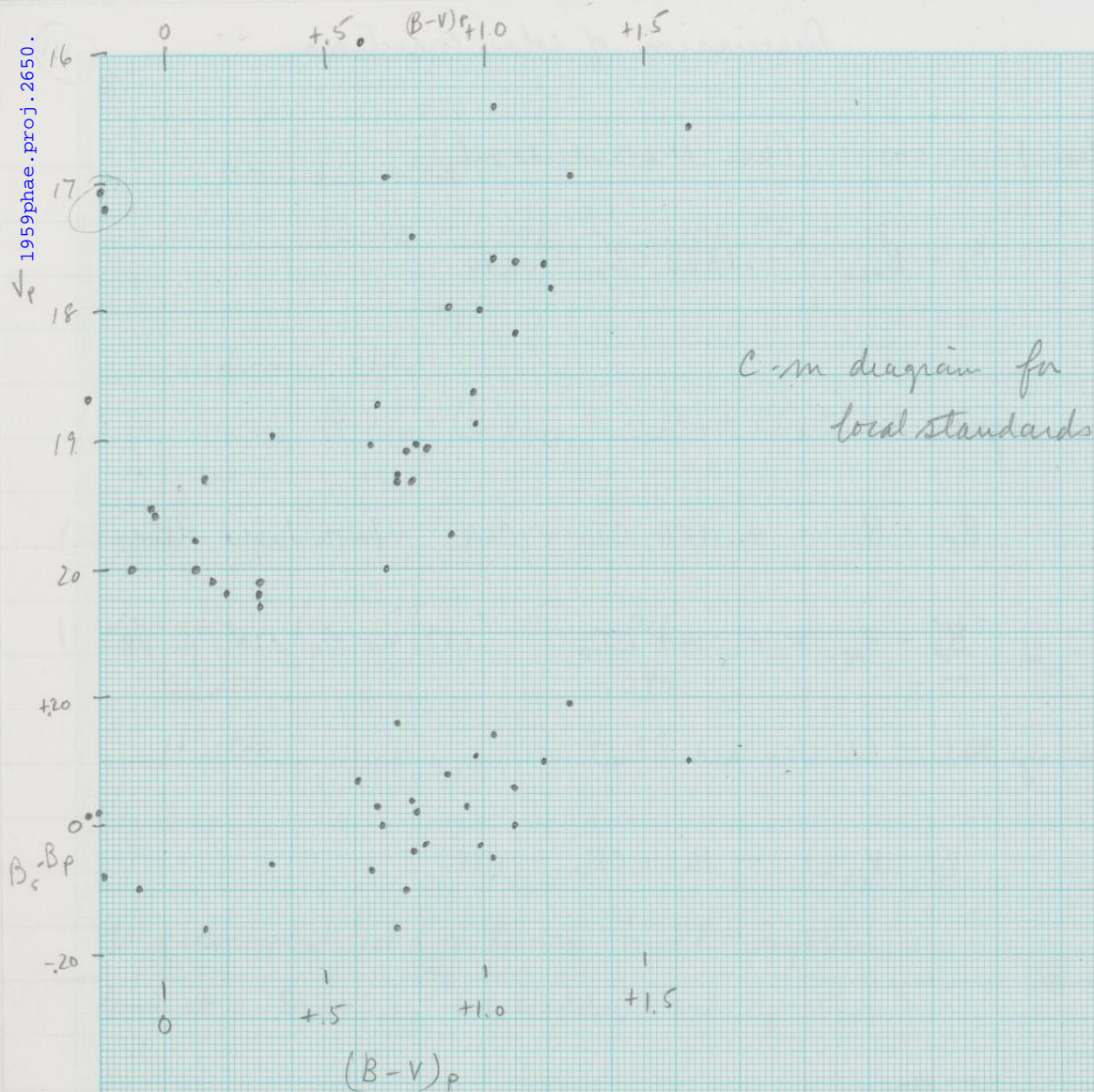
N: $B_p - B_{PEP} = +.043 \quad -.063$

for all stds: $V_p - V_{PEP} = -.1181 CI_p + .079$

N stds $V_p - V_{PEP} = -.1631 CI_p + .098$

all: $V_{PEP} \quad +.055 \quad -.039$

N $V_{PEP} \quad +.065 \quad -.065$

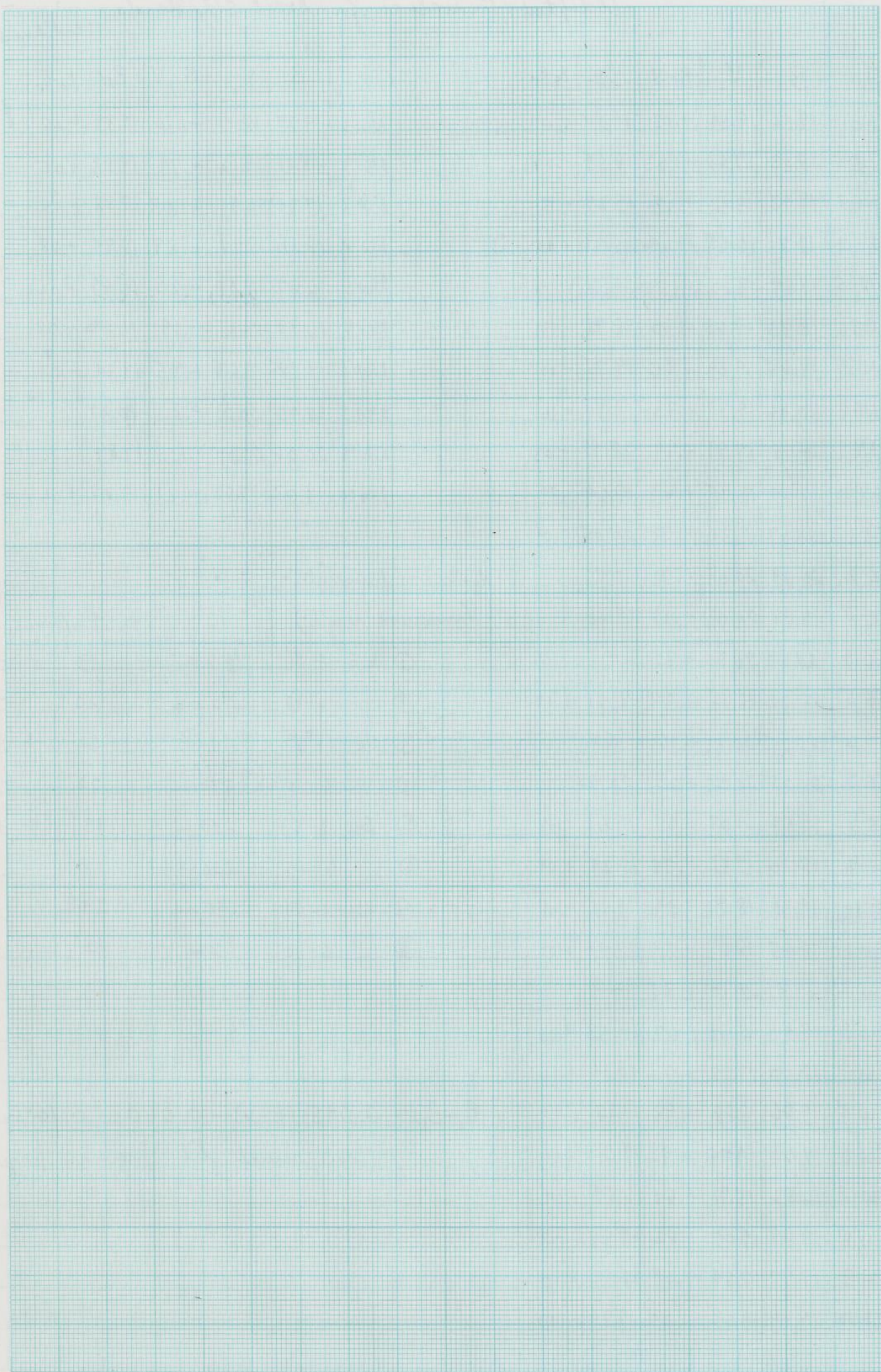


Adopted P values for local standards.

(113)
(cont'd next page)

1959phae.pro

Star	B	V	B-V	B _S	B _S -B _p		B	V	B-V	B _S	B _S -B _p
NE1	19.56	19.59	+0.03	19.37	-0.19	NW1	19.27	18.17	+1.10	19.33	+0.06
NE2	18.63	17.60	+1.03	18.59	-0.04	NW2	19.81	19.02	+0.79	19.83	+0.02
NE3	19.43	19.30	+0.13	19.27	-0.16	NW2	17.44	16.41	+1.03	17.58	+0.14
NE4	18.21	16.57	+1.64	18.31	+0.10	NW4	18.86	17.97	+0.89	18.94	+0.08
NE5	19.87	19.8	+0.1	19.71	-0.16	NW5	16.87	17.07	-0.20	16.89	+0.02
NE6	18.73	17.63	+1.10	18.73	.00	NW6	16.97	17.16	-0.19	16.89	-0.08
NE7	19.85	19.09	+0.76	19.75	-0.10	NW7	19.58	18.63	+0.95	19.61	+0.03
NE8	20.06	19.33	+0.73	19.90	-0.16	NW8	20.46	20.2	+0.3	20.2	
NE9	18.98	17.99	+0.99	18.95	-0.03	NW9	20.06	20.0	+0.1	19.89	
var!! NE10	^{ecl.} 17.64	16.95	+0.69	17.64	.00	NW10	19.03	17.82	+1.21	19.09	+0.06
SE1	20.09	19.31	+0.78	20.05	-0.04	<div>distances from center (measured roughly)</div> <div>② NE 1-5 160 mm 13' -0.09</div> <div>① 6-10 290 mm 23' -0.06</div> <div>④ SE 1-5 270 mm 22' 3 (+0.20)</div> <div>③ 6-10 270 mm 22' -0.13</div> <div>⑤ SW 1-5 240 mm 19' (+) +0.08</div> <div>⑥ 6-10 220 mm 18' .00</div> <div>⑦ NW 1-5 295 mm 24' +0.06</div> <div>⑧ 6-10 150 mm 12' -0.04</div> <div>center - clockwise order</div>					
SE2	20.69	20.0	+0.7	—							
SE3	19.88	20.0	-0.1	19.80							
SE4	20.60	20.3	+0.3	—							
SE5	18.22	16.95	+1.27	18.41	+0.19						
SE6	20.25	20.1	+0.15	19.97	-0.28						
SE7	20.38	20.2	+0.2	20.12	-0.26						
SE8	19.68	19.03	+0.65	19.61	-0.07						
SE9	18.20	17.42	+0.78	18.24	+0.04						
SE10	19.31	18.97	+0.34	19.25	-0.06						
SW1	18.45	18.69	-0.24	18.46	+0.01	<div>B_S-B_p = 0.098 (B-V) - 0.060 (see plot prev. page)</div> <div>(very much like previous page)</div>					
SW2	20.39	20.1	+0.3	—							
SW3	19.40	18.73	+0.67	19.43	+0.03						
SW4	18.00	17.27	+0.73	18.16	+0.16						
SW5	19.86	18.88	+0.98	19.97	+0.11						
SW6	19.63	19.74	+0.9	19.61	-0.02						
SW7	16.52	15.91	+0.61	16.59	+0.07						
SW8	19.89	19.07	+0.82	19.86	-0.03						
SW9	18.83	17.64	+1.19	18.93	+0.10						
SW10	19.49	19.53	-0.04	19.39	-0.10						



Variables needing eye-est/iris work (excl. Nemec's) (115)

E = eye
I = iris

- | | | | |
|-----|----------------|---------------------------------------------------------------------------|---|
| 18 | NW <u>X</u> | - prob. heavily blended on most plates. Can compare w/ NE 6-10? need seq. | E |
| 55 | NW <u>VIII</u> | try to set up seq. close by and iris | I |
| 67 | NE <u>XI</u> | try w/ NE 6-10 | I |
| 94 | NE <u>X</u> | try w/ NE 6-10 | I |
| 117 | NW <u>XI</u> | try w/ NE 6-10 | I |
| 187 | NE <u>X</u> | " " (some PDS points <u>must</u> be wrong!) | I |

- | | | | |
|----|--------------|------------------------------------------------------|---|
| 21 | SW <u>VI</u> | Should check to see if eye est's agree with measured | E |
| 24 | NE <u>X</u> | " " " " | E |

- 95 - SE V - a real headache - eye est? iris (some blending early possible)?
- 173 SW VI - badly blended. Check plates by eye -

Print scales

• Scale of "Nemec Standard" print

$$\begin{array}{r}
 N20A \quad +29.230 \quad -17.747 \\
 N9I \quad -24.004 \quad +30.608 \\
 \hline
 \quad \quad 53.234 \quad 48.355 \\
 \quad \quad 71.917 \text{ mm on plate} \\
 \quad \quad = 183 \text{ mm}
 \end{array}$$

$$\approx 7.29/\text{mm}$$

$$10' = 600'' = 8.23 \text{ cm}$$

$$5' = 300'' = 4.12 \text{ cm}$$

• CCD print

$$\begin{array}{r}
 A26 \quad -4.060 \quad +1.478 \\
 G \quad -11.912 \quad +4.096 \\
 \hline
 \quad \quad 7.852 \quad 2.618 \\
 \quad \quad 8.277 \text{ mm on plate} \\
 \quad \quad = 75 \text{ mm on print}
 \end{array}$$

$$2.047''/\text{mm}$$

$$2' = 120'' = 5.862 \text{ cm}$$

$$1' = 60'' = 2.93 \text{ cm}$$

Print scales

• Central

P50	α	γ	
	-3.373	+10.682	
P64	+2.818	-3.920	
	3.191	14.602	

$$\rightarrow \text{dist} = 14.947 \text{ (} = 285 \text{ mm on print)}$$

$$\frac{14.947}{285 \text{ mm}} = \frac{\text{scale}}{18.55}$$

$$\text{scale} = 0.973/\text{mm}$$

$$1' = 60'' = 61.7 \text{ mm}$$

Determination of print scales.

(117)

Scale of central print : $0.973/\text{mm}$
 Scale of quadrant prints : $4.77/\text{mm}$

SE	PZ
P131	
68.087	36.984
10.283	7.227
57.804	29.757
65.014 mm	
= 251.3 mm	
4.799/mm	

NW	P103
P59	
-32.047	-67.941
-32.996	+2.940
0.949	70.881
70.887	
= 276.5 mm	
4.756	

SW	P20
SP	
P173	
-6.174	+17.015
-41.590	+54.233
35.416	37.218
51.326 mm on plate	
= 280 mm	
4.765/mm	

NE	P1A3
P9	
23.593	-66.458
13.592	-5.128
10.001	61.330
62.140	
= 242 mm	
4.763/mm	

use $4.77/\text{mm}$

4.77	10' = 600" → 125 mm
	5' = 300" [6.3 cm]

Mean periods of field stars

1783	0.328	0.564
------	-------	-------

2210	0.3446	0.576
------	--------	-------

2257	0.363	0.564
------	-------	-------

0 I	0.551
-----	-------

0 II	0.637
------	-------

New distance to NGC 2210

119

Panagia (STSci newsletter, 1991)

$$(m-M)_0 = 18.56^{+0.13}_{-0.14} \quad 51.5 \pm 3.1 \text{ kpc}$$

$$A_B = 4.1 E(B-V)$$

$$E(B-V) = 0.06 \pm 0.03$$

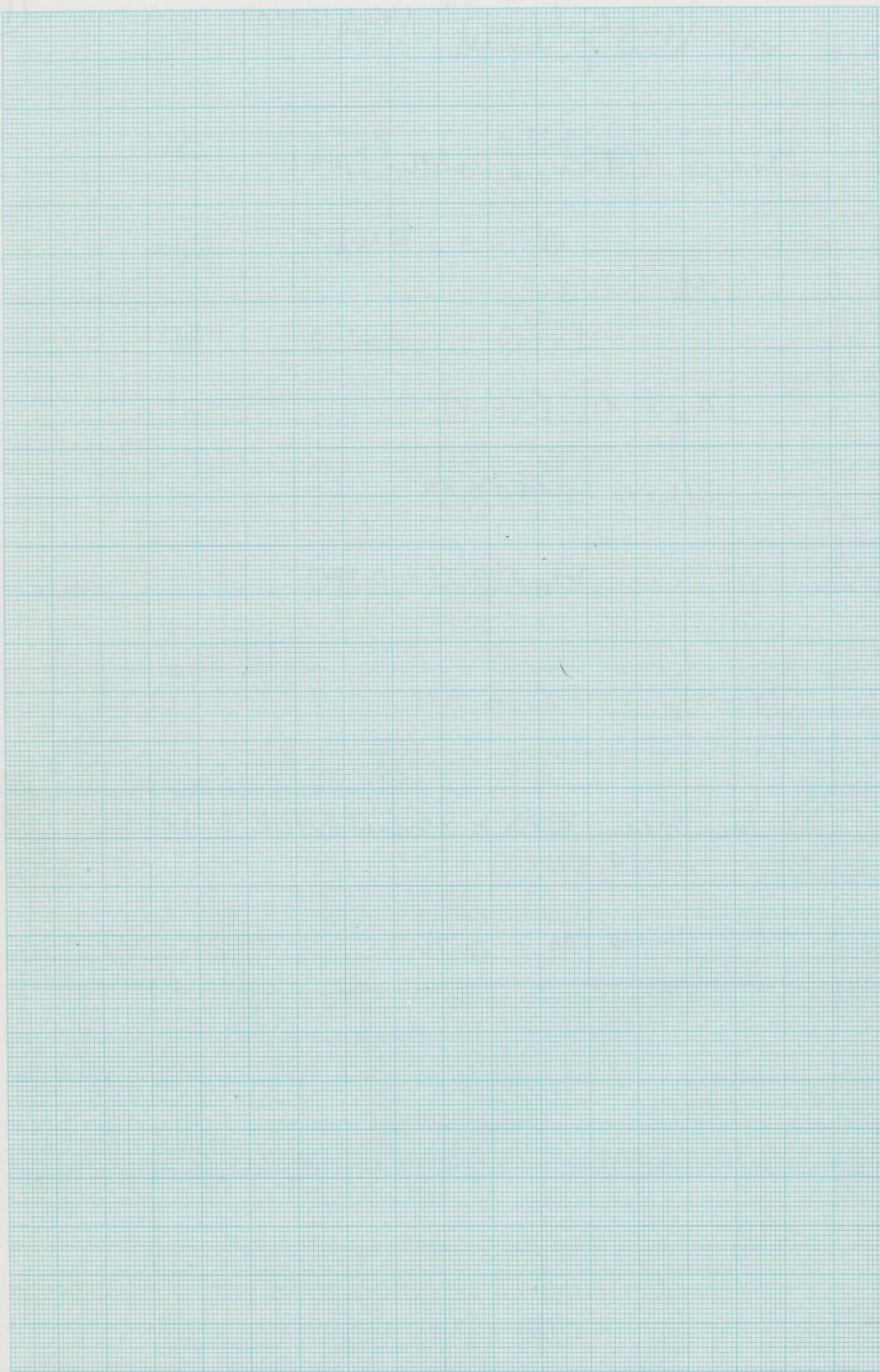
$$\therefore A_B = 0.24 \pm 0.12$$

$$(m-M)_B = 18.80 \pm 0.18$$

The mean $\langle B \rangle$ of 40 field RR's is
19.56

$$\rightarrow \bar{M}_B = 0.76$$

PH



Nemec's "Problem" stars

1/21/92

✓	P#	G#	Seen X	Coma	
2	91	2	5		5537 n. 5548 SE of 2 (Both may be var!)
3	119	3	5	SE of 2	
10	17	10		E of cluster	
11	15	11		E of cluster	3046-3052, 5229-5242
12	14	12		N of cluster	
29	146	9A		N of cluster	
26	13	13A		S of cluster	
33	92		2.5		5537 n. 5548 (0.5) E of 2
34	93		5.5		5537 n. 5548 (0.5) SE of 2, with 3 in a N-S line just below
37	128		1		3046 n. 3052 E of a pair, which is middle of N-S line of 2
39	139		1		3046 n. 3052 W of "Double star at E point of an eastward facing "V" 3.0
41	167		2		3046 n. 3130 S of a N-S pair

V2=91 5537-5548 looks like NW of 2

4841-5563 " " " "

4847-6407

5231-6384

5249-6384

1/22 - JMN asks for more on V11, V39

V39

• V25

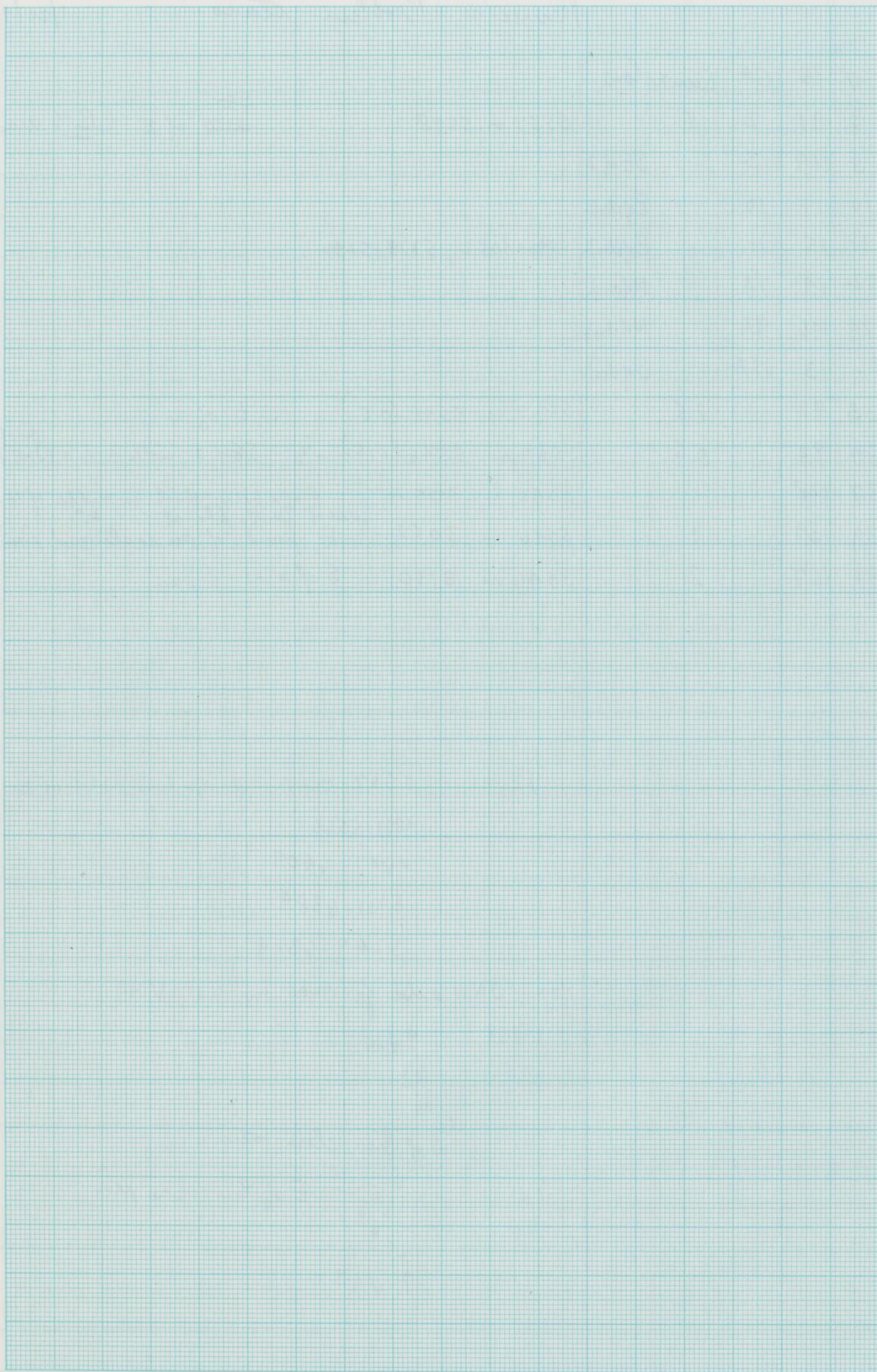


W of this close pair

V11

• - E of this close pair

↑ V13



heffers:
\$2.66

1959phae.proj.2650.