Meeting the Cool Neighbours, II: Photometry of southern NLTT stars

I. Neill Reid

Space Telescope Science Institute, 3700 San Martin Drive, Baltimore, MD 21218; Department of Physics and Astronomy, University of Pennsylvania, 209 South 33rd Street, Philadelphia, PA 19104 e-mail: inr@stsci.edu

D. Kilkenny

South African Astronomical Observatory, PO Box 9, Observatory 7935, South Africa

K. L. Cruz

Department of Physics and Astronomy, University of Pennsylvania, 209 South 33rd Street, Philadelphia, PA 19104

ABSTRACT

We present BVRI photometry of 180 bright, southern nearby-star candidates. The stars were selected from the New Luyten Two-Tenths proper motion catalogue based on optical/infrared colours, constructed by combining Luytens's m_r estimates with near-infrared photometry from the 2-Micron All Sky Survey. Photometric parallaxes derived from (V-K_S), (V-I) and (I-J) colours, combined with the limited available astrometry, show that as many as 108 stars may lie within 20 parsecs of the Sun. Of these, 53 are new to nearby star catalogues, including five within 10 parsecs of the Sun.

Subject headings: stars: red dwarfs; Galaxy: stellar content

1. Introduction

This is the second in a series of papers which present the results of our survey for previously unrecognised stars within the immediate Solar Neighbourhood. As discussed in Paper I (Reid & Cruz, 2002), the availability of large-scale sky surveys at near-infrared wavelengths, notably the 2-Microns All Sky Survey (2MASS: Skrutskie *et al.*, 1997), in combination with published catalogues and Schmidt-based photographic surveys at optical wavelengths, has greatly enhanced our capabilities for detecting the low-luminosity main-sequence stars and brown dwarfs. The primary goal of our survey, undertaken under the auspices of the NASA/NSF NStars initiative, is the identification of all late type dwarfs (concentrating on spectral types M and L) within 20 parsecs of the Sun.

As a first step towards identifying the Sun's nearest neighbours, we have used 2MASS data to enhance an old technqiue, cross-referencing the infrared catalogue against proper motion stars in the New Luyten Two-Tenths Catalogue (Luyteon, 1980 - NLTT). Once correlated, we can use the $(m_r - K_S)$ colours as a crude photometric parallax estimator, with the long baseline compensating to some extent for the uncertainties in the red magnitudes. Paper I describes the definition of an initial sample of nearby-star candidates, drawn from NLTT sources which have potential 2MASS counterparts within a 10-arcsecond search radius. By applying a series of cuts in colour-magnitude and colour-colour planes, we reduced the list of 23795 optical/IR matches to 1245 sources with photometric properties consistent with their being late-type dwarfs within 20 parsecs of the Sun. These stars constitute NLTT Sample 1. Paper I compiles photometric data from the literature for 469 stars, and uses colour-magnitude relations at (M_V, (V-K), (M_V, (V-I)) and (M_I, (I-J)) to estimate distances to those stars. Three hundred pf those stars, and a further 39 ultracool (spectral type >M6) dwarfs, have formal distances of less than 20 parsecs, including 76 stars not previously included in nearby star catalogues.

The current paper continues analysis of the NLTT Sample 1, presenting optical photometry of a sample of 180 relatively-bright southern stars. The following section outlines the sample and presents the observations. Section 3 describes our procedures for estimating distances to these stars, and Section 4 discusses some of the more interesting stars in the sample. Our results are summarised in the final section.

2. Observations

2.1. The sample

As described in Paper I, the 1245 stars in NLTT Sample 1 were selected on the basis of their having locations in the (m_r, (m_r-K_S)) and ((J-H)/(H-K)) planes consistent with mid- or late-type M dwarfs within 20 parsecs of the Sun. Regions within $\pm 10^o$ of the Galactic Plane were excluded *a priori*, since the NLTT catalogue has a significantly brighter limiting magnitude at those latitudes. The selected stars have magnitudes in the range $8 < m_r < 20$, with over 70% lying between 11th and 16th magnitude. They span the full range of Right Ascension, although the majority lie at northern Declination, reflecting both the areal coverage of the second incremental release of 2MASS data and incompleteness in the NLTT south of $\delta = -30^o$. Several hundred stars, however, lie south of the equator.

Southern hemisphere proper-motion stars have generally received less attention than their northern counterparts, and, as a result, even relatively bright objects in the current sample have no previous detailed measurements. Figure 1 shows the distribution on the celestial sphere and in the (m_r, (m_r-K_S)) colour-magnitude plane of the 180 NLTT dwarfs targeted here.

2.2. Photometry

All of the data were obtained (by DK) between February and July 2001, using the St. Andrews photometer with a Hamamatsu R943-02 GaAs photomultiplier on the 1.0-metre telescope at the Sutherland station of the South African Astronomical Observatory. Most observations were made through a 21-arcsecond diameter, though a 31-arcsecond diameter aperture was employed for poorer seeing. As discussed further below, the relatively large apertures sometimes lead to our photometry including a contribution from other stars at small angular separation.

The observations were made using a Johnson-Cousins BVRI filter set and reduced using standard techniques (Kilkenny *et al.*, 1998). Only VRI measurements were made for most of the fainter stars. In addition to E-region standard stars (Cousins, 1973; Menzies *et al.*, 1989), we also made substantial numbers of calibrating observations of red standards from the list of Kilkenny *et al.* (1998), which extends the Cousins BVRI system into the (approximate) range 2 $<$ (V-I) $<$ 3. Beyond (V-I)=3, we (and others) are extrapolating colour equations, but observations of Proxima Centauri compared to Bessell (1990) indicate we are close to his system. In any case, few stars amongst the present targets have (V-I)$>$ 3.

The results from our photometry are listed in Table 1, where we also give the positions and near-infrared data from the 2MASS catalogue. We were able to obtain two or more observations of approximately half the sample. Those repeated measurements indicate that the standard deviations for a single measurement are typically $\sigma_V = 0.015$ mag., $\sigma_{B-V} = 0.011$, $\sigma_{V-R} = 0.008$ and $\sigma_{V-I} = 0.013$. Figure 2 compares the VRI and JHK two-colour diagrams for our dataset against observations of known nearby stars from Bessell (1990) and Leggett (1992), where we have supplemented the optical observations from the former reference with 2MASS data. We also show the dwarf and giant (H-K)/(J-H) sequences from Bessell & Brett (1988), transforming the latter to the 2MASS system following Carpenter (2001). As discussed in Paper I, Leggett's CIT near-infrared data are closely matched to the 2MASS system. There is excellent agreement between our observations and the standard sequences, showing that the optical and near-infrared photometry and each internally consistent.

Figure 3 compares optical/near-infrared colour-colour diagrams for our sample against data for nearby stars. The majority of the NLTT stars are in excellent agreement with the standard sequences, but there are a few outliers in both (B-V) and (V-I). As noted above, our optical data is derived from aperture photometry, and in some cases, identified in Table 1, the aperture included additional stars besides the program object. While in many cases the optical photometry is not significantly affected, most of the outliers in the BVK and VIK planes are amongst those stars. B-band observations are particularly susceptible, since our program stars are faintest at those wavelengths, and we have excluded several measurements where the (B-V) colour was clearly incompatible with the VRI data. Finally, G 163-4 (LHS 2297) lies only 16 arcseconds from its brighter common proper motion companion, LHS 2296. Comparison between our data and photometry by Weis (1996) suggests that the latter star has contaminated our measurements, and we adopt the magnitudes listed by Weis for this star.

Four of the five outliers in the VIK plane are known binaries where the components have similar magnitudes. All four are resolved by 2MASS, so the (V-K_S) colour is therefore (V(AB)-K_S(A)). The fifth outlier in VIK is LP 779-34, which is also an outlier in BVK. LP 779-33 is listed as a common proper motion companion in the NLTT, but is several arcminutes distant (and bluer than our (m_r-K_S) limit). The location of LP 779-34 on the two-colour diagram probably reflects the contribution of a nearby, similar-magnitude field star to the SAAO photometry. The measured VRI colours suggest that the field star is also an M dwarf. We have taken the composite nature of the optical photometry for all of these stars into account in computing the photometric parallaxes given in Section 3.

2.3. Comparison with previous observations

A number of stars observed in the course of our present program are well-known nearby stars, and have published broadband photometry. In particular, 26 stars were observed by Bessell (1990) in his survey of late-type dwarfs in the second Catalogue of Nearby Stars (Gliese, 1969; Gliese & Jahreiß, 1979), while 10 are included in Leggett's (1992) compilation of optical and near-infrared photometry and three were observed by the RECONS group (Patterson *et al.*, 1998). A further 31 are amongst the proper motion stars observed by Weis (1991, 1993, 1996), and, finally, 15 stars have photometry by Eggen (1987). The latter two sets of observations are on the Kron RI system, but we have used the transformations given by Bessell & Weis (1987) to transform to Kron-Cousins magnitudes. As noted above, we adopt Weis' data for G 163-4.

Table 2 and Figure 4 show the statistical results from a comparison of our observations and data from the literature. We have excluded one observation from this comparison: Bessell lists V=10.51 for Gl 386, while Weis lists V=10.97. Our photometry agrees with the latter measurement, so we omit the former. The main discrepancies lie with Eggen's photometry, partly because his V-band measurements are given to the nearest 0.1 magnitude, and may in some cases be estimates based on the (R-I) colours. Overall, the agreement is consistent with our internal estimate of the photometric uncertainties, and there is no evidence for any significant residual colour terms.

3. Distance estimates

Our goal in this project is the identification of stars likely to lie within 20 parsecs of the Sun. The current sample includes seventy-one stars already identified as such in the preliminary version of the third Catalogue of nearby Stars (Jahreiß & Gliese, 1991: pCNS3). However, while all 180 stars are relatively bright, only 53 stars have trigonometric parallax measurements. As a result, we must rely on photometric parallax as our primary method of estimating distances. We have followed an identical approach to that outlined in paper I, computing photometric parallaxes from the observed (V-I), (I-J) and (V-K_S) colour indices using the polynomial calibrations outlined in that paper; combining those estimates to give an averaged photometric distance estimate; and deriving our final distance estimate through a weighted average with the trigonometric measurement, should such exist. The results are listed in Table 3, where we give the uncertainty associated with the individual measurements. As discussed above and in the notes to the Table, we make due allowance for known binaries with joint optical photometry.

Figure 5 plots, as a function of (V-I) colour, the residuals between the individual distance modulus estimates and the final averaged value. The larger residuals, and systematic trend in δ(av-(I-J)), near (V-I)=2.9 reflect the sharp steepening of the main-sequence, and consequent larger uncertainties, at that colour (see Paper I). Fifty-four stars have trigonometric parallax measurements. Comparing those distance modulus estimates against the averaged photometric parallax results give

$$\langle (m-M)_\pi \ - \ (m-M)_{ph} \rangle \ = \ 0.01 \pm 0.80 mag.$$

Restricting the comparison to the 42 stars with π_{trig} measured to an accuracy of 10% or better gives

$$\langle (m-M)_\pi \ - \ (m-M)_{ph} \rangle \ = \ 0.06 \pm 0.48 mag.$$

As Figure 5 shows, there is no evidence for significant systematic bias, and the residuals are broadly nt with the expected uncertainties in the photometric parallax calibrations (Paper I). Table 3 gives our distance estimates for each star and identifies those likely to fall within the 20-parsec distance limit. Figure 6 plots the distance distribution as a function of (V-I) colour.

4. Discussion

Table 1 lists photometry for 180 NLTT systems, including at least four binary systems. Based on our distance estimates, 87 of those systems, including three binaries (Ross 948, LP 675-76/77 and LP 726-11/12) have distances of less than 20 parsecs, while a further 21 lie within 1σ of the 20-parsec boundary. Sixty of the 108 systems are included in the pCNS3, but the remaining 48 are additions to nearby star catalogues. The latter stars are identified in the final column of Table 3. Moving the distance limit to 25 parsecs, the value adopted in the pCNS3, embraces 132 systems, 65 of which are not included in that catalogue. Given the relatively bright magnitudes of the stars in our sample, this emphasises the incompleteness of nearby star surveys in the southern hemisphere.

Considering the immediate Solar Neighbourhood, our distance estimates place 14 of the 180 stars within 10 parsecs of the Sun. Those systems include Gl 84, 190, 357, 382, 628, GJ 1065 and LHS 1731, all of which have trigonometric parallaxes which exceed 0.1 arcseconds. Four other stars are listed in the pCNS3: Gl 540.2 and LHS 2520, 1723 and 2836. The three new identifications are LP 993-116 (M_V = 13.45), LHS 6167 (M_V = 14.63) and G 161-71 (M_V = 14.76). All three systems have formal distance estimates between 6 and 7 parsecs. LP 993-116 is identified in the NLTT as a common proper motion companion, separation 44 arcseconds, of CD -44:836, an M5 dwarf. The latter star is in our sample, and we derive an estimated distance of 10.5 parsecs. Given the individual uncertainties, the agreement is reasonable.

There are currently approximately 250 systems known with 10 parsecs of the Sun. Thus, the 7 new identifications listed in this paper and Paper I represent an increase of only $\sim 3\%$ in the inferred local stellar space density. However, these additions are drawn from a relatively well-studied subset of our NLTT candidates. Combined with the literature data discussed in Paper I, we have optical photometry, and photometric parallaxes, for 649 of the 1245 stars in NLTT Sample 1, while a further 39 ultracool dwarfs have distance estimates based on either optical spectroscopy or (J-K_S) colours. Four hundred and fifty-six of those stars are identified as potentially within 20 parsecs of the Sun. Subsequent papers in this series will provide distance estimates for the remaining 596 stars in NLTT Sample 1, as well as extending coverage to include NLTT dwarfs which lack 2MASS counterparts within 10 arcseconds of the nominal position.

The authors thank the anonymous referee for a number of extremely helpful comments. This NStars research was supported partially by a grant awarded as part of the NASA Space Interferometry Mission Science Program, administered by the Jet Propulsion Laboratory, Pasadena. This publication makes use of data products from the Two Micron All Sky Survey, which is a joint project of the University of Massachusetts and the Infrared Processing and Analysis Center/California Institute of Technology, funded by the National Aerospeace and Space Administration and the National Science Foundation. We acknowledge use of the NASA/IPAC Infrared Source Archive (IRSA), which is operated by the Jet Propulsion Laboratory, California Institute of Technology, under contract with the National Aerospeace and Space Administration. We also acknowledge making extensive use of the SIMBAD database, maintained by Strasberg Observatory, and of the ADS bibliographic service. We would like to thank the Time Assignment Committee of the South African Astronomical Observatory for the allocation of observing time for this project.

REFERENCES

Bessell, M.S. 1990, A&AS, 83, 357

Bessell, M.S., Brett, J.M. 1988, PASP 100, 1134

Bessell, M.S., Weis, E.W. 1987, PASP 99, 642

Carpenter, J.M. 2001, AJ 121, 2851

Cousins, A.W.J. 1973, Mem. RAS, 77, 223

Eggen, O.J. 1987, AJ 92, 379

ESA, 1997, The Hipparcos Catalogue, ESA SP-1200

Giclas, H.L., Burnham, R., Thomas, N.G. 1971, The Lowell Proper Motion Survey, Lowell Observatory, Flagstaff, Arizona

Gliese, W. 1969, Catalogue of Nearby Stars, Veroff. Astr. Rechen-Instituts, Heidelberg, Nr. 22 (CNS2)

Gliese, W., Jahreiß, H. 1979, A&AS 38, 423

Gliese, W., Jahreiß, 1991, Preliminary Version of the Third Catalogue of Nearby Stars, (pCNS3)

Harrington, R.S., Fahn, C.C., Kallarakal, V.V., Guetter, H.H., Riepe, B.Y., Walker, R.L., Pier, J.R., Vrba, F.J., Luginbuhl, C.B., Harris, H.C., Ables, H.D. 1993, AJ 105, 1571

Kilkenny, D., van Wyk, F., Roberts, G., Marang, F., Cooper, D. 1998, MNRAS, 294, 93

Leggett, S.K. 1992, ApJS 82, 351

Menzies, J.W., Cousins, A.W.J., Banfield, R.M., Laing, J.D. 1989, SAAO Circ. 13, 1

Monet, D.G., Dahn, C.C., Vrba, F.J., Harris, H.C., Pier, J.R., Luginbuhl, C.B., Ables, H.D. 1992, AJ 103, 638

Luyten, W.J. 1980, Catalogue of stars with proper motions exceeding 0"2 annually (NLTT), Univ. of Minnesota Publ., Minneapolis, Minnesota

Patterson, R.J., Ianna, P.A., Begam, M.C. 1998, AJ 115, 1648

Skrutskie, M.F. *et al.* 1997, in *The Impact of Large-Scale Near-IR Sky Survey*, ed. F. Garzon et al (Kluwer: Dordrecht), p. 187

Weis, E.W. 1991, AJ 102, 1795

Weis, E.W. 1993, AJ 105, 1962

Weis, E.W. 1996, AJ 112, 2300

This preprint was prepared with the AAS LaTeX macros v5.0.

Table 1. Photometry and astrometry of NLTT stars

NLTT	Name	LHS	α (2000)	δ	m_r	V	B-V	V-R	V-I	n_{obs}	J	H	K_S	π_{trig}(mas)	Ref_π
-21:368	G272-145	6041	02 03 20.7	-21 13 42	11.0	11.16	1.45	1.02	2.31	1	7.617	7.031	6.772	33.9±22.6	2
649- 30			02 03 30.2	-04 54 41	11.0	11.11	1.46	0.91	1.83	2	8.199	7.533	7.354	34.9± 2.4	1
-18:359	Gl 84	149	02 05 04.7	-17 36 52	10.0	10.20	1.52	1.05	2.34	1	6.537	5.923	5.686	105.9± 2.0	1
709- 40		1347	02 09 36.0	-14 21 32	11.1	11.74	1.50	1.05	2.34	1	8.136	7.498	7.256	50.3± 3.3	1
709- 43			02 10 03.6	-8 52 59	12.0	13.05	···	1.14	2.65	2	8.951	8.362	8.092	70.2±16.3	2
885- 38		1376	02 16 35.0	-30 58 07	11.7	13.10	···	1.22	2.84	2	8.770	8.233	7.854	···	
941- 38		1380	02 17 56.7	-35 37 00	11.3	11.63	1.49	0.96	2.01	1	8.507	7.933	7.672	36.2± 2.7	1
829- 51			02 23 24.0	-23 18 24	13.5	14.21	···	1.23	2.83	2	9.861	9.318	9.005	···	
941-142	GJ 1050	157	02 39 50.6	-34 07 55	11.6	11.73	1.59	1.06	2.39	1	8.059	7.544	7.307	···	
-44:836			02 45 10.7	-43 44 32	11.6	12.33	1.61	1.17	2.73	2	8.140	7.556	7.270	···	
993-116			02 45 14.3	-43 44 10	11.9	12.67	1.67	1.28	2.99	1	8.070	7.533	7.196	···	
G75-55			02 58 20.0	00 59 33	11.6	10.97	1.46	0.92	1.88	1	8.017	7.410	7.172	···	
-26:1122			03 03 36.6	-25 35 32	10.7	11.04	1.44	0.93	1.91	1	8.024	7.350	7.108	25.8± 2.2	1
771- 77		1491	03 04 04.4	-20 22 42	11.4	12.79	···	1.16	2.67	1	8.677	8.051	7.743	···	
942-107			03 05 11.1	-34 05 23	13.3	13.93	···	1.20	2.81	2	9.652	9.102	8.767	···	
652- 74			03 11 36.6	-04 16 36	12.8	13.38	···	1.17	2.67	1	9.316	8.713	8.451	···	
831- 45			03 14 18.1	-23 09 29	12.1	12.54	···	1.14	2.63	1	8.504	7.856	7.619	···	
887- 74			03 19 29.1	-30 59 44	13.1	14.00	···	1.22	2.82	2	9.642	9.152	8.728	···	
888- 6			03 20 51.0	-28 15 34	11.9	12.19	1.50	0.98	2.12	1	8.916	8.275	8.017	···	
G 77-51			03 26 23.6	-04 28 38	13.3	11.83	1.39	0.85	1.64	1	9.284	8.596	8.355	···	
653- 8		1561	03 34 39.5	-04 50 32	12.8	13.01	···	1.18	2.72	1	8.838	8.273	7.892	···	
HIP 17695			03 47 23.3	-01 58 19	10.8	11.51	1.50	1.07	2.40	1	7.822	7.172	6.897	61.5± 3.0	1
LHS 183	GJ 1065	183	03 50 44.3	-06 05 40	12.0	12.88	···	1.22	2.81	2	8.574	7.979	7.759	105.4± 3.2	2
833- 14			03 52 23.1	-22 52 56	11.2	11.46	1.53	0.99	2.15	1	8.127	7.508	7.275	42.1± 6.2	1
- 7:699	Gl 156	5087	03 54 35.4	-06 49 34	9.5	9.03	1.37	0.86	1.62	1	6.471	5.784	5.649	64.9± 1.2	1
833- 42		1630	04 07 20.4	-24 29 12	12.0	12.38	1.53	1.15	2.69	2	8.229	7.701	7.430	···	
889- 37			04 08 55.5	-31 28 53	13.2	14.52	···	1.31	3.04	2	9.764	9.174	8.859	···	
890- 8			04 15 56.2	-28 16 50	13.4	13.46	···	1.06	2.37	1	9.807	9.257	8.980	···	
714- 58[1]	GJ 2033		04 16 41.7	-12 33 23	11.1	10.91	1.51	1.00	2.15	1	7.585	6.983	6.733	47.0± 6.2	1
654- 39			04 19 06.6	-7 27 44	13.9	14.35	···	1.20	2.78	2	9.979	9.346	9.111	···	
890- 27		5094	04 26 32.6	-30 48 01	13.7	14.02	···	1.30	3.05	2	9.319	8.741	8.428	···	
834- 42[2]		1672	04 28 35.7	-25 10 08	12.1	11.82	···	0.96	2.13	3	8.382	7.768	7.513	···	
595- 23			04 32 56.2	-00 06 15	11.6	11.51	1.49	0.96	2.02	1	8.425	7.836	7.551	···	
834- 32			04 35 36.1	-25 27 34	11.1	12.38	1.50	1.14	2.64	2	8.249	7.636	7.413	···	
890- 44			04 36 39.8	-27 22 05	12.6	12.54	···	1.07	2.44	2	8.782	8.183	7.899	···	
890- 45			04 36 40.8	-27 21 18	12.3	12.26	···	1.05	2.37	2	8.622	7.992	7.737	···	
890- 46		1687	04 36 56.1	-29 03 27	13.6	13.70	···	1.17	2.65	1	9.615	9.115	8.820	···	

Table 1—Continued

NLTT	Name	LHS	α (2000)	δ	m_r	V	B-V	V-R	V-I	n_{obs}	J	H	K_S	π_{trig}(mas)	Ref_π
655- 43			04 38 02.5	-05 56 13	13.2	14.44	···	1.30	3.03	3	9.772	9.242	8.832	···	
715- 39			04 38 37.1	-11 30 14	12.0	12.65	···	1.12	2.56	2	8.672	8.104	7.817	···	
656- 9			04 46 24.4	-02 49 07	12.0	11.91	···	0.98	2.07	1	8.687	8.078	7.873	···	
776- 25			04 52 24.4	-16 49 21	11.2	11.61	1.52	1.10	2.51	1	7.761	7.134	6.877	···	
776- 27	Gl 180	1712	04 53 49.9	-17 46 23	10.9	10.91	1.53	1.02	2.23	1	7.428	6.826	6.572	80.9± 2.0	1
-11:1025			04 59 38.2	-10 59 00	10.6	9.48	1.17	···	···		7.468	6.818	6.677	28.4± 1.6	1
656- 38		1723	05 01 57.4	-06 56 45	12.0	12.16	1.76	1.28	2.97	2	7.617	7.044	6.735	···	
G 84-31			05 02 51.1	-04 41 15	13.9	14.16	···	1.13	2.57	2	10.185	9.624	9.354	···	
776- 46		1731	05 03 20.0	-17 22 24	11.3	11.73	1.64	1.12	2.54	2	7.827	7.256	6.915	107.9± 3.0	1
777- 36	Gl 190	203	05 08 35.0	-18 10 17	10.5	10.31	1.50	1.14	2.66	1	6.207	5.611	5.332	107.3± 2.0	1
657- 4			05 09 21.0	-08 38 55	13.6	14.35	···	1.23	2.85	2	9.937	9.385	9.082	···	
892- 26		1748	05 15 46.6	-31 17 45	12.0	12.09	1.49	1.02	2.27	2	8.583	7.986	7.754	···	
717- 36			05 25 41.6	-09 09 12	12.1	12.56	1.54	1.16	2.65	2	8.429	7.858	7.586	···	
W 1450	Gl 204.2	1766	05 29 52.0	-03 26 29	11.7	12.01	1.54	1.07	2.41	2	8.275	7.667	7.432	56.8± 6.5	2
892- 51		1767	05 31 04.2	-30 11 44	12.8	13.07	···	1.15	2.63	2	9.038	8.472	8.191	···	
837- 19			05 44 57.0	-21 36 56	11.5	12.31	···	1.07	2.38	2	8.652	8.067	7.804	···	
-6:1339	Gl 221		05 53 00.2	-05 59 41	10.2	9.70	1.35	0.84	1.60	1	7.094	6.506	6.309	49.7± 1.7	1
893- 23			05 53 45.8	-30 38 29	12.4	12.30	···	0.99	2.17	2	8.980	8.338	8.147	···	
838- 16			06 07 43.7	-25 44 41	11.3	11.88	1.59	1.10	2.51	2	8.031	7.504	7.179	87.6± 2.6	1
779- 34[1]			06 15 11.9	-16 26 15	12.8	11.74	1.62	0.93	1.98	1	9.275	8.684	8.424	···	
839- 26			06 43 40.6	-26 24 40	12.2	12.87	···	1.12	2.57	2	8.893	8.418	8.107	···	
896- 12			06 58 48.7	-28 37 54	12.8	12.73	···	1.00	2.17	1	9.481	8.777	8.561	···	
896- 28			07 01 08.3	-32 12 37	13.7	13.91	···	1.11	2.53	2	10.000	9.487	9.211	···	
665- 49			08 30 58.6	-05 10 42	11.7	11.34	1.32	0.84	1.63	2	8.731	8.078	7.925	···	
665- 21	G113-042		08 31 21.6	-06 02 01	11.0	11.16	1.38	0.94	2.01	2	7.996	7.371	7.170	46.0± 6.3	1
665- 22	G113-043		08 31 27.2	-06 02 12	11.9	12.31	1.42	1.02	2.32	2	8.719	8.196	7.914	···	
665- 53[1]			08 38 19.2	-04 15 28	11.8	11.17	1.14	···	1.64	2	8.580	7.929	7.769	···	
725- 25			08 38 54.4	-09 33 58	12.5	11.80	1.48	1.00	2.21	2	8.349	7.668	7.433	···	
844- 8	Gl 317	2037	08 40 59.2	-23 27 23	11.8	11.99	1.53	1.12	2.61	2	7.931	7.327	7.016	94.2±12.5	2
186-166			08 41 49.9	-59 34 09	13.1	12.49	···	0.98	2.05	2	9.357	8.703	8.545	···	
G 114-14			08 42 23.2	-04 53 54	12.3	12.86	···	1.10	2.49	2	9.053	8.541	8.213	···	
726- 11/12[3]			08 48 36.4	-13 53 08	12.7	12.12	1.52	1.07	2.43	1	8.753	8.123	7.924	···	
844- 28		2071	08 55 20.3	-23 52 15	13.3	13.80	···	1.27	2.97	2	9.120	8.551	8.217	···	
- 8:2582[1]	Gl 334		09 06 45.3	-08 48 24	9.6	09.49	1.44	0.91	1.82	2	6.627	5.986	5.774	68.9± 1.8	1
LHS 6167		6167	09 15 36.4	-10 35 47	13.2	13.76	···	1.45	3.34	3	8.605	8.087	7.736	···	
727- 31			09 28 41.5	-12 09 55	12.0	12.23	1.47	1.00	2.18	2	8.841	8.206	7.946	···	
R 439	Gl 347 A	2145	09 28 53.3	-7 22 14	11.8	12.08	1.52	1.05	2.37	2	8.482	7.899	7.627	58.2± 4.0	1

Table 1—Continued

NLTT	Name	LHS	α (2000)	δ	m_r	V	B-V	V-R	V-I	n_{obs}	J	H	K_S	π_{trig}(mas)	Ref_π
728- 5			09 33 56.3	-10 09 24	12.9	12.88	···	1.04	2.30	2	9.350	8.745	8.506	···	
788- 6[1]	Gl 357	2157	09 36 01.6	-21 39 37	10.0	10.90	1.55	1.04	2.33	2	7.367	6.747	6.460	111.4± 2.0	1
788- 20			09 41 21.2	-20 34 41	12.2	12.56	1.49	1.04	2.33	2	8.998	8.289	8.059	···	
788- 24	LHS2177	2177	09 42 35.7	-19 14 04	11.5	11.95	···	1.05	2.36	2	8.322	7.762	7.500	61.3± 3.2	1
788- 30[1]	GJ 1129	273	09 44 47.5	-18 12 48	12.4	12.33	···	1.14	2.68	2	8.156	7.558	7.274	···	
G 161-71			09 44 54.2	-12 20 54	13.2	13.73	···	1.41	3.34	2	8.483	7.891	7.590	···	
728- 77			09 48 13.3	-10 11 37	11.8	10.79	1.20	0.74	1.36	1	8.564	7.970	7.788	···	
728- 70			09 50 40.5	-13 48 38	12.3	12.68	···	1.16	2.67	2	8.578	7.996	7.693	···	
788- 49			09 51 23.3	-17 44 24	11.7	11.84	1.45	1.01	2.29	2	8.332	7.736	7.496	···	
-11:2741	Gl 369	274	09 51 9.4	-12 19 45	9.9	10.01	1.46	0.94	1.95	2	7.034	6.398	6.160	73.6± 5.9	2
728- 71			09 52 41.7	-15 36 13	13.1	13.43	···	1.16	2.66	2	9.352	8.804	8.499	···	
- 2:3000	Gl 372	6177	09 53 11.7	-03 41 24	10.8	10.52	1.52	1.03	2.26	1	7.002	6.415	6.139	63.8± 1.8	1
728- 73			09 54 22.0	-12 52 47	12.8	13.15	···	1.08	2.44	2	9.460	8.862	8.578	···	
609- 71	Gl 381A	2230	10 12 04.6	-02 41 04	10.7	10.62	1.57	1.05	2.34	2	7.034	6.469	6.191	81.2± 2.4	1
- 3:2870	Gl 382		10 12 17.6	-03 44 43	9.8	9.24	1.49	1.00	2.18	2	5.886	5.253	5.009	128.0± 1.5	1
729- 61	Gl 386	2244	10 16 45.9	-11 57 41	10.6	10.99	1.45	1.04	2.37	2	7.300	6.721	6.452	72.8± 2.4	1
729- 54			10 18 35.1	-11 43 00	12.2	13.07	···	1.13	2.63	2	9.016	8.451	8.195	···	
790- 8			10 21 08.1	-17 43 38	11.2	11.25	1.46	0.93	1.89	2	8.244	7.589	7.381	29.6± 2.4	1
- 9:3070	Gl 390	2259	10 25 10.8	-10 13 43	10.5	10.14	1.48	0.98	2.08	2	6.874	6.263	6.045	80.1± 1.8	1
848- 54			10 29 12.6	-23 07 16	13.4	13.44	···	1.04	2.33	2	9.857	9.208	8.962	···	
-20:3198	LTT3856		10 31 03.6	-21 38 39	10.4	10.05	1.38	0.87	1.70	2	7.537	6.869	6.676	···	
670- 17			10 35 01.1	-09 24 38	11.4	12.11	1.55	1.09	2.48	1	8.256	7.674	7.376	···	
670- 23	Gl 399	2295	10 39 40.6	-06 55 25	10.4	11.28	1.50	1.05	2.33	2	7.663	7.042	6.788	59.5± 2.9	1
G 163-4[4]		2297	10 42 37.0	-03 55 06	13.6	14.43	···	1.00	2.18	2	9.755	9.159	8.888	···	
791- 3		2303	10 44 29.2	-18 38 06	13.8	14.50	···	1.27	2.94	3	10.046	9.542	9.273	···	
-18:3019	Gl 401 A	289	10 45 39.2	-19 06 50	11.2	11.03	1.42	0.92	1.89	2	8.080	7.508	7.256	56.9±6.5	2
731- 16		5179	10 53 02.2	-15 05 03	13.6	13.94	···	1.14	2.63	2	9.899	9.360	9.020	···	
671- 8			10 54 41.9	-07 18 32	12.3	13.24	···	1.21	2.80	2	8.864	8.260	7.985	···	
731- 76			10 58 27.9	-10 46 30	13.3	14.39	···	1.33	3.11	2	9.522	9.009	8.658	···	
611- 70			11 02 58.3	-03 23 07	13.0	12.70	···	0.92	2.03	2	9.566	8.831	8.619	···	
672- 2	GJ 1142 A		11 08 06.5	-05 13 46	12.0	12.54	···	1.07	2.42	2	8.793	8.130	7.923	22.5±7.2	2
792- 9	Gl 421 C	2378	11 15 15.4	-18 07 34	13.3	13.63	···	1.14	2.60	2	9.697	9.027	8.753	63.5± 6.3	2
-17:3337	Gl 421 B	2380	11 15 20.7	-18 08 36	10.2	9.95	1.35	0.84	1.59	1	7.411	6.763	6.613	63.5±6.3	2
-13:3333	GJ 1144		11 16 22.1	-14 41 36	10.1	9.98	1.41	0.88	1.70	2	7.325	6.665	6.494	56.9± 1.7	1
792- 16			11 20 46.5	-19 39 07	12.7	12.87	···	1.09	2.47	2	9.060	8.463	8.181	···	
792- 17[1]			11 20 59.9	-17 01 48	12.2	12.19	1.49	1.04	2.34	2	8.601	7.910	7.693	···	
792- 20		2401	11 23 57.3	-18 21 48	12.9	13.08	···	1.12	2.55	2	9.186	8.583	8.313	···	

Table 1—Continued

NLTT	Name	LHS	α (2000)	δ	m_r	V	B-V	V-R	V-I	n_{obs}	J	H	K_S	π_{trig}(mas)	Ref_π
732- 35		306	11 31 08.3	-14 57 19	13.6	14.17	···	1.34	3.11	2	9.358	8.803	8.506	···	
792- 33			11 32 18.9	-16 58 07	11.2	11.45	1.50	0.97	2.03	2	8.290	7.676	7.482	43.7± 2.5	1
793- 24/25[3]			11 40 33.0	-16 33 48	11.9	11.53	1.46	0.95	2.02	1	8.893	8.219	8.021	···	
733- 71	Gl 443	314	11 46 42.8	-14 00 50	11.1	11.69	1.46	1.06	2.40	2	7.968	7.292	7.087	49.0± 3.0	1
733- 24		2460	11 48 19.4	-11 17 14	12.1	12.99	···	1.10	2.52	2	9.014	8.420	8.174	···	
852- 5			12 05 12.8	-25 33 53	12.5	13.10	···	1.08	2.45	1	9.278	8.674	8.381	···	
734- 30			12 08 47.0	-10 16 00	12.2	12.65	···	1.05	2.38	1	8.928	8.284	8.022	···	
734- 32		2520	12 10 05.5	-15 04 15	11.7	12.12	···	1.19	2.77	2	7.788	7.133	6.860	···	
734- 34			12 10 28.3	-13 10 23	13.2	13.75	···	1.25	2.90	1	9.312	8.671	8.426	···	
794- 30	LTT4562		12 11 11.7	-19 57 37	11.5	11.69	1.56	1.08	2.45	1	7.952	7.333	7.044	78.1± 2.8	1
794- 31			12 11 16.9	-19 58 21	12.3	12.63	···	1.14	2.62	1	8.627	7.981	7.719	···	
852- 59[1]			12 16 48.5	-22 29 10	11.4	10.97	1.36	0.84	1.65	1	8.480	7.814	7.645	···	
R 691			12 17 06.8	-17 38 14	12.1	11.98	1.48	0.95	1.99	1	8.874	8.232	8.027	···	
G 13-33			12 22 50.6	-04 04 46	13.4	14.04	···	1.14	2.76	1	9.690	9.149	8.838	···	
735- 48			12 26 44.1	-12 29 17	11.9	12.59	···	1.10	2.51	1	8.708	8.152	8.070	···	
615-149			12 27 44.7	-03 15 00	11.9	12.82	···	1.13	2.61	1	8.753	8.123	7.858	···	
R 948 A/B[3]	LTT4730		12 28 53.1	-10 39 48	11.0	10.96	1.51	1.04	2.29	1	7.710	7.184	6.866	···	
675- 76/77[3]		2567	12 29 54.2	-05 27 23	12.7	12.76	1.64	1.20	2.76	1	8.805	8.249	7.960	···	
795- 38			12 37 21.5	-20 52 34	12.6	13.28	···	1.18	2.74	1	8.989	8.335	8.099	···	
LHS 2595	GJ 1162	2595	12 38 47.3	-04 19 16	13.0	13.56	···	1.19	2.74	1	9.327	8.757	8.462	50.7± 3.1	2
735- 29		5226	12 44 00.7	-11 10 30	13.6	14.18	···	1.29	3.00	2	9.508	8.964	8.683	···	
616- 13		2634	12 47 09.8	-03 34 17	12.2	12.60	···	1.10	2.49	1	8.767	8.133	7.914	···	
853- 34			12 47 10.0	-22 22 36	12.1	12.29	1.52	1.04	2.30	1	8.694	8.109	7.839	···	
676- 69			12 49 13.6	-04 50 47	12.3	10.87	1.24	0.75	1.38	1	8.577	8.019	7.907	···	
854- 3			12 56 13.3	-22 04 58	12.0	12.54	1.54	1.07	2.38	1	8.857	8.308	8.031	···	
-24:10619			12 56 30.0	-24 55 31	10.6	10.05	1.25	0.77	1.40	1	7.760	7.146	7.000	32.8± 1.5	1
616- 56		5231	12 59 18.2	00 10 33	12.4	12.92	···	1.13	2.64	1	8.828	8.201	7.987	···	
R 972	G014-018		13 00 03.9	-05 37 48	11.7	12.57	1.53	1.12	2.56	1	8.614	8.027	7.794	···	
617- 4			13 08 51.2	-01 31 07	12.2	12.77	···	1.10	2.49	1	8.902	8.370	8.084	···	
617- 37			13 20 24.9	-01 39 26	11.5	11.58	1.51	0.97	2.06	1	8.365	7.805	7.519	48.2± 3.0	1
911- 13		2739	13 27 19.6	-31 10 39	13.1	13.58	···	1.20	2.77	1	9.372	8.814	8.511	···	
798- 25		2783	13 42 09.9	-16 00 23	12.5	13.39	···	1.22	2.85	1	9.003	8.391	8.144	···	
798- 34		2794	13 45 50.7	-17 58 04	11.3	11.84	1.55	1.14	2.64	1	7.762	7.201	6.910	87.7± 4.3	1
798- 41			13 50 23.7	-21 37 19	12.9	13.56	···	1.16	2.67	1	9.468	8.862	8.640	···	
798- 44	LTT5375		13 50 44.0	-21 41 26	12.1	12.73	···	1.10	2.50	1	8.867	8.254	8.036	···	
798- 51			13 52 53.5	-18 20 16	11.3	11.80	1.51	1.00	2.15	1	8.459	7.846	7.594	41.2± 3.4	1
912- 33			13 57 13.0	-29 22 25	11.6	12.53	···	1.12	2.53	1	8.602	8.032	7.780	···	

Table 1—Continued

NLTT	Name	LHS	α (2000)	δ	m_r	V	B-V	V-R	V-I	n_{obs}	J	H	K_S	π_{trig}(mas)	Ref_π
739- 2			13 58 16.1	-12 02 58	13.7	14.41	···	1.30	3.01	2	9.740	9.220	8.892	···	
739- 3			13 58 19.5	-13 16 25	13.3	13.96	···	1.25	2.88	2	9.466	8.934	8.648	···	
799- 7		2836	13 59 10.4	-19 50 03	12.4	12.89	1.63	1.26	2.94	2	8.315	7.779	7.455	···	
739- 32		2879	14 12 41.9	-13 40 34	13.6	14.26	···	1.19	2.74	2	9.982	9.457	9.151	···	
R 845	Gl 540.2	2880	14 13 04.9	-12 01 26	13.1	13.83	···	1.29	3.02	2	9.056	8.467	8.201	···	
913- 13			14 21 48.9	-31 54 34	12.5	12.85	···	1.06	2.38	1	9.189	8.555	8.335	···	
W 1478	Gl 553.1	2932	14 31 01.2	-12 17 45	11.6	11.93	1.57	1.14	2.64	2	7.828	7.270	6.990	89.8± 3.5	1
914- 6			14 40 22.1	-27 52 41	13.6	13.58	···	1.14	2.61	1	9.574	9.062	8.787	···	
W 1501			14 41 59.1	-16 53 12	13.1	13.29	···	1.12	2.58	1	9.312	8.741	8.438	···	
R 499		2978	14 47 04.5	-12 44 26	12.0	12.08	1.52	0.98	2.08	1	8.851	8.232	8.008	37.7± 5.0	
-25:10553B	Gl 563.2B	379	14 49 31.5	-26 06 32	12.2	12.07	1.52	0.99	2.16	2	8.711	8.156	7.890	45.2± 3.5	1
-25:10553A	Gl 563.2A	380	14 49 33.3	-26 06 20	11.9	11.65	1.47	0.97	2.06	1	8.486	7.889	7.639	45.6±5.5	1
859- 11			15 08 23.4	-23 51 36	11.6	11.90	1.51	1.01	2.21	1	8.481	7.883	7.631	···	
859- 64			15 09 55.9	-23 59 00	12.1	11.66	1.54	0.95	1.93	1	8.608	8.053	7.818	···	
742- 61		3056	15 19 11.8	-12 45 06	12.5	12.84	1.53	1.19	2.77	1	8.470	7.845	7.553	···	
915- 41			15 31 39.8	-29 16 27	11.7	11.36	1.45	0.93	1.91	1	8.409	7.721	7.519	···	
R 802	Gl 592	3093	15 36 58.6	-14 08 00	12.1	12.72	1.58	1.19	2.76	1	8.432	7.854	7.570	74.9± 3.8	2
803- 60	Gl 595	54	15 42 06.7	-19 28 16	11.3	11.85	1.60	1.11	2.55	2	7.926	7.415	7.158	101.6± 4.4	2
916- 51		3109	15 43 19.6	-30 55 50	12.8	13.15	···	1.07	2.44	2	9.405	8.786	8.582	···	
916- 21			15 43 43.8	-33 30 01	13.9	14.25	···	1.15	2.63	1	10.192	9.557	9.270	···	
916- 23			15 44 05.4	-32 05 21	13.3	13.74	···	1.12	2.56	1	9.791	9.196	8.936	···	
916- 3			15 54 23.5	-33 08 43	12.1	12.02	1.46	0.95	2.00	1	8.860	8.211	8.038	···	
916- 45			15 55 36.9	-32 00 00	13.1	13.78	···	1.18	2.76	1	9.515	8.927	8.648	···	
743- 53			15 55 52.1	-11 54 19	12.0	12.80	1.53	1.09	2.49	1	8.983	8.397	8.075	···	
861- 12		3147	16 02 23.5	-25 05 56	12.6	13.19	···	1.10	2.55	1	9.294	8.688	8.398	···	
744- 46			16 02 35.0	-14 38 36	11.2	11.66	1.49	0.95	1.99	2	8.555	7.959	7.696	31.4± 4.0	1
917- 19			16 04 23.1	-33 03 39	11.5	10.07	1.36	0.85	1.66	1	7.355	6.735	6.541	43.0± 2.0	1
745- 8			16 25 01.4	-12 15 25	12.4	12.87	1.45	1.05	2.37	1	9.207	8.507	8.313	···	
-12:4523	Gl 628	419	16 30 18.0	-12 39 43	9.9	10.06	1.56	1.15	2.67	1	5.961	···	5.082	234.5± 1.8	1
806- 4			16 47 35.5	-19 44 26	11.9	12.04	1.48	1.00	2.17	1	8.655	8.055	7.793	···	
806- 5			16 47 41.4	-19 41 28	12.1	12.17	1.48	1.01	2.22	1	8.762	8.124	7.859	···	
747- 25	GJ 1217		17 22 42.9	-14 57 36	11.4	10.92	1.39	0.88	1.67	1	8.261	7.632	7.434	37.8± 2.5	1

Note. — Column 1 lists the designation from the NLTT catalogue: R=Ross, W=Wolf, Oxf=Oxford catalogue. We have added Lowell Observatory identifications (Giclas *et al.*, 1971). Column 2 lists an alternative name, usually from the pCNS3; Column 3 gives the LHS number; Columns 4 and 5 list the position of the 2MASS source; Column 6 lists m_r from the NLTT, and columns 7-10 list the optical photometry; column 11 gives the number of observations; Columns 12-14 list the 2MASS photometry; Column 15 lists the trigonometric parallax, if available, and column 16 gives the source of the astrometry: 1 - Hipparcos (ESA, 1997); 2 - Yale parallax catalogue (van Altena *et al.*, 1995).

Notes for individual stars : [1] - Two stars in aperture for optical photometry; in most cases, the second star is too faint to affect the VRI data.

[2] - possible variable.

[3] - Joint optical photometry for known binary: Ross 948/LP 735-11 - m_r(A)=11.0, m_r(B)=11.3, Δ = 4 arcsec; LP 793-24/25 - m_r(A)=11.9, m_r(B)=12.2, Δ = 4.5 arcsec; LP 675-76/77 - m_r(A)=12.7, m_r(B)=13.0, Δ = 8 arcsec; LP 726-11/12 - m_r(A)=12.7, m_r(B)=13.6, Δ = 8 arcsec.

[4] - Photometry from Weis (1996).

Table 2

Photometry: external comparison

Reference		V	(V-R)	(V-I)	N	(B-V)	N
Weis	Δ	-0.011	-0.006	-0.005	31	-0.049	21
	σ	0.033	0.018	0.024		0.171	
Bessell	Δ	-0.012	-0.003	-0.001	25	-0.014	25
	σ	0.022	0.009	0.014		0.017	
Eggen	Δ	-0.039	-0.037	-0.067	15	0.006	1
	σ	0.106	0.082	0.139			
Leggett	Δ	0.002	0.004	0.013	10	-0.024	8
	σ	0.012	0.008	0.009		0.009	
Patterson *et al.*	Δ	0.019	-0.016	0.014	3		
	σ	0.025	0.013	0.034			

Notes:
Residuals are given in the sense V_{SAAO} - V_{other}

Table 3. Distance Modulus Estimates for NLTT stars

NLTT	$(m-M)_{V-K}$	$(m-M)_{V-I}$	$(m-M)_{I-J}$	$(m-M)_{ph}$	$(m-M)_{\pi}$	d_f(pc)	M_K	M_V	20pc?
-21:368	0.76±0.41	0.63±0.40	0.94±0.42	0.77±0.24	2.35±2.39	15.5±2.0	5.82	10.21	Y
649- 30	2.15±0.41	2.21±0.40	2.13±0.42	2.16±0.24	2.29±0.15	28.1±1.7	5.11	8.87	N
-18:359	-0.51±0.41	-0.45±0.40	-0.50±0.42	-0.49±0.24	-0.12±0.04	9.3±0.2	5.85	10.37	Y
709- 40	1.11±0.41	1.10±0.40	1.34±0.42	1.18±0.24	1.49±0.15	19.0±1.1	5.87	10.35	Y
709- 43	1.20±0.41	1.41±0.40	1.34±0.42	1.32±0.24	0.77±0.57	16.8±1.9	6.96	11.92	Y+
885- 38	0.50±0.41	0.47±0.75	0.07±0.70	0.37±0.32	···	11.9±1.6	7.48	12.73	Y
941- 38	2.24±0.41	2.12±0.40	2.30±0.42	2.22±0.24	2.21±0.17	27.7±1.8	5.46	9.42	N
829- 51	1.72±0.41	1.62±0.75	1.18±0.70	1.54±0.32	···	20.4±2.8	7.46	12.66	?+
941-142	1.25±0.41	0.92±0.40	1.21±0.42	1.12±0.24	···	16.8±2.2	6.18	10.61	Y
-44:836	0.22±0.41	0.42±0.40	-0.60±0.70	0.12±0.27	···	10.5±1.4	7.15	12.21	Y+
993-116	-0.50±0.41	-1.01±0.22	-0.52±0.70	-0.78±0.19	···	7.0±0.9	7.97	13.45	Y +
G75-55	1.93±0.41	1.91±0.40	1.97±0.42	1.94±0.24	···	24.4±3.2	5.23	9.03	N
-26:1122	1.71±0.41	1.86±0.40	1.87±0.42	1.81±0.24	2.94±0.19	31.6±2.3	4.61	8.54	N
771- 77	0.71±0.41	1.06±0.40	1.13±0.42	0.97±0.24	···	15.6±2.0	6.78	11.82	Y
942-107	1.55±0.41	1.67±0.75	0.93±0.70	1.41±0.32	···	19.1±2.6	7.36	12.52	Y+
652- 74	1.61±0.41	1.68±0.40	1.96±0.42	1.75±0.24	···	22.3±2.9	6.71	11.63	?+
831- 45	0.78±0.41	0.97±0.40	1.08±0.42	0.94±0.24	···	15.4±2.0	6.68	11.60	Y+
887- 74	1.33±0.41	1.51±0.75	0.98±0.70	1.28±0.32	···	18.0±2.5	7.45	12.72	Y+
888- 6	2.31±0.41	2.30±0.40	2.54±0.42	2.38±0.24	···	30.0±3.9	5.63	9.81	N
G 77-51	3.42±0.41	3.57±0.40	3.84±0.42	3.61±0.24	···	52.7±6.8	4.75	8.22	N
653- 8	0.74±0.41	1.13±0.40	0.09±0.70	0.75±0.27	···	14.1±1.8	7.14	12.26	Y
HIP 17695	0.55±0.41	0.66±0.40	0.95±0.42	0.72±0.24	1.06±0.11	15.6±0.7	5.93	10.55	Y+
LHS 183	0.61±0.41	0.54±0.75	-0.14±0.70	0.39±0.32	-0.11±0.07	9.9±0.3	7.79	12.90	Y
833- 14	1.56±0.41	1.44±0.40	1.69±0.42	1.56±0.24	1.88±0.35	22.0±2.2	5.57	9.75	?+
- 7:699	0.79±0.41	0.82±0.40	0.92±0.42	0.84±0.24	0.94±0.04	15.3±0.3	4.72	8.10	Y
833- 42	0.55±0.41	0.59±0.40	-0.52±0.70	0.33±0.27	···	11.6±1.5	7.10	12.05	Y
889- 37	0.89±0.41	0.71±0.22	0.34±0.31	0.64±0.16	···	13.4±1.7	8.22	13.89	Y+
890- 8	2.84±0.41	2.73±0.40	2.94±0.42	2.84±0.24	···	36.9±4.8	6.14	10.62	N
714- 58	1.03±0.41	0.90±0.40	1.17±0.42	1.03±0.24	1.64±0.31	18.5±1.7	5.40	9.57	Y
654- 39	1.77±0.41	2.25±0.40	1.37±0.70	1.87±0.27	···	23.6±3.0	7.24	12.48	N
890- 27	0.55±0.41	0.18±0.22	0.00±0.31	0.21±0.16	···	11.0±1.4	8.22	13.82	Y+
834- 42	1.62±0.41	1.87±0.40	1.42±0.42	1.64±0.24	···	21.3±2.7	5.87	10.18	?
595- 23	2.11±0.41	1.96±0.40	2.39±0.42	2.15±0.24	···	26.9±3.5	5.40	9.36	N
834- 32	0.51±0.41	0.76±0.40	-0.46±0.70	0.39±0.27	···	12.0±1.5	7.03	11.99	Y+
890- 44	1.52±0.41	1.57±0.40	1.79±0.42	1.62±0.24	···	21.1±2.7	6.28	10.91	?+
890- 45	1.54±0.41	1.53±0.40	1.82±0.42	1.63±0.24	···	21.1±2.7	6.11	10.63	?+
890- 46	2.06±0.41	2.06±0.40	2.08±0.42	2.06±0.24	···	25.9±3.3	6.76	11.63	N

Table 3—Continued

NLTT	(m-M)$_{V-K}$	(m-M)$_{V-I}$	(m-M)$_{I-J}$	(m-M)$_{ph}$	(m-M)$_{\pi}$	d$_f$(pc)	M$_K$	M$_V$	20pc?
655- 43	0.94±0.41	0.65±0.22	1.21±0.70	0.83±0.19	···	14.7±1.9	8.00	13.60	Y+
715- 39	1.13±0.41	1.31±0.40	1.20±0.42	1.21±0.24	···	17.5±2.3	6.60	11.43	Y+
656- 9	2.34±0.41	2.18±0.40	2.33±0.42	2.28±0.24	···	28.6±3.7	5.59	9.63	N
776- 25	0.34±0.41	0.42±0.40	0.64±0.42	0.47±0.24	···	12.4±1.6	6.41	11.15	Y+
776- 27	0.64±0.41	0.61±0.40	0.73±0.42	0.66±0.24	0.46±0.05	12.5±0.3	6.08	10.41	Y
-11:1025	2.24±0.41	···	···	2.24±0.41	2.73±0.13	33.4±1.8	4.06	6.86	N
656- 38	-0.89±0.41	-1.46±0.22	-1.01±0.70	-1.22±0.19	···	5.7±0.7	7.96	13.38	Y
G 84-31	2.70±0.41	2.78±0.40	2.78±0.42	2.75±0.24	···	35.5±4.6	6.60	11.41	N
776- 46	0.25±0.41	0.43±0.40	0.64±0.42	0.44±0.24	-0.17±0.06	9.7±0.3	6.98	11.79	Y
777- 36	-1.59±0.41	-1.37±0.40	-1.36±0.42	-1.44±0.24	-0.15±0.04	8.7±0.2	5.64	10.61	Y
657- 4	1.69±0.41	1.55±0.75	1.30±0.70	1.55±0.32	···	20.4±2.8	7.53	12.80	?+
892- 26	1.82±0.41	1.69±0.40	1.89±0.42	1.80±0.24	···	22.9±3.0	5.95	10.29	?
717- 36	0.67±0.41	0.93±0.40	-0.29±0.70	0.56±0.27	···	12.9±1.7	7.03	12.00	Y+
W 1450	1.14±0.41	1.13±0.40	1.25±0.42	1.17±0.24	1.23±0.26	17.4±1.5	6.23	10.81	Y
892- 51	1.42±0.41	1.50±0.40	1.63±0.42	1.52±0.24	···	20.1±2.6	6.67	11.55	?
837- 19	1.63±0.41	1.54±0.40	1.82±0.42	1.66±0.24	···	21.5±2.8	6.14	10.64	?+
-6:1339	1.44±0.41	1.58±0.40	1.26±0.42	1.43±0.24	1.52±0.08	20.0±0.7	4.81	8.20	?
893- 23	2.47±0.41	2.23±0.40	2.64±0.42	2.45±0.24	···	30.8±4.0	5.70	9.85	N
838- 16	0.69±0.41	0.71±0.40	0.90±0.42	0.77±0.24	0.29±0.07	11.9±0.3	6.81	11.51	Y+
779- 34	2.92±0.41	3.02±0.40	2.82±0.42	2.92±0.24	···	38.4±5.0	5.50	9.52	N
839- 26	1.53±0.41	1.48±0.40	1.49±0.42	1.50±0.24	···	20.0±2.6	6.61	11.37	Y+
896- 12	2.86±0.41	2.65±0.40	3.41±0.42	2.97±0.24	···	39.2±5.1	5.59	9.77	N
896- 28	2.73±0.41	2.64±0.40	2.73±0.42	2.70±0.24	···	34.7±4.5	6.51	11.21	N
665- 49	3.03±0.41	3.11±0.40	3.02±0.42	3.05±0.24	···	40.8±5.3	4.87	8.29	N
665- 21	1.70±0.41	1.66±0.40	1.62±0.42	1.66±0.24	1.69±0.32	21.6±2.1	5.50	9.49	?
665- 22	1.90±0.41	1.73±0.40	1.92±0.42	1.85±0.24	···	23.4±3.0	6.06	10.46	N
665- 53	2.89±0.41	2.92±0.40	2.96±0.42	2.92±0.24	···	38.4±5.0	4.85	8.25	N
725- 25	1.45±0.41	1.60±0.40	1.63±0.42	1.56±0.24	···	20.5±2.7	5.87	10.24	?+
844- 8	0.09±0.41	0.48±0.40	-0.82±0.70	0.04±0.27	0.13±0.31	10.4±1.0	6.93	11.91	Y
186-166	3.13±0.41	2.83±0.40	3.27±0.42	3.07±0.24	···	41.2±5.3	5.47	9.42	N
G 114-14	1.82±0.41	1.74±0.40	2.05±0.42	1.87±0.24	···	23.6±3.0	6.35	10.99	N
726- 11	1.43±0.41	1.71±0.40	0.01±0.70	1.22±0.27	···	17.5±2.3	6.71	11.41	Y+
844- 28	0.36±0.41	0.19±0.22	-0.29±0.31	0.08±0.16	···	10.4±1.3	8.14	13.72	Y
- 8:2582	0.61±0.41	0.65±0.40	0.66±0.42	0.64±0.24	0.81±0.06	14.3±0.4	4.99	8.71	Y
LHS 6167	-0.70±0.41	-0.89±0.22	-0.97±0.31	-0.87±0.16	···	6.7±0.9	8.60	14.63	Y +
727- 31	2.09±0.41	2.10±0.40	2.30±0.42	2.16±0.24	···	27.1±3.5	5.78	10.07	N
R 439	1.52±0.41	1.36±0.40	1.82±0.42	1.56±0.24	1.18±0.15	18.3±1.1	6.32	10.78	Y

Table 3—Continued

NLTT	(m-M)$_{V-K}$	(m-M)$_{V-I}$	(m-M)$_{I-J}$	(m-M)$_{ph}$	(m-M)$_{\pi}$	d$_f$(pc)	M$_K$	M$_V$	20pc?
728- 5	2.53±0.41	2.38±0.40	2.70±0.42	2.53±0.24	···	32.1±4.1	5.97	10.34	N
788- 6	0.37±0.41	0.30±0.40	0.80±0.42	0.49±0.24	-0.23±0.04	9.3±0.2	6.61	11.06	Y
788- 20	1.88±0.41	1.95±0.40	2.34±0.42	2.05±0.24	···	25.7±3.3	6.01	10.51	N
788- 24	1.41±0.41	1.25±0.40	1.52±0.42	1.39±0.24	1.06±0.12	17.0±0.8	6.35	10.79	Y
788- 30	0.22±0.41	0.60±0.40	-0.55±0.70	0.20±0.27	···	10.9±1.4	7.08	12.13	Y
G 161-71	-0.98±0.41	-0.90±0.22	-1.24±0.31	-1.03±0.16	···	6.2±0.8	8.62	14.76	Y +
728- 77	3.20±0.41	3.36±0.40	3.25±0.42	3.27±0.24	···	45.1±5.8	4.52	7.52	N
728- 70	0.76±0.41	0.97±0.40	1.06±0.42	0.93±0.24	···	15.4±2.0	6.76	11.75	Y+
-11:2741	0.85±0.41	0.71±0.40	1.14±0.42	0.90±0.24	0.67±0.18	14.1±1.0	5.41	9.26	Y
788- 49	1.55±0.41	1.35±0.40	1.75±0.42	1.55±0.24	···	20.4±2.6	5.95	10.29	?+
728- 71	1.65±0.41	1.75±0.40	1.90±0.42	1.77±0.24	···	22.5±2.9	6.73	11.66	?+
- 2:3000	0.15±0.41	0.13±0.40	0.26±0.42	0.18±0.24	0.98±0.06	14.7±0.4	5.30	9.68	Y
728- 73	2.29±0.41	2.19±0.40	2.72±0.42	2.39±0.24	···	30.1±3.9	6.18	10.76	N
609- 71	0.12±0.41	-0.01±0.40	0.30±0.42	0.13±0.24	0.45±0.07	12.0±0.3	5.80	10.23	Y
- 3:2870	-0.77±0.41	-0.87±0.40	-0.54±0.42	-0.73±0.24	-0.54±0.03	7.8±0.1	5.56	9.79	Y
729- 61	0.23±0.41	0.26±0.40	0.28±0.42	0.26±0.24	0.69±0.07	13.2±0.4	5.85	10.38	Y
729- 54	1.44±0.41	1.50±0.40	1.53±0.42	1.49±0.24	···	19.8±2.6	6.71	11.58	Y+
790- 8	2.06±0.41	2.13±0.40	2.07±0.42	2.09±0.24	2.64±0.18	30.6±2.1	4.95	8.82	N
- 9:3070	0.44±0.41	0.38±0.40	0.39±0.42	0.40±0.24	0.48±0.05	12.4±0.3	5.57	9.67	Y
848- 54	2.82±0.41	2.84±0.40	3.10±0.42	2.92±0.24	···	38.4±5.0	6.04	10.52	N
-20:3198	1.82±0.41	1.60±0.40	2.42±0.42	1.94±0.24	···	24.5±3.2	4.73	8.10	N
670- 17	0.85±0.41	1.00±0.40	1.03±0.42	0.96±0.24	···	15.5±2.0	6.42	11.15	Y+
670- 23	0.62±0.41	0.67±0.40	0.76±0.42	0.69±0.24	1.13±0.11	15.9±0.7	5.78	10.28	Y
G 163-4	1.09±0.41	4.32±0.40	-0.80±0.31	1.33±0.21	···	18.5±2.4	7.56	13.10	Y+
791- 3	1.95±0.41	0.95±0.22	1.36±0.70	1.31±0.19	···	18.3±2.4	7.97	13.20	Y+
-18:3019	2.03±0.41	1.94±0.40	2.06±0.42	2.01±0.24	1.22±0.26	20.8±1.8	5.67	9.44	?
731- 16	2.19±0.41	2.36±0.40	2.49±0.42	2.34±0.24	···	29.4±3.8	6.68	11.59	N
671- 8	0.63±0.41	1.04±0.75	0.24±0.70	0.62±0.32	···	13.3±1.8	7.36	12.61	Y+
731- 76	0.59±0.41	0.38±0.22	0.05±0.31	0.32±0.16	···	11.6±1.5	8.33	14.06	Y+
611- 70	3.04±0.41	3.12±0.40	3.39±0.42	3.18±0.24	···	43.3±5.6	5.44	9.52	N
672- 2	1.57±0.41	1.65±0.40	1.71±0.42	1.64±0.24	3.24±0.84	25.9±3.2	5.86	10.48	N
792- 9	1.99±0.41	2.15±0.40	2.63±0.42	2.25±0.24	0.99±0.23	20.2±1.6	7.22	12.10	?
-17:3337	1.78±0.41	1.84±0.40	1.81±0.42	1.81±0.24	0.99±0.23	18.5±1.5	5.27	8.61	Y
-13:3333	1.55±0.41	1.54±0.40	1.69±0.42	1.59±0.24	1.22±0.07	18.1±0.5	5.20	8.69	Y
792- 16	1.71±0.41	1.80±0.40	1.96±0.42	1.82±0.24	···	23.1±3.0	6.36	11.05	N
792- 17	1.53±0.41	1.56±0.40	1.86±0.42	1.65±0.24	···	21.4±2.8	6.05	10.54	?+
792- 20	1.73±0.41	1.76±0.40	2.08±0.42	1.85±0.24	···	23.5±3.0	6.46	11.22	N

Table 3—Continued

NLTT	$(m-M)_{V-K}$	$(m-M)_{V-I}$	$(m-M)_{I-J}$	$(m-M)_{ph}$	$(m-M)_{\pi}$	d_f(pc)	M_K	M_V	20pc?
732- 35	0.53±0.41	0.18±0.22	-0.05±0.31	0.19±0.16	···	10.9±1.4	8.32	13.98	Y
792- 33	2.04±0.41	1.87±0.40	2.03±0.42	1.98±0.24	1.80±0.13	23.5±1.2	5.63	9.60	N
793- 25	2.53±0.41	2.49±0.40	2.68±0.42	2.56±0.24	···	32.6±4.2	5.46	9.46	N
733- 71	0.76±0.41	0.83±0.40	0.98±0.42	0.86±0.24	1.55±0.14	18.5±1.0	5.76	10.35	Y
733- 24	1.51±0.41	1.76±0.40	0.27±0.70	1.33±0.27	···	18.5±2.4	6.84	11.66	Y
852- 5	1.87±0.41	2.09±0.40	2.05±0.42	2.01±0.24	···	25.2±3.2	6.38	11.09	N
734- 30	1.65±0.41	1.87±0.40	1.81±0.42	1.78±0.24	···	22.7±2.9	6.25	10.88	?+
734- 32	-0.51±0.41	0.04±0.40	-0.85±0.70	-0.37±0.27	···	8.4±1.1	7.23	12.49	Y
734- 34	0.96±0.41	0.31±0.22	0.64±0.70	0.56±0.19	···	12.9±1.7	7.87	13.19	Y+
794- 30	0.65±0.41	0.67±0.40	1.09±0.42	0.80±0.24	0.54±0.08	13.1±0.5	6.45	11.10	Y
794- 31	0.90±0.41	1.08±0.40	1.34±0.42	1.11±0.24	···	16.6±2.1	6.61	11.52	Y
852- 59	2.83±0.41	2.68±0.40	3.26±0.42	2.92±0.24	···	38.3±4.9	4.73	8.05	N
R 691	2.61±0.41	2.53±0.40	2.67±0.42	2.60±0.24	···	33.2±4.3	5.42	9.37	N
G 13-33	1.56±0.41	2.03±0.40	1.08±0.70	1.64±0.27	···	21.2±2.7	7.20	12.40	?+
735- 48	1.87±0.41	1.40±0.40	1.46±0.42	1.58±0.24	···	20.7±2.7	6.49	11.01	?+
615-149	0.95±0.41	1.31±0.40	0.01±0.70	0.88±0.27	···	15.0±1.9	6.98	11.94	Y+
R 948	0.40±0.41	1.08±0.40	-0.93±0.70	0.37±0.27	···	11.8±1.5	6.50	11.19	Y
675- 76	0.22±0.41	1.42±0.40	-0.89±0.31	0.15±0.21	···	10.7±1.4	7.81	13.31	Y
795- 38	0.85±0.41	1.33±0.40	0.34±0.70	0.93±0.27	···	15.3±2.0	7.17	12.35	Y+
LHS 2595	1.34±0.41	1.61±0.40	0.62±0.70	1.29±0.27	1.47±0.14	19.2±1.1	7.05	12.15	Y
735- 29	0.94±0.41	0.48±0.22	0.16±0.31	0.49±0.16	···	12.5±1.6	8.20	13.70	Y+
616- 13	1.45±0.41	1.48±0.40	1.62±0.42	1.52±0.24	···	20.1±2.6	6.40	11.09	?
853- 34	1.75±0.41	1.76±0.40	1.81±0.42	1.77±0.24	···	22.6±2.9	6.07	10.52	?+
676- 69	3.35±0.41	3.38±0.40	3.11±0.42	3.28±0.24	···	45.4±5.9	4.62	7.58	N
854- 3	1.84±0.41	1.77±0.40	1.89±0.42	1.83±0.24	···	23.3±3.0	6.20	10.71	N
-24:10619	2.38±0.41	2.49±0.40	2.39±0.42	2.42±0.24	2.42±0.10	30.5±1.3	4.58	7.63	N
616- 56	1.14±0.41	1.29±0.40	1.24±0.42	1.22±0.24	···	17.6±2.3	6.76	11.69	Y+
R 972	1.19±0.41	1.22±0.40	1.25±0.42	1.22±0.24	···	17.5±2.3	6.57	11.35	Y
617- 4	1.62±0.41	1.65±0.40	1.61±0.42	1.63±0.24	···	21.2±2.7	6.45	11.14	?+
617- 37	1.96±0.41	1.89±0.40	2.01±0.42	1.95±0.24	1.58±0.14	21.9±1.2	5.82	9.88	N
911- 13	1.45±0.41	1.51±0.40	1.83±0.42	1.59±0.24	···	20.8±2.7	6.92	11.98	?
798- 25	0.80±0.41	0.59±0.75	0.34±0.70	0.62±0.32	···	13.3±1.8	7.53	12.77	Y
798- 34	0.07±0.41	0.24±0.40	0.21±0.42	0.17±0.24	0.29±0.11	11.2±0.5	6.65	11.58	Y
798- 41	1.80±0.41	1.85±0.40	1.98±0.42	1.88±0.24	···	23.7±3.1	6.76	11.68	N
798- 44	1.56±0.41	1.58±0.40	1.65±0.42	1.60±0.24	···	20.9±2.7	6.44	11.13	?
798- 51	1.85±0.41	1.77±0.40	2.00±0.42	1.87±0.24	1.93±0.19	24.0±1.7	5.69	9.89	N
912- 33	1.21±0.41	1.27±0.40	1.23±0.42	1.24±0.24	···	17.7±2.3	6.54	11.30	Y+

Table 3—Continued

NLTT	(m-M)$_{V-K}$	(m-M)$_{V-I}$	(m-M)$_{I-J}$	(m-M)$_{ph}$	(m-M)$_{\pi}$	d$_f$(pc)	M$_K$	M$_V$	20pc?
739- 2	1.13±0.41	0.69±0.22	0.40±0.31	0.70±0.16	···	13.8±1.8	8.19	13.71	Y+
739- 3	1.19±0.41	0.77±0.75	0.88±0.70	1.00±0.32	···	15.8±2.2	7.65	12.96	Y+
799- 7	-0.19±0.41	-0.64±0.22	-0.24±0.70	-0.44±0.19	···	8.2±1.1	7.90	13.33	Y
739- 32	2.01±0.41	2.31±0.40	1.32±0.70	1.97±0.27	···	24.8±3.2	7.18	12.29	N
R 845	0.27±0.41	0.07±0.22	-0.42±0.31	-0.04±0.16	···	9.8±1.3	8.24	13.87	Y
913- 13	2.14±0.41	2.07±0.40	2.35±0.42	2.19±0.24	···	27.4±3.5	6.15	10.66	N
W 1478	0.13±0.41	0.32±0.40	-0.91±0.70	-0.03±0.27	0.23±0.09	10.8±0.4	6.81	11.75	Y
914- 6	2.16±0.41	2.06±0.40	2.24±0.42	2.15±0.24	···	26.9±3.5	6.64	11.43	N
W 1501	1.71±0.41	1.88±0.40	1.92±0.42	1.84±0.24	···	23.3±3.0	6.60	11.46	N
R 499	2.44±0.41	2.31±0.40	2.53±0.42	2.43±0.24	2.12±0.31	28.5±2.7	5.73	9.80	N
-25:10553B	2.17±0.41	2.02±0.40	2.19±0.42	2.13±0.24	1.71±0.28	24.1±2.2	5.98	10.17	N
-25:10553A	2.14±0.41	1.96±0.40	2.32±0.42	2.14±0.24	1.72±0.18	23.7±1.6	5.76	9.78	N
859- 11	1.79±0.41	1.67±0.40	1.93±0.42	1.80±0.24	···	22.9±3.0	5.84	10.11	?+
859- 64	2.52±0.41	2.43±0.40	2.37±0.42	2.44±0.24	···	30.7±4.0	5.38	9.22	N
742- 61	0.13±0.41	0.77±0.40	-0.13±0.70	0.33±0.27	···	11.6±1.5	7.23	12.52	Y
915- 41	2.22±0.41	2.20±0.40	2.46±0.42	2.29±0.24	···	28.7±3.7	5.23	9.07	N
R 802	0.38±0.41	0.69±0.40	-0.24±0.70	0.36±0.27	0.63±0.11	12.9±0.6	7.02	12.16	Y
803- 60	0.68±0.41	0.55±0.40	0.63±0.42	0.62±0.24	-0.03±0.10	10.6±0.4	7.03	11.73	Y
916- 51	2.31±0.41	2.19±0.40	2.46±0.42	2.32±0.24	···	29.1±3.8	6.26	10.83	N
916- 21	2.35±0.41	2.68±0.40	2.69±0.42	2.57±0.24	···	32.7±4.2	6.70	11.67	N
916- 23	2.29±0.41	2.38±0.40	2.48±0.42	2.38±0.24	···	30.0±3.9	6.55	11.36	N
916- 3	2.58±0.41	2.53±0.40	2.49±0.42	2.53±0.24	···	32.1±4.1	5.51	9.49	N
916- 45	1.48±0.41	1.74±0.40	0.82±0.70	1.43±0.27	···	19.3±2.5	7.22	12.35	Y+
743- 53	1.55±0.41	1.68±0.40	1.92±0.42	1.71±0.24	···	22.0±2.8	6.36	11.09	?+
861- 12	1.77±0.41	1.87±0.40	2.17±0.42	1.93±0.24	···	24.4±3.1	6.46	11.25	N
744- 46	2.26±0.41	2.21±0.40	2.37±0.42	2.28±0.24	2.52±0.30	30.2±2.8	5.30	9.26	N
917- 19	1.56±0.41	1.72±0.40	1.41±0.42	1.57±0.24	1.83±0.10	22.5±1.0	4.78	8.30	N
745- 8	2.05±0.41	2.14±0.40	2.29±0.42	2.16±0.24	···	27.0±3.5	6.15	10.71	N
-12:4523	-1.85±0.41	-1.66±0.40	-1.56±0.42	-1.69±0.24	-1.85±0.02	4.3±0.0	6.92	11.91	Y
806- 4	1.99±0.41	1.96±0.40	2.09±0.42	2.01±0.24	···	25.2±3.3	5.78	10.03	N
806- 5	1.96±0.41	1.94±0.40	2.26±0.42	2.05±0.24	···	25.7±3.3	5.81	10.12	N
747- 25	2.49±0.41	2.55±0.40	2.53±0.42	2.52±0.24	2.11±0.15	28.2±1.7	5.19	8.67	N

Note. — Column 1 lists the designation from the NLTT catalogue, adding Lowell Observatory identifications; Column 2 gives the distance modulus derived from the (V-K$_S$) photometric parallax; Columns 3 and 4 list distance moduli based on (V-I) and (I-J), respectively, for stars with I-band photometry; Column 5 gives the weighted average of the photometric parallax measurements; Column 6 lists the distance modulus indicated by the trigonometric parallax;
Column 8 gives our final estimate of the distance, based on a weighted average of the photometric average and the trigonometric result;
Columns 9 and 10 list the resultant absolute magnitudes at K and V, respectively;
Column 11 indicates whether the star lies within our distance limit of 20 parsecs (Y), within 1σ of the boundary (?) or beyond the limit (N).A (+) indicates that the star is not included in the pCNS3.
[1] - binary stars where we have joint photometry for both components. We have used the NLTT magitudes to estimate the relative contribution, and the distance and absolute magnitrudes are based on the estimated optical/near-infrared colours of the primary.

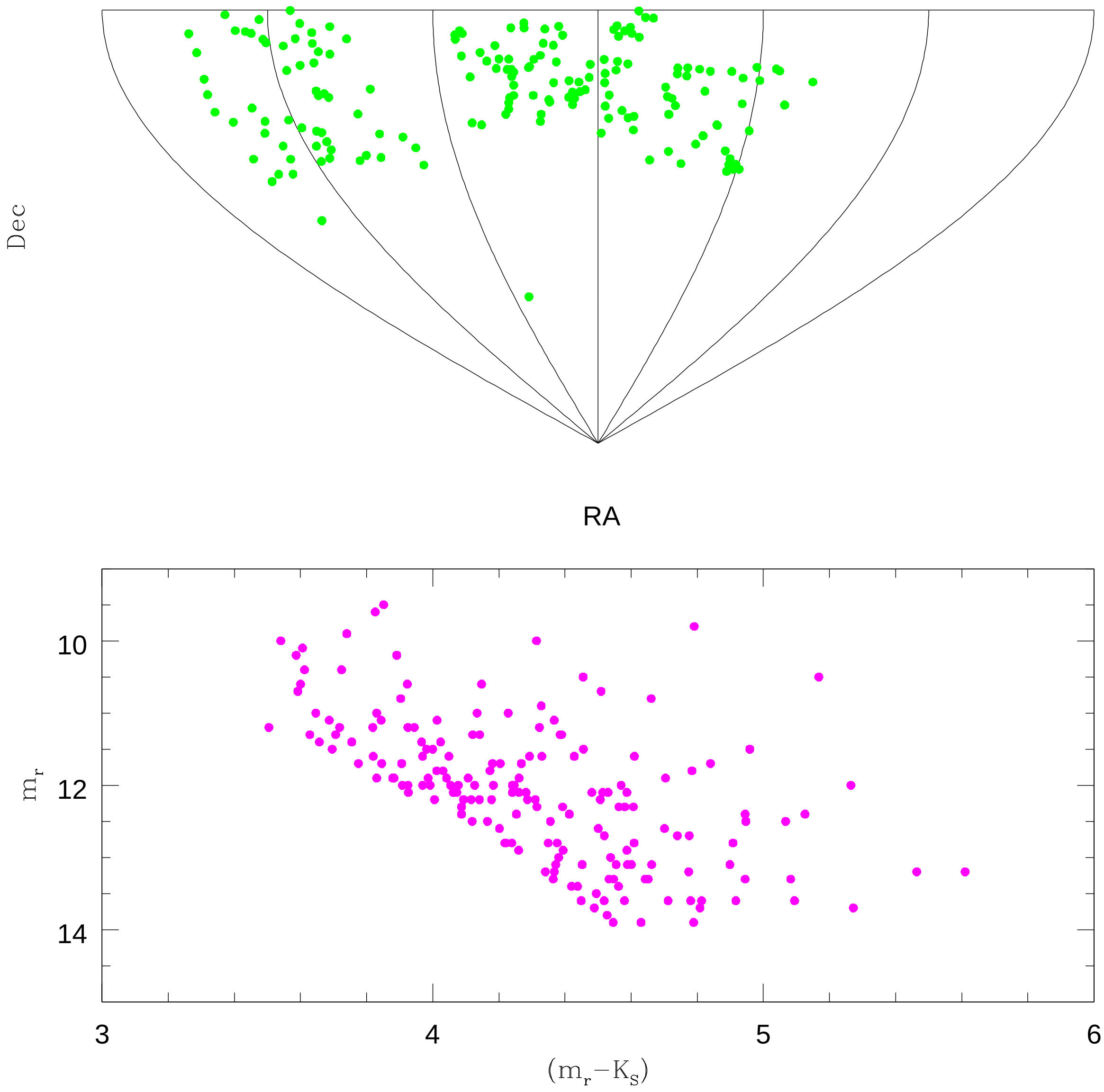

Fig. 1.— The (α, δ) and colour-magnitude distributions of the stars in the present sample. The grid lines in the Aitoff projection in the upper diagram are plotted at a spacing of 4 hours in Right Ascension. The lower diagram combines photometry from the NLTT catalogue and the 2MASS database.

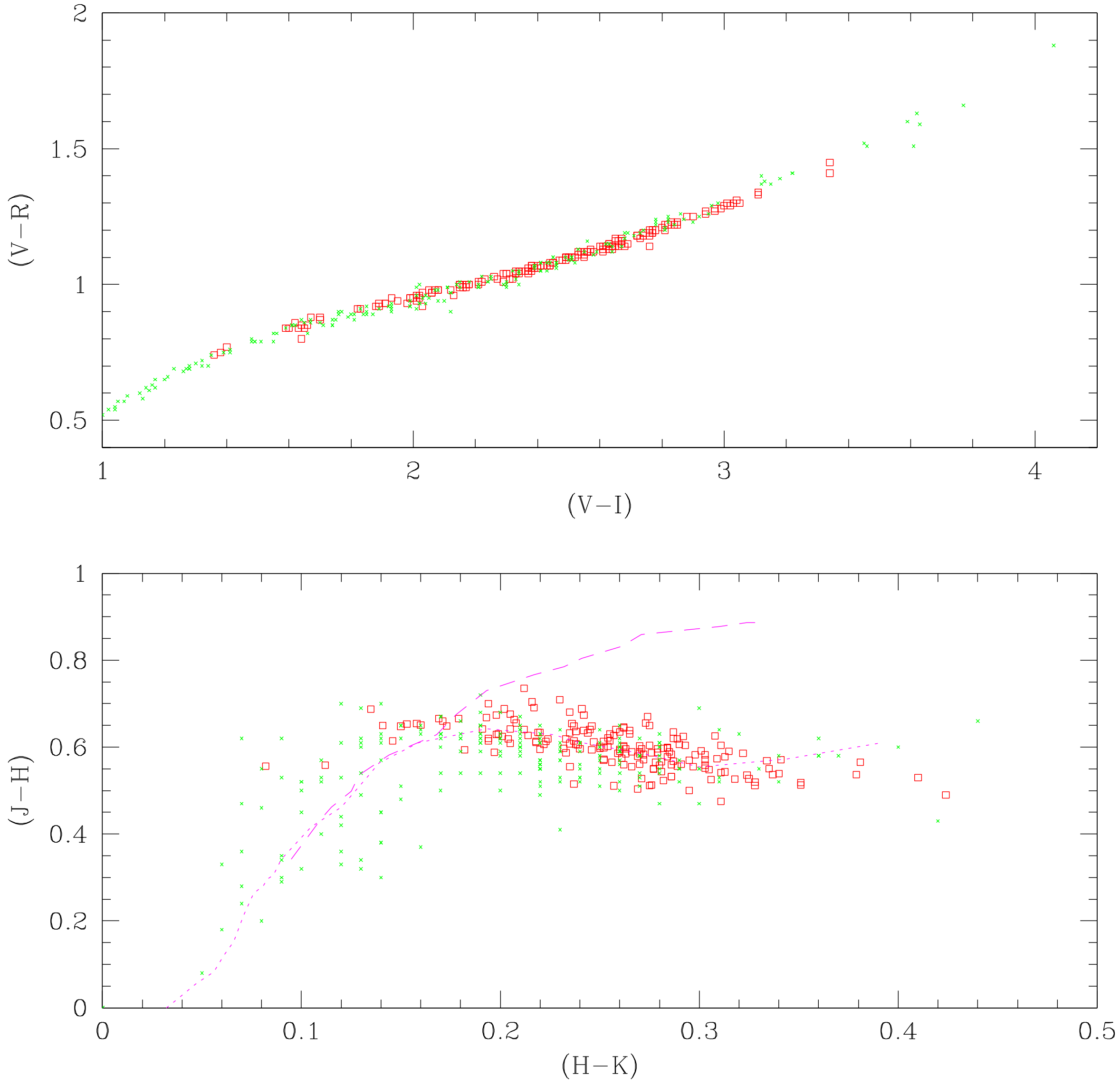

Fig. 2.— (V-R), (V-I)) and ((J-H), (H-K)) two-colour diagrams. NLTT stars from Table 1 are plotted as open squares, while crosses plot data for nearby stars with accurate trigonometric parallaxes. Photometry for the latter stars is from Bessell (1990) and Leggett (1992), supplemented, where necessary, by 2MASS near-infrared data. The dotted line in the JHK diagram marks the mean relation for main-sequence stars, while the dashed line plots the giant sequence (from Bessell & Brett, 1988, transformed to the 2MASS system following Carpenter, 2001).

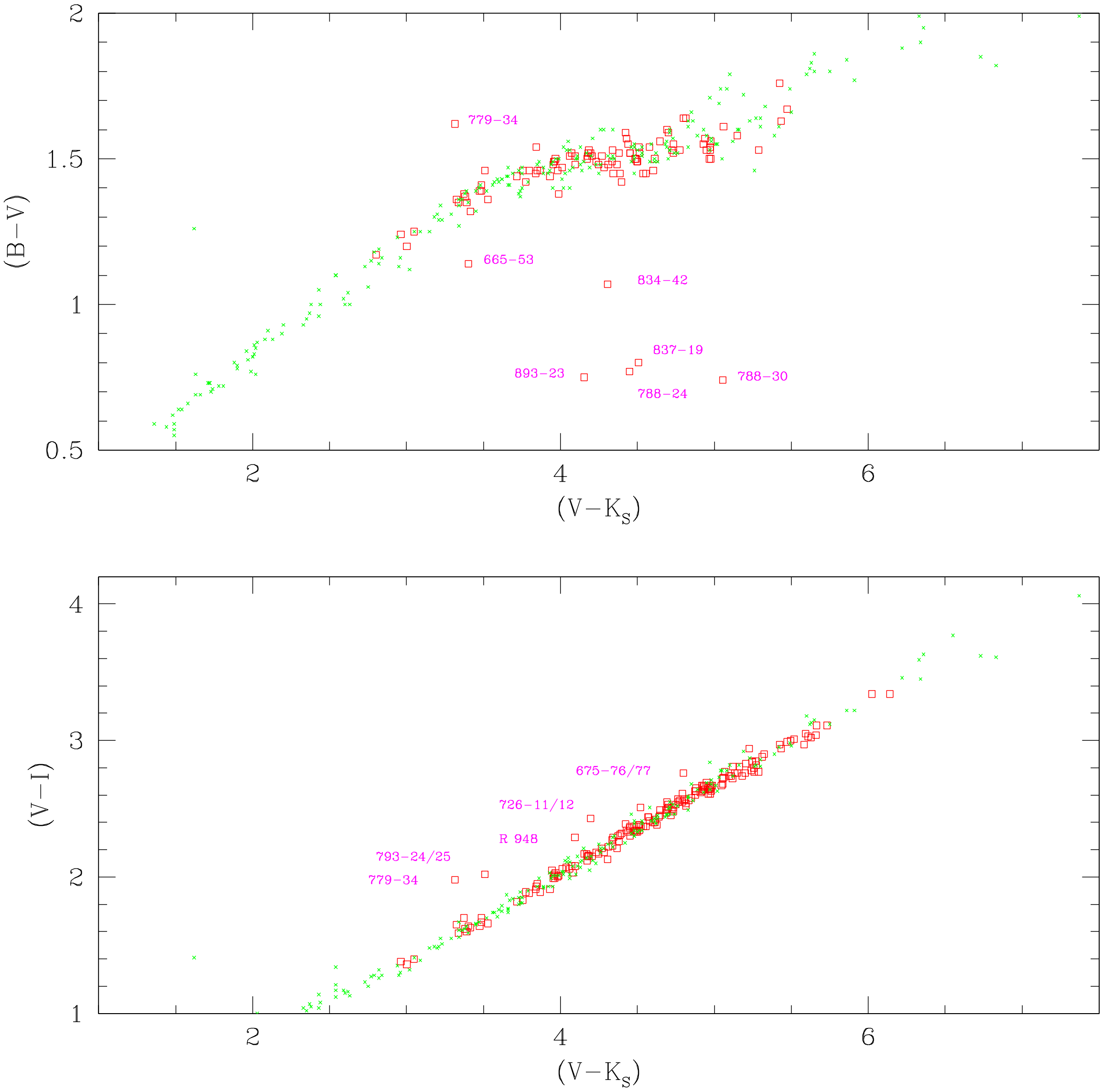

Fig. 3.— Optical/near-infrared colour-magnitude diagrams for the stars listed in Table 1. As in Figure 2, crosses are data for known nearby stars. The outliers are discussed in the text.

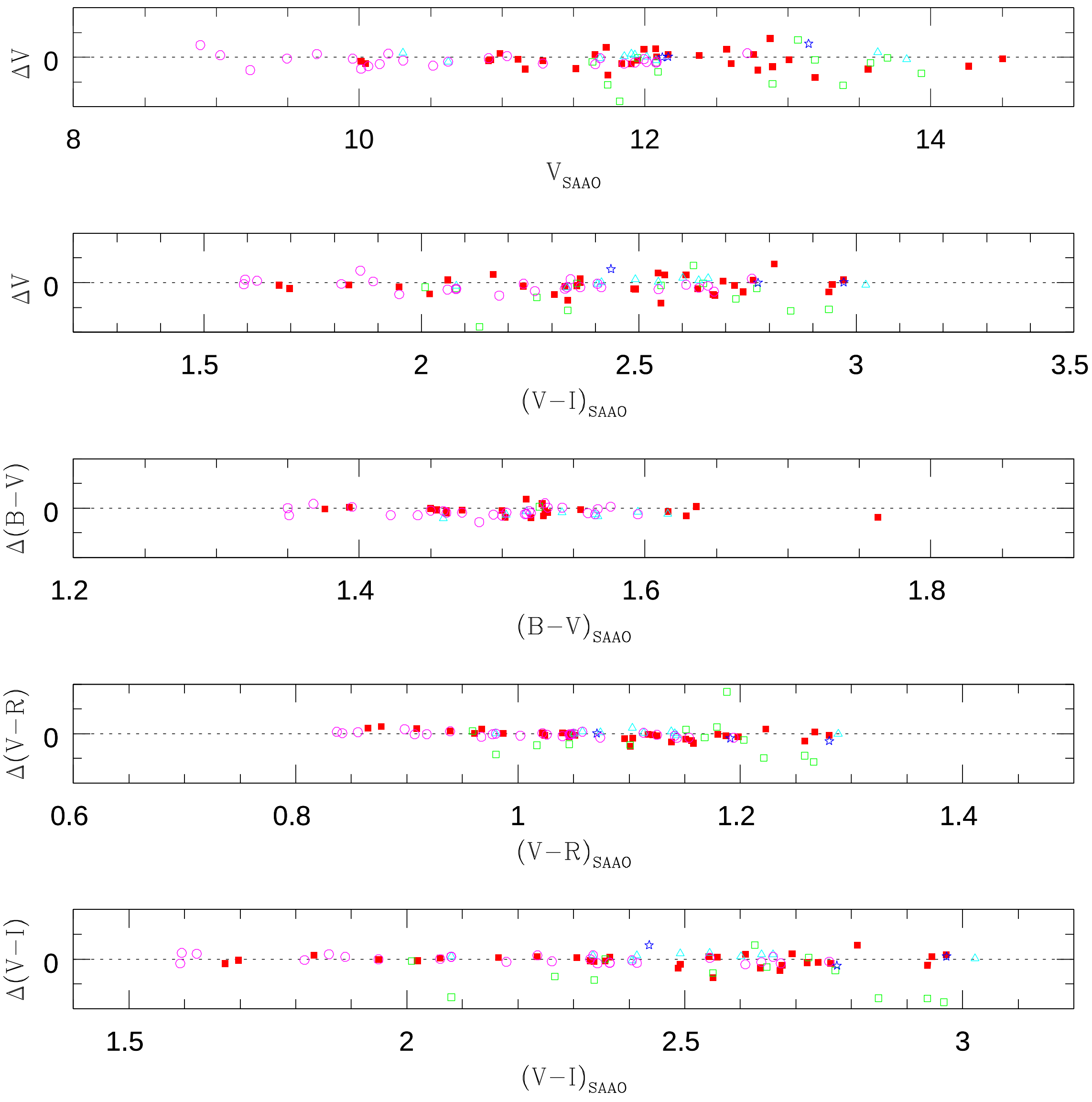

Fig. 4.— Comparison between our SAAO photometry and previously published data: solid squares mark observations by Weis; open circles are from Bessell; open squares are from Eggen; triangles are from Leggett; and five-point stars are data from Patterson *et al.*. The tick marks on the vertical scale correspond to intervals of 0.1 magnitude.

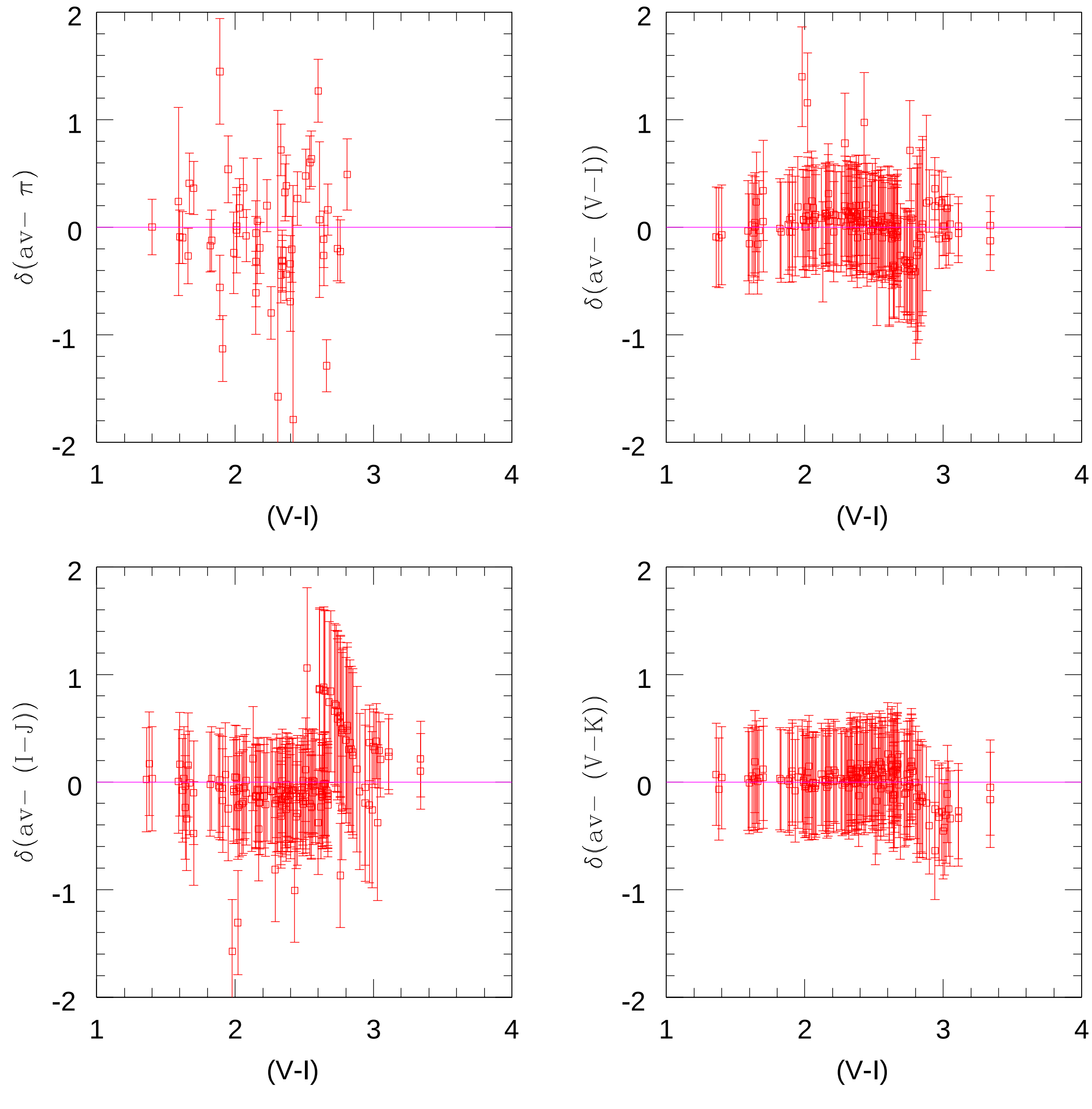

Fig. 5.— Residuals between the averaged distance modulus and individual estimators. plotted as a function of (V-I) colour. The increased residuals near (V-I)$\sim$ 2.9 reflect the steepening in the main-sequence at that colour.

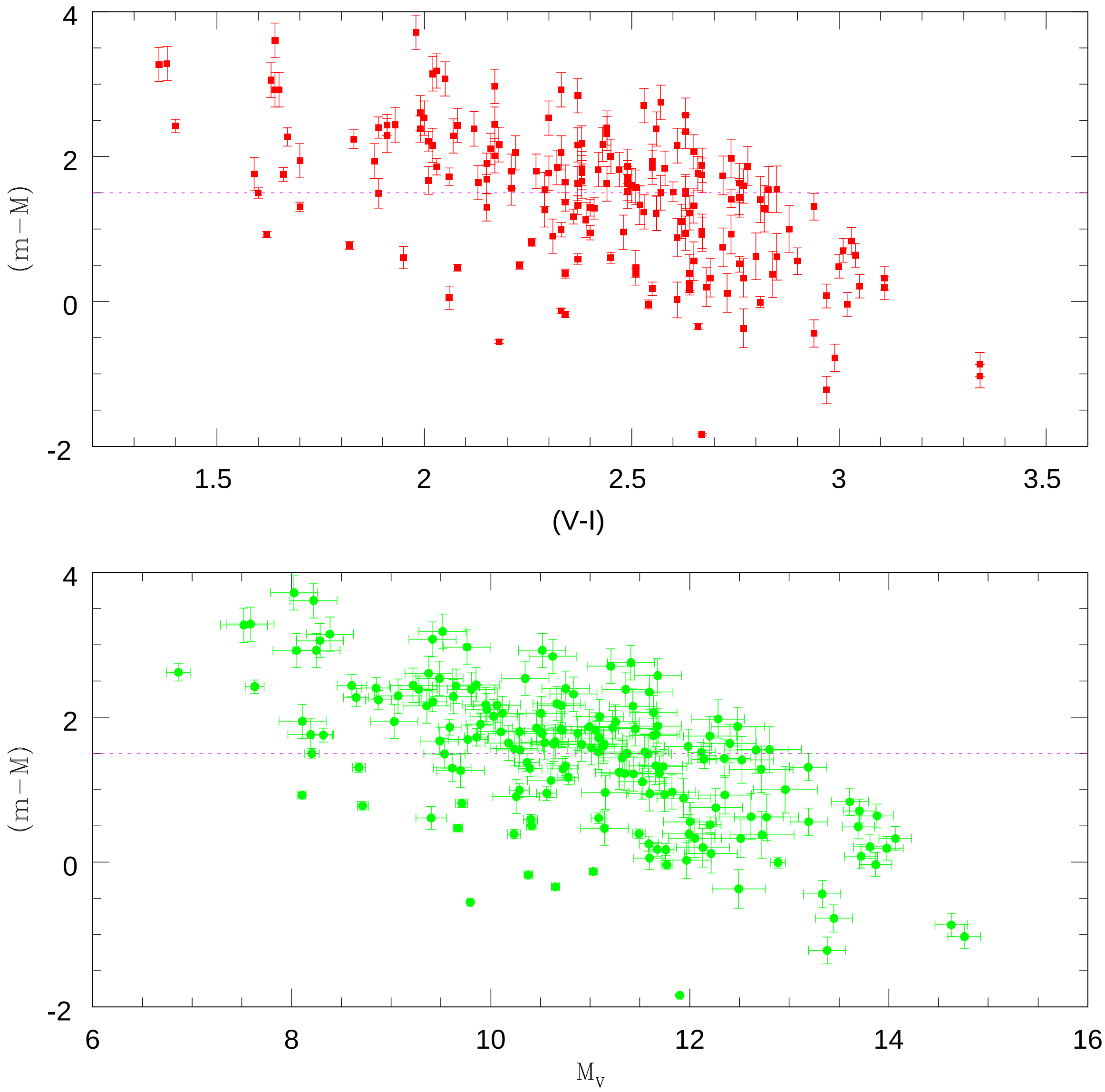

Fig. 6.— The distance distribution of the stars in Table 1 as a function of both (V-I) colour and the inferred absolute magnitude. The dotted line marks a distance of 20 parsecs.