nebulosity. NGC 3242 is the bright round object. The nebulosity shows a distinct filamentary structure, reminiscent of the Cygnus loop. There would seem to be four possible interpretations, of which only the last is uninteresting: (1) The nebulosity is related to NGC 3242 (possibly a remnant of a previous shell) and, perhaps by collision with interstellar material, is responsible for the major part of the non-thermal radio spectrum. (2) The nebulosity is related to NGC 3242 but is not responsible for the peculiar radio spectrum. (3) The nebulosity is not related to NGC 3242 but is the primary origin of the peculiar radio spectrum—possibly a weak Cygnus-loop type of object. (4) The nebulosity is not related to NGC 3242 and produces no significant radio emission.

The planetary does not appear to be at the center of curvature of the filamentary nebula, but, on the other hand, it is an object with a multiple shell (Curtis 1918). Also the filamentary structure seems most prominent close to the planetary. The radio observations, with a beam width of 10′, were made by scanning in declination, i.e., roughly parallel to the nebulosity. If it were a strong radio emitter, one would have expected the records to show (*a*) some sign of an extended source and (*b*) a radio position differing by up to 10′ in R.A. from the optical position of NGC 3242. Neither of these effects is reported by Menon and Terzian. Finally, we note that NGC 3132, reported as non-thermal by Slee and Orchiston (although possibly not significant in view of the observational errors), shows no sign of such a nebulosity in its vicinity. It has a much larger apparent diameter than NGC 3242 but yet is fainter at radio wavelengths by about a factor of 5.

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REFERENCES

Curtis, H. D. 1918, *Pub. Lick. Obs.*, **23**, 57.
Menon, T. K., and Terzian, Y. 1965, *Ap. J.*, **141**, 745.
Slee, O. B., and Orchiston, D. W. 1965, *Australian J. Phys.*, **18**, 187.

FURTHER OBSERVATIONS OF EXTREMELY COOL STARS*

During the past year a group at the California Institute of Technology has continued a survey of the sky for objects which emit in the 2.0–2.5-μ atmospheric window. The positions of two of the reddest sources found in this survey have been published (Neugebauer, Martz, and Leighton 1965). In this note we list some further bright and red sources to provide other observers with the coordinates of potentially interesting objects. The normal data reduction process of the survey has been bypassed to facilitate the quick selection of individual sources; no attempt has been made to insure the completeness of the list.

As described previously, observations are made with a 62-inch telescope at both 2.0–2.4 μ (K) and 0.7–0.9 μ (I), and a strip of sky 3° wide in declination is scanned each night. At the present time, the region between −33° and +81° declination has been surveyed although the data have not been fully reduced. Typically between 200 and 500 sources brighter than K-magnitude 4.0 are recorded each night.

Table 1 includes magnitudes and coordinates of fourteen stars brighter than $K \sim 3$ and having infrared color index $I - K \gtrsim 6$. Some additional magnitude measurements, obtained with the 62-inch telescope on nights when the regular survey was not being

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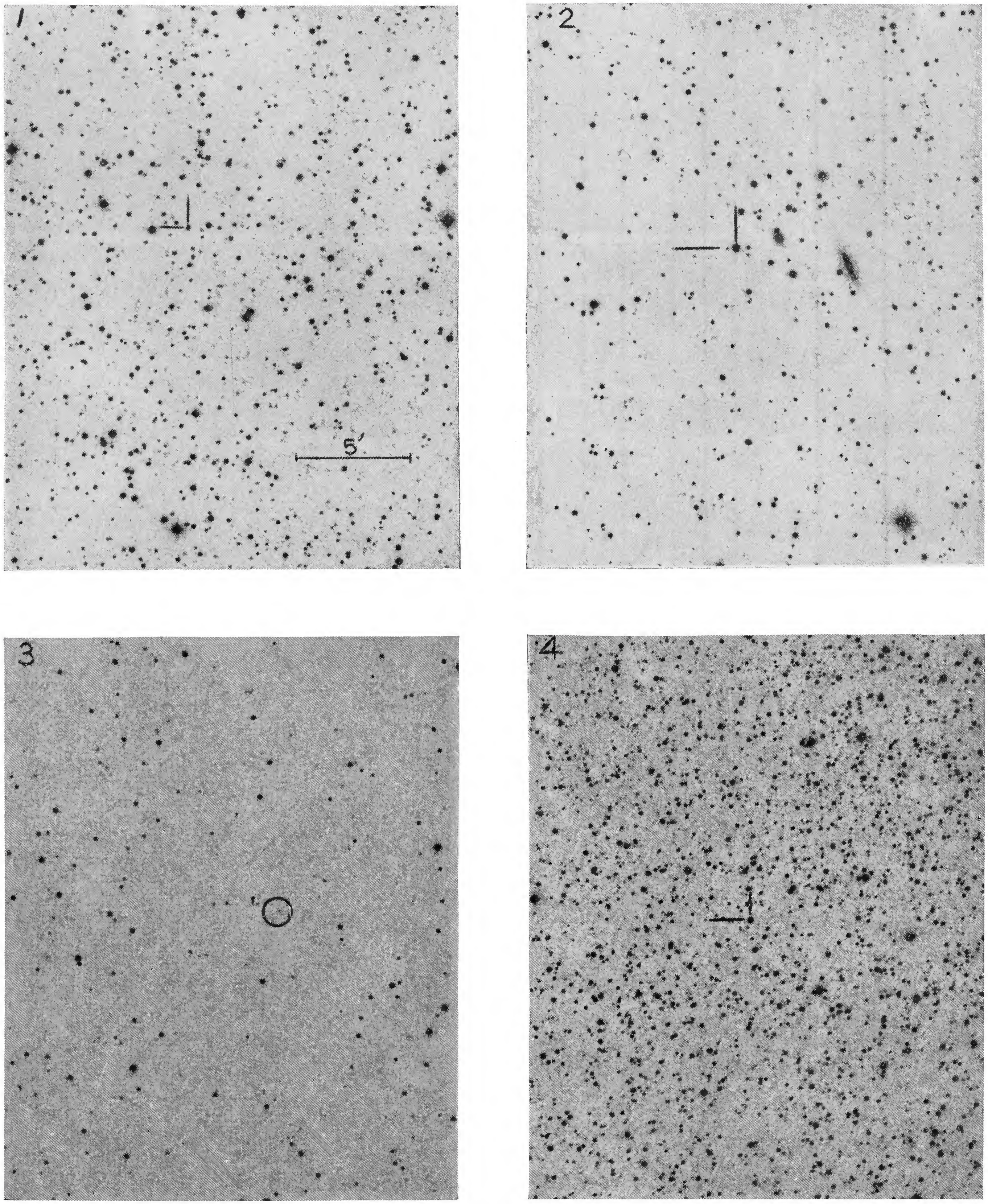

FIG. 1.—Finding charts for stars 1–4. The scale given with source No. 1 applies to all finding charts. On all the finding charts, north is toward the top and east is to the left.

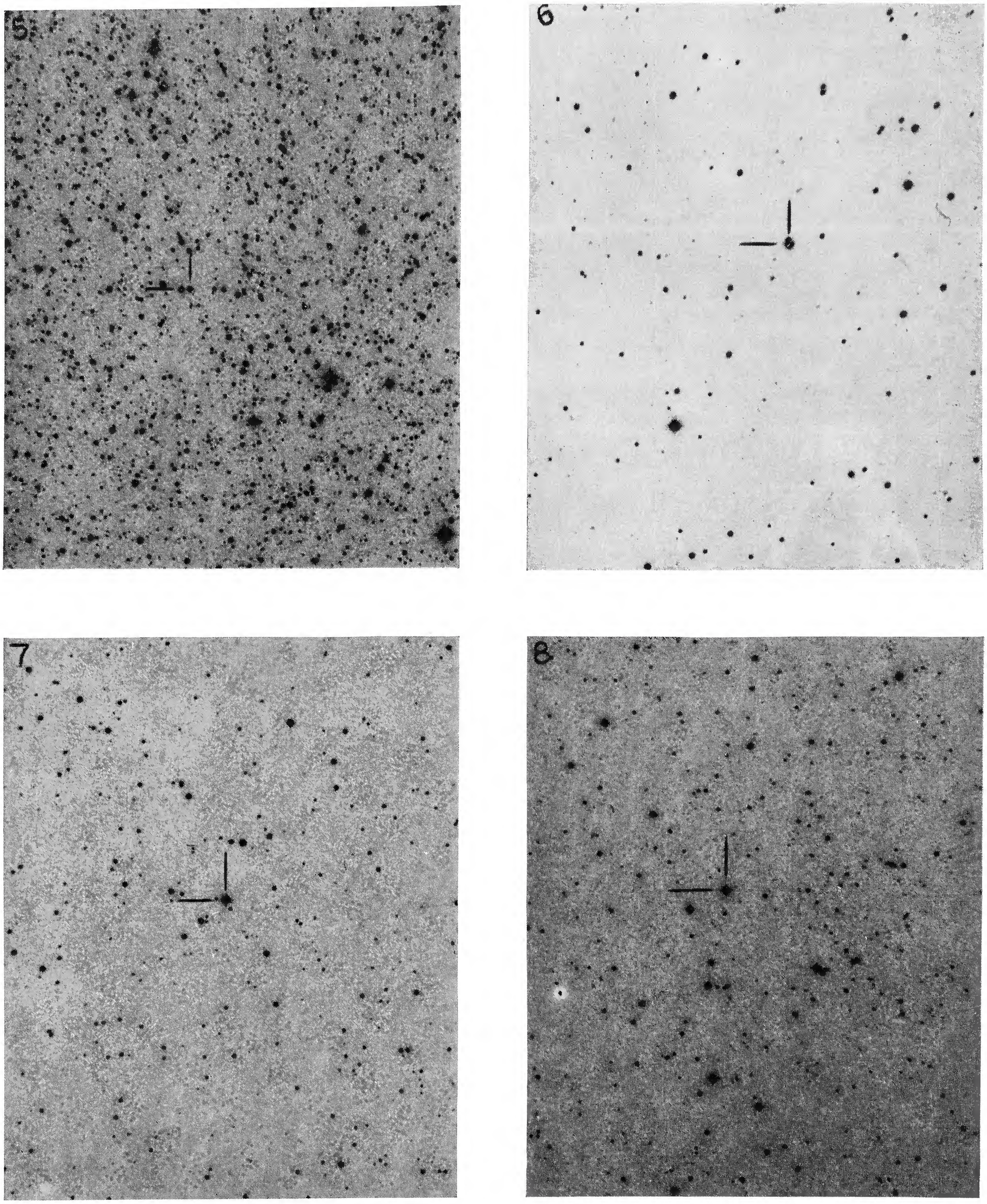

FIG. 2.—Finding charts for stars 5–8

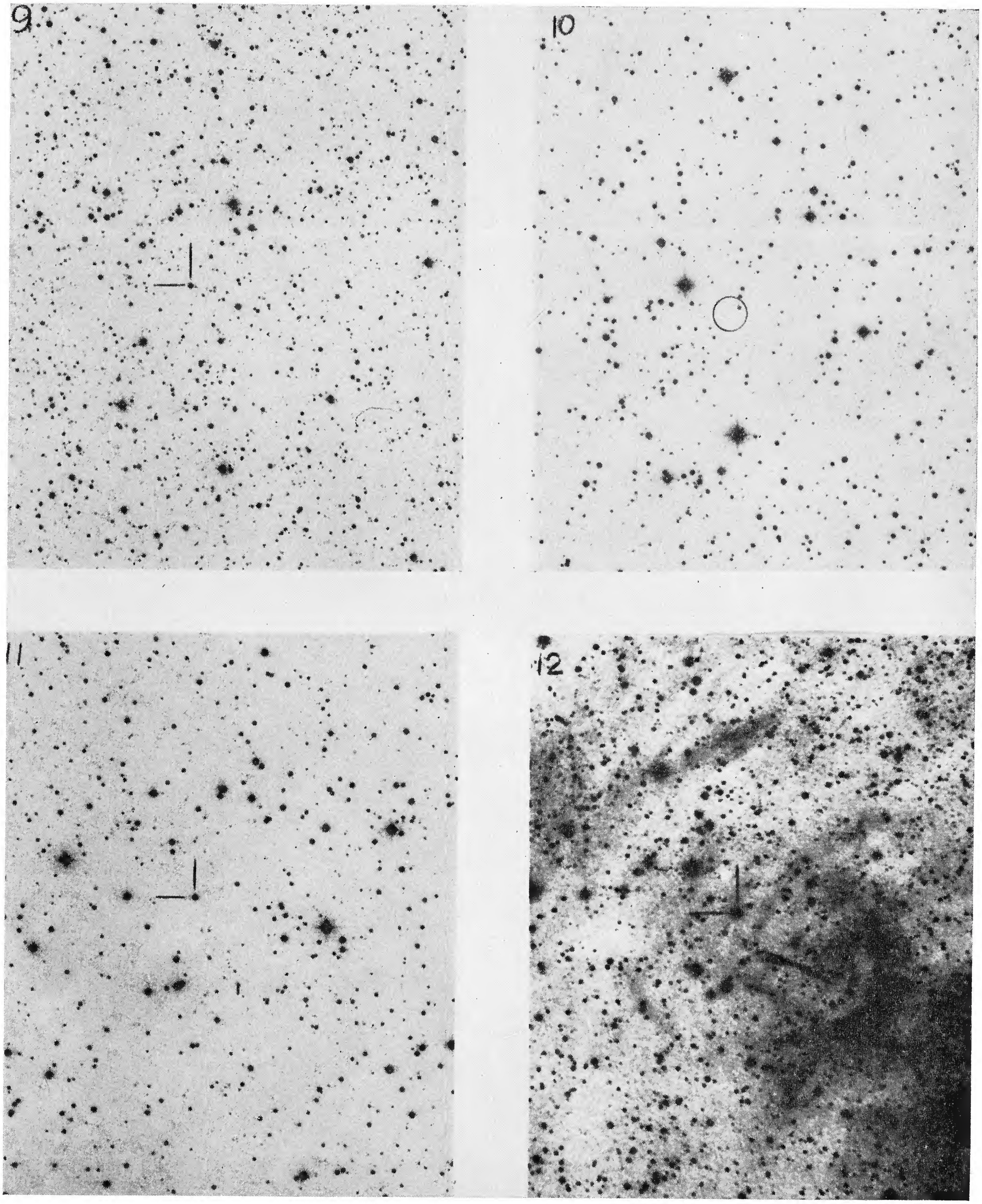

FIG. 3.—Finding charts for stars 9–12

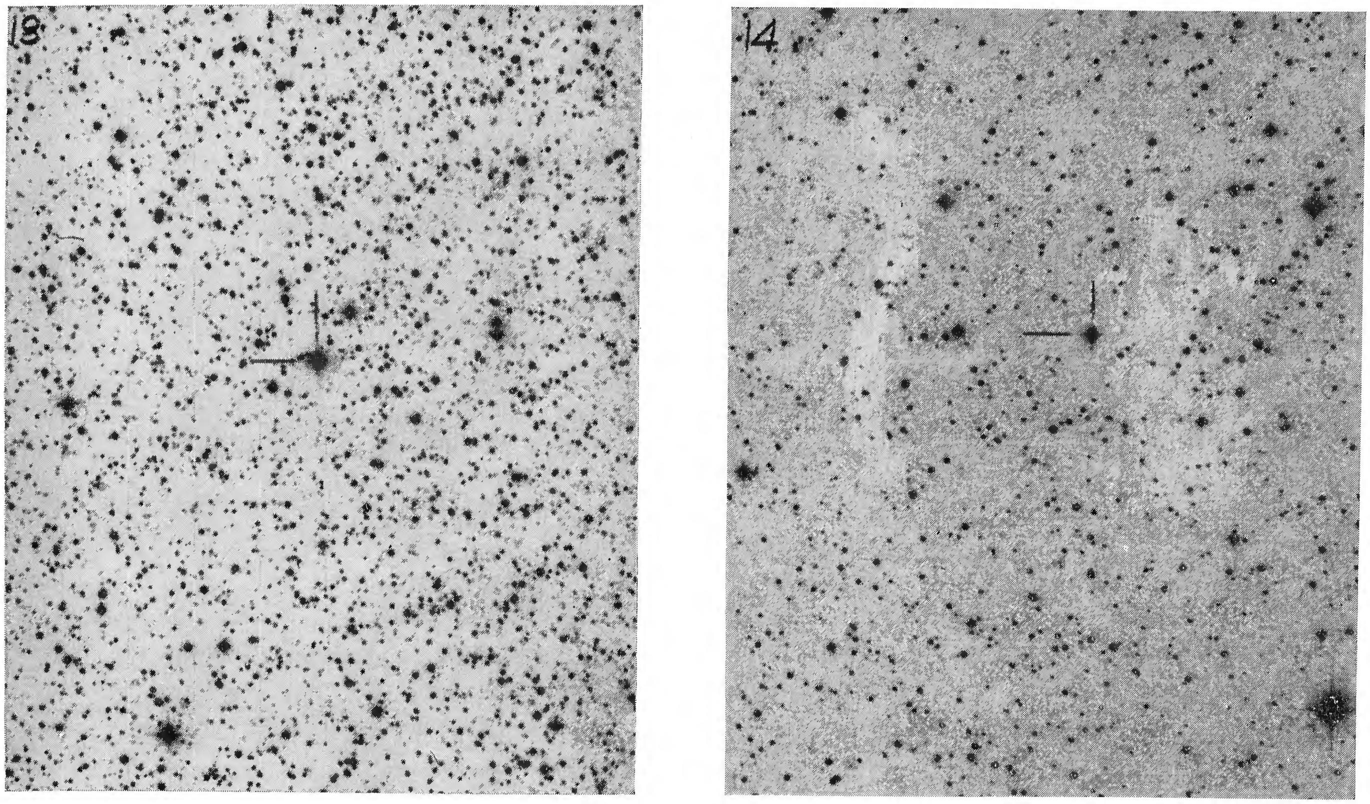

FIG. 4.—Finding charts for stars 13 and 14

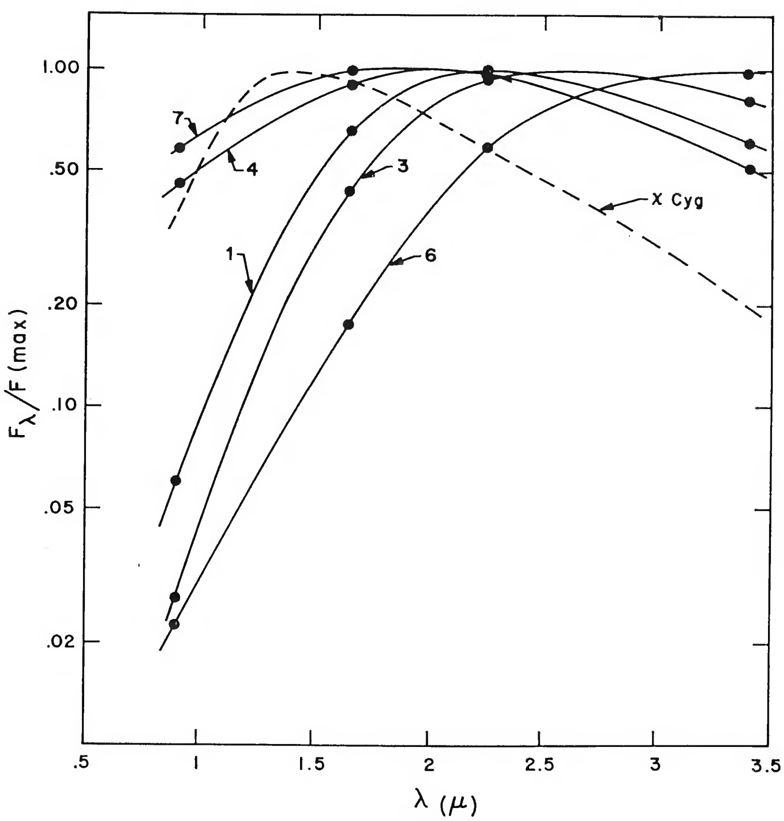

FIG. 5.—The spectral-energy distribution of stars 1, 3, 4, 6, and 7. Also shown is χ Cyg at minimum (Johnson, Mendoza V., and Wisniewski 1965).

carried out, are also included. For each star of Table 1, except for stars 3 and 10, an image was found which was significantly brighter on the E (∼0.65 μ) than on the O (∼0.4 μ) plate of the National Geographic Society–Palomar Observatory Sky Survey. Copies of appropriate areas of the E plates are included as Figures 1–4.

The K-magnitudes listed are accurate to about ±0.2 mag., and the error in each I magnitude is indicated in the table. The K-magnitudes are measured with a filter and detector system which closely resembles that of Johnson (1964), and thus these data can be compared directly with Johnson's data even for quite red sources. For stars earlier than about spectral type K, the I-magnitude values derived from our survey agree within 0.03 mag. with those of Kron, White, and Gascoigne (1953). However, the I-magnitudes in this survey are measured with a Si photodetector whose wavelength response differs from that of Johnson's (1965) photomultiplier, causing a discrepancy which increases with decreasing temperature and makes the survey I-magnitudes as much as 1–2 mag. fainter than Johnson's for the reddest objects.

TABLE 1

RED STAR DATA

Star	Identification	1950 0 R A	1950 0 Decl.	K	I	Date
1		00ʰ04ᵐ3	+42°48′	+2 4	>10 5	Nov. 6, 1965
				+2 4	>10 5	Sept. 22, 1965
2	RW And	00 44 6	+32 25	+2 2	8 2± 1	Oct. 29, 1965
3		01 03 8	+12 20*	+1 3	>10 0	Oct. 6, 1965
				+0 9	>10 0	Jan. 9, 1966
4		02 31 7	+64 55	+2 3	8 8± 3	Sept. 8, 1965
5		03 23 2	+47 22	+2 0	8 2± 2	Sept. 9, 1965
				+1 7	8 5± 2	Oct. 2, 1965
6		10 13 3	+30 49	+0 5	9 4± 5	Feb. 10, 1965
				+1 6	>10 3	Dec. 1, 1965
				+1 8	>10 3	Dec. 16, 1965
				+1 6	>10 3	Jan. 22, 1966
				+1 6	>10 3	Feb. 16, 1966
				+1 5	>10 3	Mar. 26, 1966
7	WX Ser	15 25 5	+19 44	+2 0	8 1± 1	June 17, 1965
				+2 3	8 3± 2	Feb. 20, 1966
8	RU Her	16 08 2	+25 12	+0 8	6 8±.1	May 3, 1965
				+0 4	5 2± 1	Sept. 8, 1965
				−0 1	4 4± 1	Feb. 20, 1966
9	MW Her	17 33 4	+15 37	+1 6	7 9± 2	Apr. 21, 1965
				+1 8	8 3±.2	Sept. 8, 1965
10		20 31 8	+38 29	+2 4	>10 3	Sept. 15, 1965
11		20 37 7	+39 01	+1 7	> 8 5	July 23, 1965
				+1 7	> 8 5	Sept. 15, 1965
12	DG Cyg	20 41 6	+43 01	+1 4	7 5± 2	June 29, 1965
				+1 5	7 8± 2	Aug. 8, 1965
				+1 4	7 3± 2	Sept. 15, 1965
13		21 32 1	+38 51	+1 6	8 3± 5	Sept. 15, 1965
14		23 42 6	+43 39	+2 1	8.0±.2	Nov. 6, 1965

* Offset from 75 Psc to this source is 7ˢ ± 1ˢ west, 21′20″ ± 15″ south.