Table 1. Telescopes and CCD Cameras

Night[a]	Tel.	Obs.[b]	Focal Ratio	CCD Type	Frame Size [pixels]	Pixel Size [μm]	Scale [$''$/pixel]	Effective Gain[c] [e^-/ADU]	Effective RON[c] [e^-/pixel]
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1-3	CFH	HC	f/4.0	RCA1	320×512	30	0.41	28.6	75
4-5	P60	NS	f/8.7[d]	RCA3	320×512	30	1.29	6.0	30
6-7	CFH	NR	f/4.0	RCA2	640×1024	15	0.20	11.6	51
8	P60	N	f/4.3	RCA3	320×512	30	0.47	6.0	30
9-11	P60	S	f/8.7[d]	RCA3	320×512	30	1.29	6.0	30
12	P60	M	f/4.3	TI4	800×800	15	0.47	2.0	9
13-15	S90	MO	f/9	TI2	800×800	15	0.15	2.6	7.3
16	P60	M	f/4.3	TI4	800×800	15	0.47	2.0	9
17	P60	M	f/4.3	Tek	1024×1024	24	0.38	2.4	5.5
18	DAO	N	f/5	SITe-1	1024×1024	25	0.55	4.7	13

[a]See Table 2 for the dates that correspond to these night numbers.

[b]C=C.Christian, H=J.Heasley, M=M.Mateo, N=J.Nemec, O=E.Olszewski, R=H.Richer, S=J.Schombert.

[c]On Night 12 the raw data were binned 2×2 at the telescope. On Night 16 the raw data were binned 2×2 using post-processing software.

[d]See Boroson, Thompson & Shectman (1983) for a discussion of the P60 re-imaging optics.

Table 2. Summary of CCD Observations

	Night	Hel.J.D. 2440000+	No. of Frames	Blue Stragglers Monitored	RR Lyraes Monitored
	(1)	(2)	(3)	(4)	(5)
1	1985 Feb 19/20	6117.13–.17	2B, 1V	1–3,13,17,24,25	4
2	1985 Feb 20/21	6118.12–.16	3B, 3V	1–3,13,17,24,25	4
3	1985 Feb 21/22	6119.09–.14	6B, 5V	1–3,13,17,24,25	4
4	1986 Jun 5/6	6587.80–.86	3B, 3V	12,14–16,20,21	1,2,7
5	1986 Jun 6/7	6588.76–.82	3B, 3V	12,14–16,20,21	1,2,7
6	1987 Apr 28/29	6914.99–.02	5V	1-4,7,13,22,23,25,26	8,10
7	1987 Apr 29/30	6915.81–.90	4B, 6V	10,14,21,25	2
8	1987 May 22/23	6938.68–.88	14V	1–11,13,25	10
9[a]	1987 Jun 23/24	6970.68–.82	3B, 3V	1,2,4-7,11,17,19,22,23,24	3-6,8,10
			3B, 3V	2,3,6,8-16,18,21,24,25	1,2,4,7
10	1987 Jun 24/25	6971.68–.79	2B, 2V	1,2,4,5,7,17,19,22,23	3-6,8,10
			2B, 2V	2,3,6,8-16,18,21,24,25	1,2,4,7
11	1987 Jun 25/26	6972.69–.76	3B, 2V	1,2,4,5,7,17,19,22,23	3-6,8,10
			2B, 2V	2,3,6,8-16,18,21,24,25	1,2,4,7
12	1988 Feb 15/16	7207.93–.07	1B,31V	1-4,7,10,13,17,24,25,26	4,10
13	1988 Feb 26/27	7218.79–.05	46V	1–4,13	none
14	1988 Feb 27/28	7219.79–.02	58V	1–4,13	none
15	1988 Feb 28/29	7220.78–.83	11V	1–4,13	none
16	1988 Mar 8/9	7229.79–.83	8V	1-5,10,13,17,25	10
17	1991 Jun 8/9	8416.67–.80	1I,15V	1-7,10-15,17,19,21-26	3,4,6-8,10
18	1994 Apr 9/10	9452.74–.03	23B,29V	none	1-4,6-10

[a] On Nights 9-11, CCD frames were taken of the East and West sides of the cluster, with some overlap; these are summarized on the upper and lower rows, respectively.

Table 3. Photometry of the SKJ Standard Stars

Star (1)	Type[a] (2)	$B_{\rm SKJ}$ (3)	B (σ_B, n_f, n_n) (4)	$V_{\rm SKJ}$ (5)	V (σ_V, n_f, n_n) (6)	$(B–V)_{\rm SKJ}$ (7)	$B–V$ (8)
2	rgb	16.80	16.78 (0.01, 13, 5)	16.04	16.02 (0.02, 56, 5)	0.76	0.76
3	rhb	17.11	17.02 (0.03, 12, 5)	16.02	16.53 (0.01, 56, 5)	1.09	0.49
4	rgb	17.53	17.37 (0.01, 11, 4)	16.81	16.64 (0.01, 24, 4)	0.72	0.73
5	agb	16.41	16.38 (0.02, 1, 1)	15.67	15.75 (0.11, 16, 2)	0.74	0.63
8	rgb	16.12	16.11 (0.01, 3, 1)	15.24	15.26 (0.02, 5, 1)	0.88	0.85
9	bhb	16.73	16.74 (0.02, 3, 1)	16.59	16.67 (0.02, 3, 1)	0.14	0.07
10	rhb	17.42	17.40 (0.01, 3, 1)	16.90	16.83 (0.01, 3, 1)	0.52	0.57
25	rhb	16.95	17.05 (0.01, 2, 2)	16.53	16.53 (0.01, 59, 4)	0.42	0.52
26	rgb	17.69	17.63 (0.01, 1, 2)	17.01	16.87 (0.01, 59, 4)	0.68	0.76
27	rgb	17.71	17.71 (0.02, 2, 2)	17.10	16.97 (0.02,175,6)	0.67	0.74
40	rhb	17.07	17.01 (0.02, 1, 1)	16.47	16.41 (0.03, 15, 1)	0.60	0.60
48	agb	16.06	16.12 (0.02, 1, 1)	15.28	15.36 (0.02, 20, 2)	0.78	0.66
49	rgb	16.73	16.82 (0.02, 1, 1)	16.00	16.08 (0.01, 20, 2)	0.73	0.74
51	rgb	16.03	15.96 (0.01, 2, 2)	15.24	15.16 (0.03, 34, 4)	0.79	0.80
52	bhb	16.81	16.90 (0.02, 2, 2)	16.04	16.73 (0.01, 51, 3)	0.77	0.17
54	rgb	17.28	17.41 (0.01, 13, 5)	16.63	16.71 (0.03,193,9)	0.65	0.70
55	rhb	17.02	17.24 (0.01, 13, 5)	16.44	16.54 (0.01,192,9)	0.58	0.70
56	rgb	17.31	17.27 (0.01, 13, 5)	16.58	16.52 (0.01,193,9)	0.73	0.75
57	bhb	16.73	16.88 (0.06, 13, 5)	16.65	16.71 (0.02,193,9)	0.08	0.17
58	bhb	16.73	16.97 (0.01, 6, 4)	16.68	16.82 (0.02,186,8)	0.05	0.15
59	rgb	17.83	17.71 (0.02, 2, 2)	17.14	16.98 (0.03, 73, 5)	0.69	0.73
60	rgb	17.35	17.34 (0.01, 1, 1)	16.68	16.62 (0.02, 37, 3)	0.67	0.72
61	bhb	16.84	16.84 (0.01, 1, 1)	16.72	16.73 (0.01, 37, 3)	0.12	0.11
63	bhb	16.77	16.82 (0.01, 1, 1)	16.60	16.62 (0.01, 37, 3)	0.17	0.20
64	bhb	17.13	17.08 (0.01, 1, 1)	17.14	17.11 (0.01, 38, 4)	–0.01	–0.03
65	bhb	16.91	16.91 (0.01, 1, 1)	16.84	16.87 (0.01, 37, 3)	0.07	0.04
66	rgb	17.46	17.45 (0.02, 1, 1)	16.79	16.75 (0.01, 37, 3)	0.67	0.70
67	bhb	16.84	16.84 (0.02, 1, 1)	16.71	16.70 (0.01, 29, 2)	0.13	0.14
68	rgb	15.77	15.87 (0.02, 1, 1)	14.95	15.07 (0.01, 26, 2)	0.82	0.80
69	bhb	16.85	16.81 (0.02, 1, 1)	16.72	16.69 (0.01, 15, 1)	0.13	0.12
70	rgb	17.87	17.67 (0.02, 1, 1)	17.22	16.98 (0.01, 15, 1)	0.65	0.69
77	rgb	16.59	16.72 (0.02, 3, 1)	15.85	15.99 (0.07, 18, 2)	0.74	0.73
78	rgb	17.77	17.69 (0.04, 3, 1)	17.03	16.87 (0.01, 18, 2)	0.74	0.82
79	bhb	17.02	16.99 (0.02, 3, 1)	16.90	16.89 (0.06, 3, 1)	0.12	0.10
80	rgb	17.69	17.66 (0.02, 3, 1)	16.95	16.80 (0.01, 18, 2)	0.74	0.86
81	bhb	17.29	17.05 (0.07, 5, 3)	17.00	16.91 (0.01, 46, 5)	0.29	0.14
84	rgb	16.66	16.66 (0.01, 13, 5)	15.94	15.89 (0.02,193,9)	0.72	0.77
85	rgb	16.61	16.63 (0.02, 13, 5)	15.88	15.85 (0.01,192,9)	0.73	0.78
86	rgb	16.84	16.88 (0.01, 12, 4)	16.16	16.11 (0.01,160,8)	0.68	0.77
87	bhb	16.91	17.21 (0.01, 13, 5)	17.04	17.10 (0.03,193,9)	–0.13	0.11

Table 3 (continued)

Star (1)	Type (2)	$B_{\rm SKJ}$ (3)	B (σ_B, n_f, n_n) (4)	$V_{\rm SKJ}$ (5)	V (σ_V, n_f, n_n) (6)	$(B{-}V)_{\rm SKJ}$ (7)	$B{-}V$ (8)
88	rgb	15.94	16.09 (0.01, 13, 5)	15.08	15.25 (0.01,142,8)	0.86	0.84
89	rgb	16.22	16.24 (0.01, 13, 5)	15.44	15.44 (0.01,155,9)	0.78	0.80
90	rgb	16.74	16.68 (0.01, 13, 5)	15.98	15.90 (0.01,188,9)	0.76	0.78
91	rgb	17.78	17.64 (0.01, 13, 5)	17.06	16.96 (0.01, 56, 5)	0.72	0.68
92	bhb	16.92	16.98 (0.02, 15, 6)	16.83	16.83 (0.04, 66, 7)	0.09	0.15
93	rgb	17.23	17.26 (0.01, 13, 5)	16.56	16.54 (0.01, 58, 6)	0.67	0.72
94	rgb	17.13	17.05 (0.05, 15, 6)	16.38	16.29 (0.03, 58, 6)	0.75	0.76
95	bhb	16.78	16.87 (0.02, 4, 3)	16.72	16.77 (0.03, 48, 3)	0.06	0.10
97	rgb	15.95	15.91 (0.06, 3, 2)	15.06	15.10 (0.05, 23, 3)	0.89	0.81
98	bhb	17.15	17.26 (0.01, 7, 3)	17.20	17.17 (0.03, 62, 5)	−0.05	0.09
99	bhb	16.86	17.00 (0.01, 8, 4)	16.81	16.81 (0.04, 67, 6)	0.05	0.19
101	bhb	16.87	16.89 (0.03, 5, 2)	16.72	16.74 (0.02, 23, 3)	0.15	0.15
102	rgb	17.90	17.78 (0.02, 6, 2)	17.24	17.11 (0.04, 23, 3)	0.66	0.67
103	rgb	16.86	16.72 (0.01, 6, 2)	15.96	16.01 (0.02, 5, 2)	0.90	0.71
104	bhb	16.82	16.86 (0.02, 6, 2)	16.71	16.72 (0.01, 8, 2)	0.11	0.14
106	rgb	17.85	17.79 (0.02, 3, 1)	17.27	17.11 (0.02, 3, 1)	0.58	0.68
108	rgb	17.16	17.09 (0.01, 5, 2)	16.44	16.39 (0.02, 8, 2)	0.72	0.70
109	rgb	16.77	16.81 (0.01, 6, 2)	16.02	16.10 (0.01, 5, 2)	0.75	0.71
111	rhb	17.08	17.13 (0.02, 3, 1)	16.61	16.58 (0.04, 3, 1)	0.47	0.55
C	rgb	15.09	15.01 (0.01, 11, 3)	13.98	13.94 (0.02, 25, 4)	1.11	1.07
F	rgb	15.44	15.52 (0.01, 11, 3)	14.44	14.63 (0.01, 24, 4)	1.00	0.89
I	rgb	15.78	15.67 (0.01, 11, 3)	14.80	14.76 (0.01, 25, 4)	0.98	0.91
Q	agb	16.18	16.16 (0.03, 3, 1)	15.58	15.51 (0.01, 18, 2)	0.60	0.65
U	rgb	17.01	17.02 (0.01, 2, 1)	16.32	16.33 (0.01, 5, 2)	0.69	0.69
W	rhb	17.02	17.00 (0.02, 3, 1)	16.53	16.52 (0.01, 3, 1)	0.49	0.48
Z	rhb	17.09	17.11 (0.01, 3, 1)	16.62	16.59 (0.02, 23, 3)	0.47	0.52
AC	bhb	16.95	16.94 (0.01, 4, 3)	16.75	16.74 (0.02, 49, 3)	0.20	0.20
AE	bhb	16.97	16.92 (0.02, 2, 1)	16.92	16.91 (0.01, 3, 1)	0.05	0.01
AI	rgb	17.90	17.68 (0.07, 5, 3)	17.16	17.03 (0.03, 49, 3)	0.74	0.65

[a]Type: rgb = red giant branch; bhb = blue horizontal branch; rhb = red horizontal branch; agb = asymptotic giant branch.

TABLE 4. Mean B, V Photometry of the Blue Stragglers in NGC 5053

Star (1)	V (2)	σ_V (3)	n_f (4)	n_n (5)	B (6)	σ_B (7)	n_f (8)	n_n (9)	B–V (10)	σ_{B-V} (11)
1	17.98	0.02	200	12	18.18	0.01	19	6	0.20	0.03
2	18.34	0.02	204	13	18.60	0.02	27	7	0.26	0.03
3	18.54	0.02	199	12	18.85	0.01	13	5	0.31	0.02
4	18.29	0.02	190	9	18.57	0.03	9	3	0.28	0.04
5	18.88	0.02	42	4	19.00	0.05	8	2	0.12	0.05
6	18.55	0.03	18	3	18.65	0.04	14	3	0.10	0.05
7v	19.30	0.03	45	6	19.46	0.05	4	2	0.16	0.06
8	19.16	0.03	18	2	19.33	0.06	7	1	0.17	0.07
9	18.89	0.04	19	2	19.08	0.05	7	1	0.19	0.06
10	18.86	0.04	67	6	19.13	0.07	13	4	0.27	0.08
11v	19.50	0.03	37	5	19.76	0.06	5	3	0.26	0.07
12	19.96	0.05	15	1	20.20	0.03	11	4	0.24	0.07
13v	19.46	0.02	197	13	19.79	0.02	12	4	0.33	0.03
14v	19.41	0.04	31	6	19.71	0.05	6	2	0.30	0.06
15v	19.53	0.05	29	6	19.85	0.10	2	1	0.32	0.11
16	19.86	0.08	13	3	20.17	0.08	13	3	0.31	0.11
17	19.30	0.04	69	7	19.50	0.03	20	6	0.20	0.05
18	19.58	0.06	8	2	19.89	0.06	8	2	0.31	0.08
19	19.79	0.07	23	4	19.88	0.10	8	4	0.10	0.12
20	19.17	0.05	6	2	19.37	0.05	5	2	0.20	0.07
21	18.85	0.04	28	4	19.09	0.05	13	3	0.24	0.06
22	19.38	0.04	27	3	19.73	0.08	8	2	0.35	0.09
23	19.65	0.04	28	4	19.65	0.10	8	2	0.15	0.18
24	18.26	0.04	69	7	18.87	0.03	27	7	0.61	0.05
25	18.62	0.16	40	8	18.84	0.27	16	5	0.22	0.16
26	19.03	0.03	68	4	19.38	0.04	2	2	0.35	0.05

Notes to Table 4.

The mean magnitudes for the five photometrically variable stars are based on the light curves and are not simply raw averages

TABLE 5. Summary of the Blue Straggler Monitoring

Star	V	$B-V$	Photom. Behavior	Confidence Rating
(1)	(2)	(3)	(4)	(5)
1	17.98	0.20	constant	high
2	18.34	0.26	constant	high
3	18.54	0.31	constant	high
4	18.29	0.28	constant	high
5	18.88	0.12	constant	medium
6	18.55	0.10	constant	medium
7	19.30	0.16:	SX Phe	high
8	19.16	0.17	constant	medium
9	18.89	0.19	constant	medium
10	18.86	0.27	constant	low
11	19.50	0.26	SX Phe	high
12	20.00	0.35	variable?	low
13	19.46	0.33	SX Phe	high
14	19.41	0.30	SX Phe	high
15	19.53	0.32	SX Phe	“medium
16	19.86	0.31	not mon.	-
17	19.30	0.20	constant	high
18	19.58	0.31	not mon.	-
19	19.79	0.10	constant	low
20	19.17	0.20	not mon.	-
21	18.85	0.24	constant?	low
22	19.38	0.35	constant	medium
23	19.65	0.15	constant	low
25	18.62	0.22	variable?	low
26	19.03	0.35	constant	medium

Table 6. Photometry of Blue Straggler 10 in NGC 5053

Night No.	HJD(Mid) 2440000+	V	σ_V	B	σ_B
7	6915.8133			19.142	0.007
	.8244			19.109	0.009
	.8362			19.161	0.005
	.8424			19.23	0.03
	.8529	18.92	0.03		
	.8581	18.880	0.008		
	.8664	18.918	0.005		
	.8865	18.891	0.006		
	.8949	18.917	0.005		
	.9025	18.879	0.005		
8	6938.7568	18.926	0.016		
	.8130	18.872	0.018		
	.8200	18.888	0.014		
	.8248	18.876	0.015		
	.8318	18.916	0.019		
	.8373	18.944	0.021		
	.8429	18.899	0.016		
9	6970.6854	18.85	0.15		
	.7069			18.91	0.12
	.7410	18.96	0.13		
	.7597			19.11	0.06
	.8028	18.97	0.09		
	.8222			19.13	0.04
10	6971.6847			19.11	0.09
	.7049	18.99	0.13		
	.7861	19.00	0.09		
	.7799			19.13	0.05
12	7207.9314	18.808	0.025		
	.9355	18.802	0.025		
	.9397	18.841	0.026		
	.9439	18.837	0.024		
	.9474	18.819	0.027		
	.9515	18.867	0.033		
	.9557	18.839	0.023		
	.9592	18.822	0.025		
	.9633	18.821	0.022		
	.9675	18.821	0.025		
	.9717	18.821	0.028		

TABLE 6. (continued)

Night No.	HJD(Mid) 2440000+	V	σ_V	B	σ_B
12	.9758	18.821	0.023		
	.9800	18.831	0.025		
	.9835	18.802	0.028		
	.9876	18.822	0.026		
	.9911	18.832	0.028		
	.9960	18.842	0.025		
	.9994	18.870	0.024		
	7208.0119	18.807	0.026		
	.0161	18.840	0.028		
	.0237	18.828	0.022		
	.0279	18.839	0.023		
	.0321	18.822	0.029		
	.0383	18.791	0.027		
	.0418	18.809	0.032		
	.0460	18.811	0.033		
	.0501	18.832	0.031		
	.0730	18.829	0.059		
16	7229.8305	18.67	0.13		
17	8416.6764	18.905	0.022		
	.6847	18.898	0.015		
	.6931	18.867	0.015		
	.7007	18.882	0.014		
	.7090	18.885	0.015		
	.7167	18.906	0.011		
	.7250	18.854	0.014		
	.7334	18.860	0.013		
	.7410	18.869	0.013		
	.7493	18.847	0.020		
	.7570			19.03	0.03
	.7660	18.865	0.018		
	.7771	18.882	0.014		
	.7847	18.848	0.015		
	.7931	18.852	0.014		
	.8007	18.804	0.015		

Table 7. Photometry of Blue Straggler 12 in NGC 5053

Night No.	HJD(Mid) 2440000+	V	σ_V	B	σ_B
4	6587.8072			20.24	0.10
	.8287			20.31	0.10
	.8544			20.19	0.09
5	6588.7630	19.75	0.17		
	.7696			20.37	0.10
	.7939			20.18	0.10
	.8123	19.80	0.13		
	.8189			20.16	0.10
9	6970.6854	19.65	0.18		
	.7069			20.14	0.13
	.7410	19.71	0.26		
	.7597			20.21	0.09
	.8028	19.85	0.12		
	.8222			20.18	0.10
10	6971.6847			20.35	0.11
	.7049	19.66	0.37		
	.7799			20.07	0.14
	.7861	19.69	0.19		
17	8416.6764	20.036	0.051		
	.6847	19.907	0.034		
	.6931	19.970	0.038		
	.7007	19.996	0.037		
	.7090	20.004	0.035		
	.7167	19.926	0.031		
	.7250	19.944	0.024		
	.7334	19.954	0.027		
	.7410	19.949	0.026		
	.7493	19.991	0.031		
	.7660	20.009	0.036		
	.7771	19.956	0.031		
	.7847	19.958	0.033		
	.7931	19.890	0.029		
	.8007	19.940	0.032		

Table 8. Photometry of Blue Straggler 19 in NGC 5053

Night No.	HJD(Mid) 2440000+	V	σ_V	B	σ_B
9	6970.6897	19.28	0.19		
	.6993			19.69	0.09
	.7451	19.41	0.10		
	.7521			19.76	0.11
	.8083	19.35	0.09		
	.8146			19.87	0.09
10	6971.7007	19.42	0.22		
	.7715			19.75	0.09
	.7931	19.40	0.14		
11	6972.6931			19.64	0.07
	.7111	19.33	0.17		
	.7417			19.63	0.09
	.7618	19.35	0.10		
	.7688			19.61	0.05
	.7937	19.37	0.11		
17	8416.6764	19.552	0.039		
	.6847	19.612	0.034		
	.6931	19.702	0.030		
	.7007	19.823	0.032		
	.7090	19.779	0.030		
	.7167	19.906	0.037		
	.7250	19.988	0.040		
	.7334	19.855	0.029		
	.7410	19.819	0.034		
	.7493	19.915	0.044		
	.7570			19.882	0.052
	.7660	19.553	0.032		
	.7771	19.812	0.036		
	.7847	19.954	0.041		
	.7931	19.843	0.034		
	.8007	19.911	0.037		

Table 9. Photometry of Blue Straggler 21 in NGC 5053

Night No.	HJD(Mid) 2440000+	V	σ_V	B	σ_B
4	6587.8030	18.837	0.01		
	.8072			19.046	0.05
	.8287			19.027	0.05
	.8544			19.039	0.05
	.8606	18.897	0.01		
5	6588.7630	18.906	0.01		
	.7696			18.932	0.05
	.7873	18.932	0.01		
	.7939			19.044	0.05
	.8189			18.970	0.05
7	6915.8133			19.092	0.007
	.8244			19.061	0.009
	.8362			19.081	0.005
	.8424			19.12	0.03
	.8529	18.92	0.04		
	.8581	18.861	0.008		
	.8664	18.863	0.005		
	.8865	18.852	0.006		
	.8949	18.857	0.005		
	.9025	18.859	0.005		
17	8416.6764	18.841	0.020		
	.6847	18.842	0.018		
	.6931	18.819	0.017		
	.7007	18.866	0.014		
	.7090	18.889	0.015		
	.7167	18.871	0.012		
	.7250	18.843	0.013		
	.7334	18.859	0.018		
	.7410	18.863	0.012		
	.7493	18.816	0.025		
	.7660	18.804	0.022		
	.7771	18.850	0.015		
	.7847	18.872	0.015		
	.7931	18.877	0.015		
	.8007	18.857	0.015		

Table 10. Photometry of Blue Straggler 23 in NGC 5053

Night No.	HJD(Mid) 2440000+	V	σ_V	B	σ_B
6	6914.9921	19.635	0.031		
	6915.0004	19.673	0.035		
	.0088	19.669	0.033		
	.0164	19.657	0.037		
	.0247	19.653	0.032		
17	8416.6764	19.521	0.033		
	.6847	19.579	0.025		
	.6931	19.754	0.032		
	.7007	19.556	0.025		
	.7090	19.603	0.030		
	.7167	19.632	0.031		
	.7250	19.978	0.046		
	.7334	19.966	0.041		
	.7410	19.635	0.034		
	.7493	19.629	0.035		
	.7570			19.50	0.08
	.7660	19.602	0.031		
	.7771	19.611	0.034		
	.7847	19.658	0.031		
	.7931	19.645	0.034		
	.8007	19.621	0.033		

Table 11. Photometry of Blue Straggler 25 in NGC 5053

Night No.	HJD(Mid) 2440000+	V	σ_V	B	σ_B
1	6117.1345	18.398	0.037		
	.1400			18.640	0.064
	.1636	18.361	0.053		
	.1692			18.464	0.081
2	6118.1221	18.250	0.112		
	.1248	18.259	0.093		
	.1304	18.249	0.059		
	.1380			18.507	0.081
	.1453			18.531	0.079
	.1517	18.209	0.069		
	.1568			18.610	0.075
3	6119.0899	17.986	0.133		
	.0931	18.021	0.112		
	.0970	18.225	0.093		
	.1025	18.300	0.099		
	.1093	18.538	0.084		
	.1169			18.537	0.088
	.1249			18.591	0.080
	.1306			19.009	0.044
	.1352			18.779	0.031
	.1405			18.745	0.049
	.1435			18.696	0.062
6	6914.9921	18.640	0.027		
	6915.0004	18.655	0.025		
	.0088	18.666	0.025		
	.0164	18.679	0.027		
	.0247	18.676	0.028		
7	6915.8091			19.073	0.026
	.8203			19.070	0.015
	.8320			19.097	0.018
	.8384			19.184	0.033
	.8486	18.827	0.036		
	.8535	18.824	0.031		
	.8618	18.877	0.049		
	.8818	18.837	0.031		
	.8901	18.796	0.040		
	.8979	18.838	0.032		

Table 11. (Continued)

Night No.	HJD(Mid) 2440000+	V	σ_V	B	σ_B
8	6938.7901	18.477	0.079		
	.7971	18.489	0.030		
	.8026	18.546	0.041		
	.8130	18.579	0.047		
	.8318	18.510	0.033		
	.8373	18.493	0.023		
	.8429	18.489	0.025		
	.8804	18.449	0.043		
12	7207.9474	18.668	0.025		
	.9557	18.660	0.027		
	.9960	18.623	0.029		
	7208.0161	18.649	0.027		
	.0279	18.592	0.023		
	.0383	18.681	0.025		
	.0418	18.592	0.030		
	.0460	18.580	0.025		
	.0501	18.622	0.032		
	.0605			19.009	0.029
	.0730	18.639	0.034		
16	7229.809	18.670	0.025		
	.817	18.645	0.025		
	.829	18.673	0.025		
17	8416.6764	18.527	0.026		
	.6847	18.548	0.019		
	.6931	18.582	0.022		
	.7007	18.531	0.016		
	.7090	18.847	0.019		
	.7167	18.862	0.022		
	.7250	18.895	0.017		
	.7334	18.842	0.024		
	.7410	18.828	0.018		
	.7493	18.631	0.023		
	.7660	18.560	0.024		
	.7771	18.605	0.021		
	.7847	18.641	0.020		
	.7931	18.893	0.024		
	.8007	18.851	0.025		

Table 12. Photometry of Blue Straggler 7 in NGC 5053

Night No.	HJD(Mid) 2440000+	V	σ_V	B	σ_B
6	6914.9921	19.317	0.006		
	6915.0004	19.205	0.008		
	.0088	19.276	0.009		
	.0164	19.308	0.008		
	.0247	19.314	0.008		
8	6938.7783	19.337	0.020		
	.7901	19.243	0.019		
	.7971	19.233	0.017		
	.8026	19.272	0.020		
	.8130	19.341	0.026		
	.8200	19.263	0.030		
	.8248	19.254	0.017		
	.8318	19.225	0.032		
	.8373	19.306	0.022		
	.8429	19.321	0.020		
	.8748	19.292	0.021		
	.8804	19.347	0.015		
9	6970.6905	18.87	0.20		
	.7459	19.03	0.20		
	.8091	19.25	0.20		
11	6972.6938			19.37	0.14
	.7118	19.20	0.27		
	.7424			19.43	0.12
	.7625	18.93	0.13		
	.7695			19.38	0.08
	.7944	18.83	0.21		
12	7207.9314	19.208	0.020		
	.9355	19.218	0.020		
	.9758	19.260	0.020		
	.9800	19.233	0.025		
	7208.0036	19.242	0.025		
	.0078	19.246	0.030		
	.0119	19.242	0.030		
17	8416.6764	19.404	0.037		
	.6847	19.359	0.020		
	.6931	19.296	0.022		
	.7007	19.247	0.019		
	.7090	19.353	0.022		
	.7167	19.377	0.019		
	.7250	19.372	0.017		
	.7334	19.270	0.021		
	.7410	19.248	0.021		
	.7493	19.336	0.024		
	.7570			19.53[a]	0.03
	.7660	19.298	0.026		
	.7771	19.276	0.024		
	.7847	19.352	0.022		
	.7931	19.348	0.020		
	.8007	19.343	0.024		

[a]All the B magnitudes from N17 were calculated from I magnitudes through a V–I,B–V transformation.

Table 13. Photometry of Blue Straggler 11 in NGC 5053

Night No.	HJD(Mid) 2440000+	V	σ_V	B	σ_B
8	6938.7568	19.694	0.028		
	.7783	19.425	0.020		
	.7901	19.631	0.022		
	.7971	19.620	0.023		
	.8026	19.585	0.028		
	.8130	19.371	0.024		
	.8200	19.501	0.030		
	.8248	19.547	0.026		
	.8318	19.591	0.024		
	.8373	19.644	0.045		
	.8429	19.461	0.023		
9	6970.6854	19.40	0.15		
	.6897	19.22	0.19		
	.6993			19.59	0.07
	.7410	19.61	0.13		
	.7451	19.35	0.14		
	.7521			19.86	0.10
	.8028	19.61	0.12		
	.8083	19.59	0.11		
	.8146			20.01	0.11
10	6971.7007	19.45	0.10		
	.7931	19.67	0.14		
	.8146			20.04	0.11
11	6972.7076	19.50	0.23		
	.7563	19.46	0.15		
	.7833	19.55	0.14		
17	8416.6764	19.482	0.033		
	.6847	19.451	0.025		
	.6931	19.491	0.025		
	.7007	19.509	0.021		
	.7090	19.467	0.021		
	.7167	19.420	0.020		
	.7250	19.505	0.023		
	.7334	19.507	0.021		
	.7410	19.468	0.024		
	.7493	19.467	0.021		
	.7570			19.69	0.04
	.7660	19.508	0.028		
	.7771	19.518	0.028		
	.7847	19.479	0.025		
	.7931	19.447	0.023		
	.8007	19.502	0.025		

TABLE 14. Photometry of Blue Straggler 13 in NGC 5053

Night No.	HJD(Mid) 2440000+	V	σ_V	B	σ_B
1	6117.1339	19.448	0.019		
	.1401			19.787	0.013
	.1636			19.792	0.031
2	6118.1249	19.468	0.016		
	.1305	19.476	0.016		
	.1381			19.796	0.014
	.1451			19.728	0.016
	.1527	19.392	0.016		
	.1569			19.714	0.019
3	6119.0895	19.492	0.034		
	.0929	19.502	0.024		
	.0966	19.485	0.022		
	.1026	19.435	0.016		
	.1090	19.385	0.019		
	.1166			19.706	0.021
	.1249			19.769	0.020
	.1312			19.784	0.021
	.1360			19.748	0.016
	.1395			19.697	0.020
	.1430			19.644	0.021
6	6914.9921	19.532	0.008		
	6915.0004	19.491	0.008		
	.0088	19.395	0.008		
	.0164	19.430	0.008		
	.0247	19.516	0.008		
8	6938.7568	19.562	0.031		
	.7783	19.497	0.020		
	.7901	19.422	0.033		
	.7971	19.440	0.019		
	.8026	19.559	0.023		
	.8130	19.522	0.026		
	.8200	19.453	0.026		
	.8248	19.427	0.023		
	.8318	19.489	0.022		
	.8373	19.530	0.025		
	.8429	19.509	0.026		
	.8748	19.554	0.029		
	.8804	19.494	0.025		
9	6970.6854	19.20	0.19		
	.7410	19.29	0.14		
	.8028	19.44	0.10		
10	6971.7049	19.42	0.19		
	.7861	19.32	0.32		

Table 14. (continued)

Night No.	HJD(Mid) 2440000+	V	σ_V	B	σ_B
12	7207.9314	19.511	0.025		
	.9355	19.477	0.025		
	.9397	19.410	0.026		
	.9439	19.464	0.024		
	.9474	19.474	0.027		
	.9515	19.514	0.033		
	.9557	19.580	0.023		
	.9592	19.532	0.025		
	.9633	19.486	0.022		
	.9675	19.488	0.025		
	.9717	19.443	0.028		
	.9758	19.407	0.023		
	.9800	19.446	0.025		
	.9835	19.531	0.028		
	.9876	19.539	0.026		
	.9911	19.508	0.028		
	.9960	19.542	0.025		
	.9994	19.519	0.024		
	7208.0036	19.453	0.026		
	.0078	19.426	0.028		
	.0119	19.498	0.025		
	.0161	19.487	0.024		
	.0196	19.508	0.033		
	.0237	19.542	0.022		
	.0279	19.521	0.023		
	.0321	19.529	0.029		
	.0383	19.459	0.027		
	.0418	19.356	0.032		
	.0460	19.460	0.033		
	.0501	19.450	0.031		
	.0730	19.315	0.059		
13	7218.7920	19.491	0.016		
	.7954	19.428	0.015		
	.7993	19.432	0.016		
	.8027	19.386	0.013		
	.8076	19.415	0.015		
	.8110	19.420	0.015		
	.8154	19.506	0.021		
	.8188	19.541	0.018		
	.8232	19.553	0.020		
	.8271	19.541	0.020		
	.8306	19.477	0.019		
	.8350	19.408	0.014		
	.8384	19.420	0.017		
	.8423	19.394	0.012		
	.8462	19.507	0.015		
	.8501	19.494	0.013		
	.8521	19.556	0.015		
	.8579	19.479	0.013		

Table 14. (continued)

Night No.	HJD(Mid) 2440000+	V	σ_V	B	σ_B
13	7218.8618	19.460	0.012		
	.8662	19.448	0.015		
	.8696	19.395	0.016		
	.8735	19.404	0.012		
	.8779	19.429	0.012		
	.8823	19.467	0.011		
	.8857	19.483	0.011		
	.8896	19.500	0.013		
	.8931	19.477	0.013		
	.8975	19.466	0.019		
	.9932	19.449	0.013		
	.9966	19.461	0.019		
	7219.0010	19.447	0.015		
	.0049	19.410	0.012		
	.0083	19.362	0.013		
	.0127	19.401	0.012		
	.0161	19.436	0.012		
	.0205	19.434	0.011		
	.0244	19.477	0.010		
	.0278	19.502	0.017		
	.0322	19.467	0.016		
	.0361	19.436	0.015		
	.0405	19.383	0.012		
	.0439	19.355	0.012		
14	7219.7974	19.452	0.020		
	.8013	19.456	0.017		
	.8066	19.441	0.017		
	.8101	19.570	0.030		
	.8140	19.561	0.030		
	.8184	19.607	0.035		
	.8218	19.446	0.018		
	.8257	19.436	0.020		
	.8301	19.450	0.022		
	.8335	19.462	0.020		
	.8374	19.563	0.026		
	.8418	19.495	0.017		
	.8452	19.503	0.014		
	.8496	19.502	0.016		
	.8535	19.505	0.018		
	.8569	19.458	0.017		
	.8613	19.421	0.016		
	.8647	19.440	0.014		
	.8691	19.423	0.014		
	.8730	19.450	0.014		
	.8765	19.466	0.013		
	.8809	19.519	0.018		

Table 14. (continued)

Night No.	HJD(Mid) 2440000+	V	σ_V	B	σ_B
14	7219.8848	19.482	0.015		
	.8892	19.483	0.018		
	.8926	19.409	0.015		
	.8965	19.397	0.012		
	.8999	19.399	0.012		
	.9043	19.421	0.011		
	.9087	19.456	0.013		
	.9121	19.457	0.013		
	.9160	19.506	0.012		
	.9194	19.459	0.013		
	.9238	19.430	0.011		
	.9277	19.440	0.017		
	.9316	19.383	0.013		
	.9355	19.432	0.014		
	.9399	19.425	0.012		
	.9434	19.453	0.012		
	.9473	19.500	0.013		
	.9517	19.466	0.011		
	.9551	19.441	0.012		
	.9590	19.446	0.012		
	.9624	19.386	0.011		
	.9668	19.366	0.010		
	.9712	19.368	0.012		
	.9746	19.410	0.012		
	.9785	19.435	0.009		
	.9819	19.484	0.012		
	.9863	19.473	0.011		
	.9897	19.430	0.011		
	.9941	19.399	0.010		
	.9980	19.371	0.010		
	7220.0015	19.394	0.010		
	.0059	19.400	0.009		
	.0093	19.429	0.008		
	.0132	19.424	0.009		
	.0176	19.464	0.009		
	.0210	19.448	0.009		
15	7220.7871	19.412	0.019		
	.7935	19.416	0.021		
	.7974	19.497	0.020		
	.8008	19.470	0.016		
	.8052	19.497	0.026		
	.8091	19.459	0.016		
	.8135	19.421	0.016		
	.8169	19.429	0.020		
	.8213	19.440	0.020		
	.8252	19.431	0.018		
	.8286	19.444	0.018		

Table 14. (continued)

Night No.	HJD(Mid) 2440000+	V	σ_V	B	σ_B
16	7229.8013	19.439	0.040		
	.8062	19.349	0.032		
	.8110	19.447	0.034		
	.8166	19.477	0.046		
	.8215	19.487	0.041		
	.8256	19.513	0.047		
	.8305	19.476	0.051		
	.8354	19.394	0.042		
17	8416.6764	19.595	0.033		
	.6847	19.489	0.023		
	.6931	19.472	0.022		
	.7007	19.492	0.024		
	.7090	19.511	0.024		
	.7167	19.476	0.019		
	.7250	19.395	0.021		
	.7334	19.491	0.025		
	.7410	19.621	0.025		
	.7493	19.473	0.024		
	.7570			19.705	0.032
	.7660	19.457	0.025		
	.7771	19.548	0.028		
	.7847	19.425	0.020		
	.7931	19.425	0.026		
	.8007	19.477	0.023		

Table 15. Photometry of Blue Straggler 14 in NGC 5053

Night No.	HJD(Mid) 2440000+	V	σ_V	B	σ_B
4	6587.8030	19.27	0.08		
	.8072			19.77	0.10
	.8287			19.89	0.10
	.8349	19.47	0.07		
	.8544			19.75	0.09
	.8606	19.53	0.13		
5	6588.7640	19.45	0.06		
	.7696			19.61	0.10
	.7939			19.62	0.10
	.8133	19.44	0.06		
	.8189			19.71	0.10
7	6915.8133			19.722	0.007
	.8244			19.662	0.009
	.8362			19.634	0.005
	.8424			19.80	0.03
	.8529	19.49	0.04		
	.8581	19.422	0.008		
	.8664	19.396	0.005		
	.8865	19.462	0.006		
	.8949	19.424	0.005		
	.9025	19.374	0.005		
9	6970.6863	19.43	0.22		
	.7418	19.54	0.08		
	.8036	19.45	0.08		
10	6971.7057	19.54	0.08		
	.7869	19.49	0.34		
17	8416.6764	19.374	0.029		
	.6847	19.413	0.022		
	.6931	19.411	0.022		
	.7007	19.412	0.018		
	.7090	19.433	0.017		
	.7167	19.396	0.020		
	.7250	19.380	0.016		
	.7334	19.394	0.022		
	.7410	19.417	0.021		
	.7493	19.405	0.023		
	.7660	19.385	0.022		
	.7771	19.424	0.021		
	.7847	19.422	0.020		
	.7931	19.382	0.020		
	.8007	19.391	0.021		

TABLE 16. Photometry of Blue Straggler 15 in NGC 5053

Night No.	HJD(Mid) 2440000+	V	σ_V	B	σ_B
4	6587.8030	19.51	0.05		
	.8072			19.77	0.07
	.8287			19.85	0.07
	.8349	19.63	0.09		
	.8544			19.85	0.05
	.8606	19.65	0.07		
5	6588.7640	19.64	0.08		
	.7696			19.83	0.07
	.7883	19.60	0.10		
	.7939			19.83	0.07
	.8133	19.51	0.09		
	.8189			19.74	0.07
9	6970.6863	19.50	0.18		
	.7418	19.75	0.23		
	.8036	19.56	0.10		
10	6971.7057	19.59	0.17		
	.7869	19.72	0.18		
11	6972.7083	19.60	0.15		
	.7570	19.64	0.09		
	.7840	19.54	0.09		
17	8416.6764	19.576	0.031		
	.6847	19.537	0.030		
	.6931	19.490	0.023		
	.7007	19.556	0.022		
	.7090	19.605	0.023		
	.7167	19.537	0.021		
	.7250	19.482	0.017		
	.7334	19.483	0.025		
	.7410	19.569	0.026		
	.7493	19.565	0.024		
	.7660	19.497	0.027		
	.7771	19.559	0.026		
	.7847	19.554	0.028		
	.7931	19.489	0.025		
	.8007	19.475	0.023		

Table 17

Properties of the Five SX Phe Stars in NGC 5053

Property (1)	NC7 (2)	NC11 (3)	NC13 (4)	NC14 (5)	NC15 (6)
Period, P (min)	53.03	50.40	49.19	56.52	51.26
P (day)	0.03683	0.0350	0.03416	0.03925	0.0356
log P (day)	–1.434	–1.456	–1.466	–1.406	–1.449
β=dP/dt (10^{-9} d/d)	–4.39	0.0	+0.42	-	-
Epoch(P) (2,440,000+)	7823	8416	5678	8417	8417
V_{min}	19.36	19.60:	19.50	19.44	19.60
V_{max}	19.22	19.40:	19.37	19.36	19.48
Amplitude, A_V	0.14	0.15-0.25	0.13	0.08	0.12
$<B>$	19.46:	19.76	19.79	19.71	19.85
$<B>_0$	19.21	19.51	19.54	19.46	19.60
$<V>$	19.30	19.50	19.46	19.41	19.53
$<V>_0$	19.11	19.31	19.27	19.22	19.34
$<B>$–$<V>$	0.16:	0.26	0.33	0.30	0.32
$<B>_0$–$<V>_0$	0.10:	0.20	0.27	0.24	0.26
$T_{\rm eff}$ (K)	8500	7870	7430	7605	7500
log $T_{\rm eff}$	3.930	3.896	3.871	3.881	3.875
M_B(obs)	3.15	3.45	3.48	3.40	3.54
M_B(pred)	3.12	3.47	3.49	3.36	3.46
M_V(obs)	3.07	3.27	3.23	3.18	3.30
M_V(pred)	2.98	3.27	3.29	3.16	3.25
B.C. (=M_{bol}–M_V)	–0.05	–0.05	–0.05	–0.05	–0.05
m_{bol}	19.06	19.26	19.22	19.17	19.29
M_{bol}	2.93	3.22	3.24	3.11	3.20
log $L_{SX}/L_\odot$	0.732	0.616	0.608	0.660	0.624
$L_{SX}/L_\odot$	5.40	4.13	4.06	4.57	4.21
Pulsation Mode	1st o/t	Fund.	Fund.	Fund.	Fund.
$\mathcal{M}_{SX}$(puls)/$\mathcal{M}_\odot$	0.53	1.10	1.58	1.25	1.46
$\mathcal{M}_{SX}$(rel RR)/$\mathcal{M}_\odot$	0.64	1.18	1.85	1.30	1.46
$\mathcal{M}_{SX}$(rel RR)/$\mathcal{M}_{RR}$	0.85	1.57	2.46	1.74	1.95

Notes to Table 17

The following general assumptions were made: M_{bol}(Sun)=+4.76; [Fe/H]=–2.41 dex for every star in NGC 5053; $E(B$–$V)$=0.06, A_V=3.1×$E(B$–$V)$=0.19, A_B=4.1×$E(B$–$V)$=0.25; Note that the periods given by NNL for the SX Phe stars were preliminary estimates and differ slightly from those reported here.

TABLE 18. Derived log P-m_0(M15) Relations (Assuming Parallel Lines)

Type of Var. Star (1)	Pulsation Mode (2)	No. Stars (3)	Intercept (4)	Slope (s.e.) (5)
		B-Passband (r^2=99.71, RMS-error=0.14)		
RR Lyrae	F	783	15.81	–0.02 (0.08)
	H	376	15.75	
Pop. II Ceph.	F	26	15.62	–1.69 (0.04)
	H	24	15.03	
Anom. Ceph.	F	15	14.53	–3.20 (0.18)
	H	9	13.79	
SX Phe	F	16	15.44	–2.16 (0.46)
	H	6	15.14	
		V-Passband (r^2=99.67, RMS-error=0.14)		
RR Lyrae	F	435	15.43	–0.50 (0.11)
	H	269	15.32	
Pop. II Ceph.	F	21	15.18	–1.93 (0.05)
	H	23	14.73	
Anom. Ceph.	F	8	14.29	–3.13 (0.27)
	H	6	13.63	
SX Phe	F	16	15.28	–2.13 (0.46)
	H	6	15.03	
		K-Passband (r^2=99.75, RMS-error=0.07)		
RR Lyrae	F	140	13.95	–2.40 (0.10)
	H	40	13.63	