

NEBULOUS OBJECTS ON THE ESO/SRC J PLATES

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RESUMEN

Inspeccionamos las placas J de ESO/SRC en busca de objetos nebulosos. Encontramos 23 objetos, de los cuales 13 están asociados con fuentes puntuales *IRAS*. Algunos de estos objetos semejan objetos Herbig-Haro, mientras que otros parecen nebulosas cometarias. Se dan también posiciones y cartas de identificación.

ABSTRACT

We inspected the ESO/SRC J plates for nebulous objects. We found 23 objects, of which 13 are associated with *IRAS* point sources. Some of these objects look like HH objects, while others are cometary nebulae. Positions and finding charts are also given.

Key words: INFRARED-SOURCES – NEBULAE-GENERAL

1. INTRODUCTION

The northern hemisphere has been searched in detail for nebulous objects that could point to regions of recent star formation (see, for example, Gyulbudaghian, Glushkov, & Denisjuk 1978). In an attempt to find similar objects in the southern hemisphere we have inspected the ESO/SRC J plates, mainly in the places where dark clouds were situated. We found 23 such objects, whose positions and other parameters are given in Table 1. Objects 4 and 22 were found in the ESO R plates. All other objects were found in the J plates. Objects 2, 3, 5, 9, and 10 are included in the catalog of Brand, Blitz, & Wouterloot (1986). Objects 6, 7, and 8 are condensations embedded in a larger nebula found by Brand et al. (1986). In column 1 we give a number for the object, while in columns 2 and 3 we list the coordinates. These coordinates are estimated to be accurate to about 3 arcsec. In column 4 we give the plate number where the object was found. In column 5 the associated *IRAS* source is listed, while in column 6 we give the 100μ flux of these sources. In Figure 1 (Plate) we present reproductions of the ESO plates with the objects indicated. In § 2 we give a description of these

objects and their associated *IRAS* point sources, while in § 3 we present our conclusions.

2. DISCUSSION ON INDIVIDUAL SOURCES

Object 1. There are two nebulous stars. It is not excluded that it is a biconical nebula. The position given is the centroid of the two objects. It is associated with *IRAS* 06345-3023, whose colors are characteristic of an embedded young star [$F(100\mu) \geq F(60\mu) \geq F(25\mu) \geq F(12\mu)$].

Object 2. It is a star with a semiring-like nebula that extends over $\sim 1'$. Almost all known FU Orionis type stars have such a nebula. It is of interest to check whether this star is an FU Ori object.

Object 3. It is a cone-like faint nebula resembling an HH object that extends over $\sim 1'$.

Object 4. A star with a tail-like nebula.

Object 5. It is a condensation with a cone-like nebula. It is associated with *IRAS* 08513-4201, whose colors are characteristic of an embedded young star.

Object 6. Two condensations embedded in Brand 229. The position given corresponds to the centroid of the two condensations.

Object 7. Another condensation embedded in Brand 229.

Object 8. Two faint patches in a dark nebula. The position given corresponds to the brighter one.

Object 9. A compact nebulous object in a small globule. It is associated with *IRAS* 10059-5948, whose colors are characteristic of an embedded young star.

Object 10. Two stars with nebulous tails. The po-

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TABLE 1
NEBULOUS OBJECTS IN THE ESO/SRC J PLATES

No.	α	δ	Plate	IRAS	100 μ Flux
	(1950)		Number		(Jy)
1	06 ^h 34 ^m 34.5 ^s	-30° 23' 07"	426	06345-3023	10.9
2	07 48 40.4	-32 58 42	369	07486-3258	≤ 14
3	07 48 54.0	-33 36 24	369	07489-3336	8.3
4	08 36 39.8	-40 51 50	313 ^a	...	...
5	08 51 18.5	-42 01 34	313	08513-4201	618.4
6	09 03 57.4	-47 42 10	211	09039-4742	≤ 32
7	09 03 58.3	-47 41 38	211	09039-4742	≤ 32
8	09 16 50.0	-46 05 35	261	...	...
9	10 05 51.1	-59 48 28	127	10059-5948	23.0
10	10 40 35.5	-62 53 52	092	10406-6253	≤ 67
11	12 03 40.5	-59 54 15	130	12036-5953	34.3
12	13 28 53.9	-60 10 10	132	13294-6011	873.8
13	13 54 19.4	-63 35 47	097	...	...
14	13 54 17.3	-63 35 29	097	13542-6335	≤ 35
15	14 56 36.2	-62 59 15	098	...	...
16	14 56 53.1	-63 05 01	098	14568-6304	20.6
17	14 59 14.7	-63 08 56	098	...	...
18	15 40 35.3	-33 59 36	388	...	...
19	16 44 53.1	-47 59 46	227	...	...
20	17 03 32.9	-45 25 18	278	...	...
21	17 35 26.5	-76 34 43	044	...	...
22	17 48 33.5	-31 21 20	455 ^a	...	...
23	18 59 29.8	-37 27 37	337	18585-3728	≤ 4.7

^a ESO R plates.

sition given corresponds to the centroid of the two stars. It is associated with *IRAS* 10406-6253, whose colors are characteristic of an embedded young star.

Object 11. Nebulous compact objects in a small globule that could constitute a bipolar nebula and is associated with *IRAS* 12036-5953, whose colors are characteristic of an embedded young star.

Object 12. This object looks like a star with a tail-like nebula. It is situated at the edge of a dark cloud and is associated with *IRAS* 13294-6011, whose colors are characteristic of an embedded young star.

Object 13. A star with a cone-like nebula.

Object 14. Astar with a cone-like nebula that with object 13 forms a bipolar object studied by Bruck & Godwin (1984).

Object 15. Faint star-like object with a faint tail. It is not excluded that it is an HH object.

Object 16. Aconelike, rather bright object resembling HH1. The nebulosity has an angular extent of ~30".

Object 17. A star with a comma-like nebula resembling the nebulae of FU Orionis-type stars. It has been studied by Gahm & Malmort (1980).

Object 18. A star with a cometary nebula.

Object 19. A condensation with a cone-like nebula.

Object 20. A very faint condensation with a cone-like nebula at the edge of a small globule.

Object 21. An elongated condensation (maybe a double star) with a faint cone-like nebula.

Object 22. A group of two condensations with nebulous patches. It is situated in a dark nebula and could be a group of HH objects. The position given corresponds to the centroid of the two condensations. These condensations are very faint and are not evident in our reproduction of the ESO plate shown in Figure 1.

Object 23. A star with an arc-like nebula. It is not excluded that it could be an HH object. The star appears projected against a bright nebula. It is associated with *IRAS* 18585-3728, whose colors are characteristic of an embedded young star.

3. CONCLUSIONS

We presented a list of 23 nebulous objects found in the ESO/SRC J plates. Thirteen of these objects are associated with *IRAS* point sources, usually having colors characteristic of embedded stars. Some of these nebulous objects may turn out to be HH objects, and additional studies are required to establish their nature.

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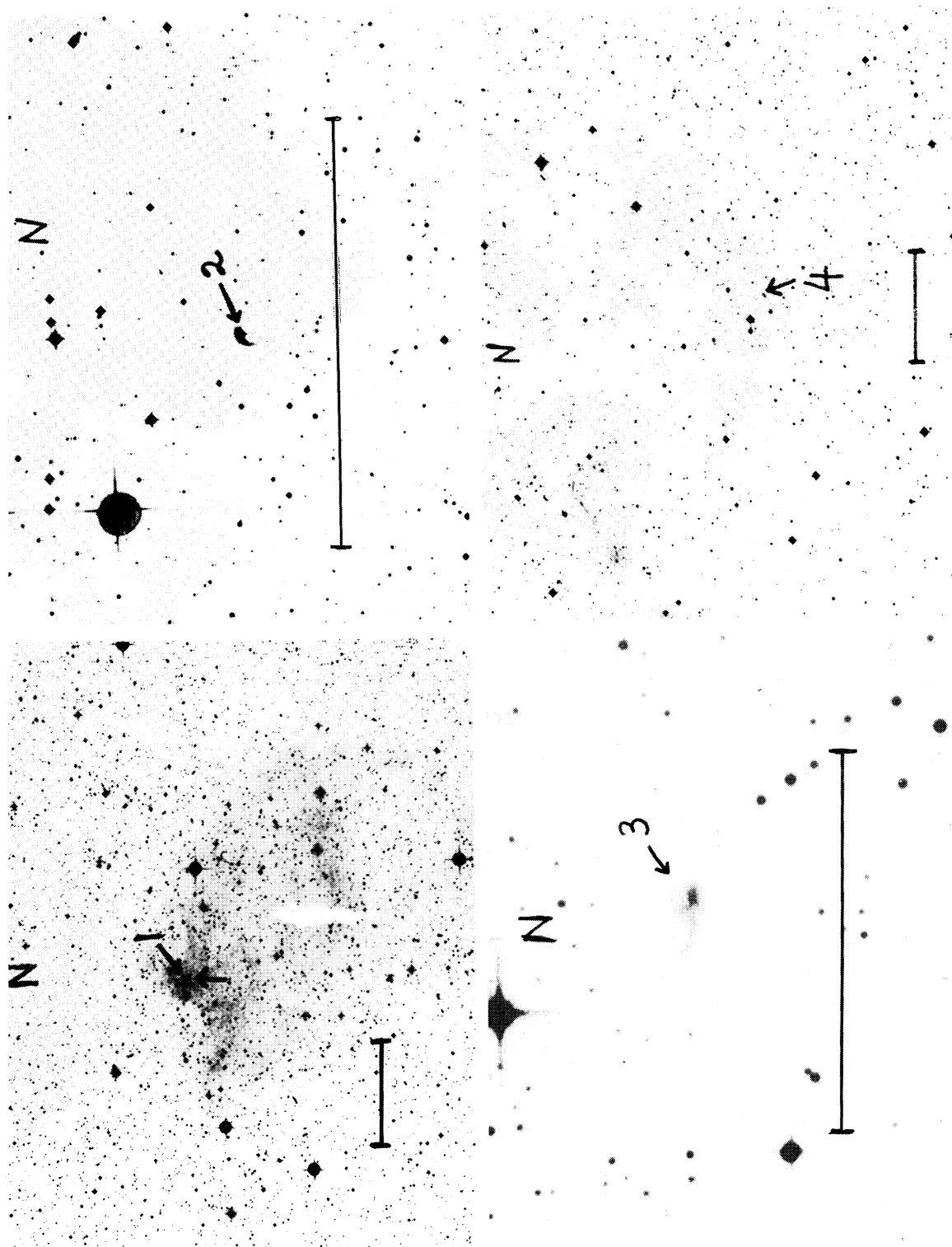


Fig. 1a. Reproductions of the ESO/SRC plates for the nebulous objects (indicated with an arrow). The north (top) is also indicated; the east is to the left. The horizontal bar has an extent of $10'$ for all objects except for object 3, where it has an extent of $3'$. The nebulosities that constitute object 22 are very faint and are not evident in the respective reproduction.

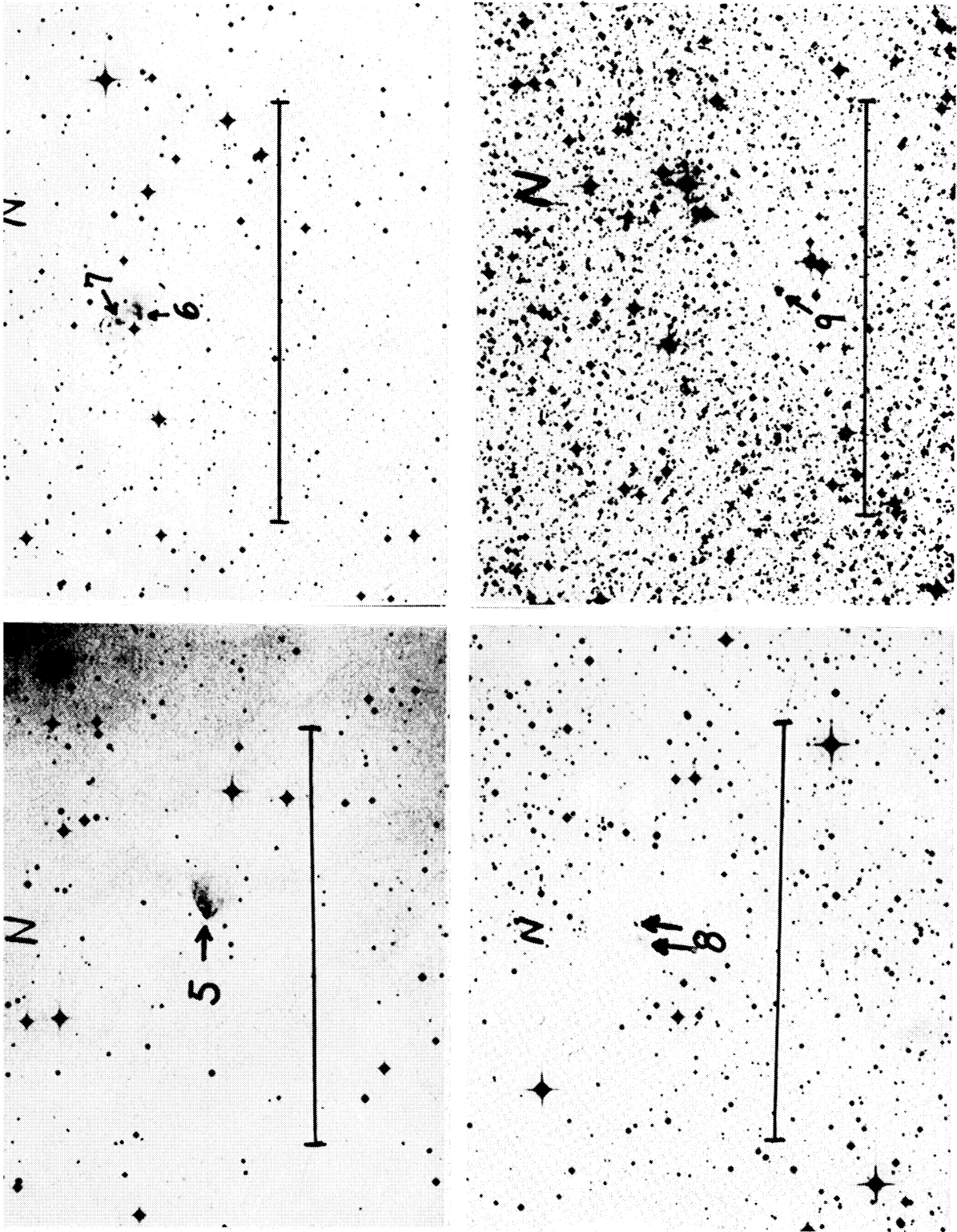


Fig. 1b. Same as Figure 1a.

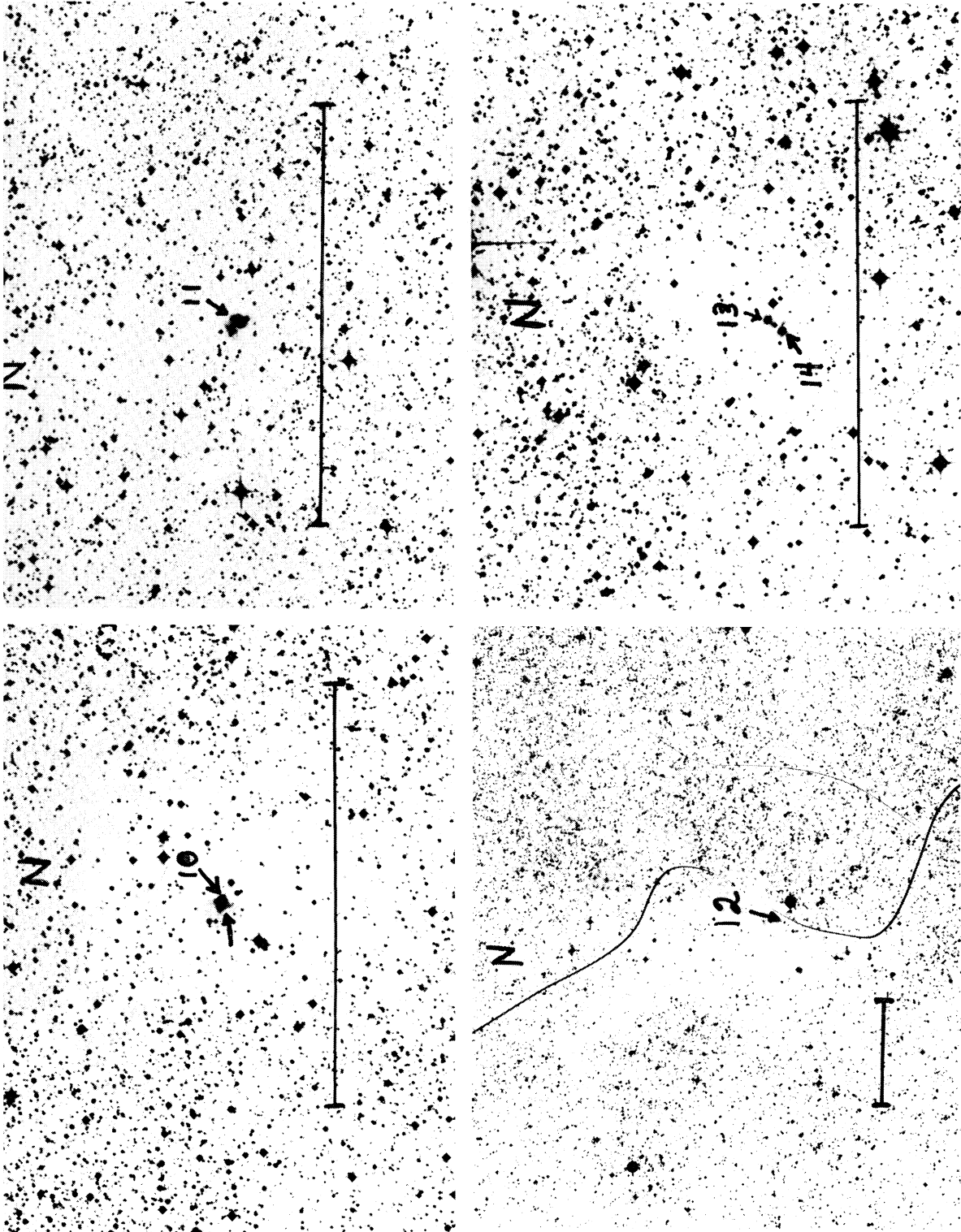


Fig. 1c. Same as Figure 1a.

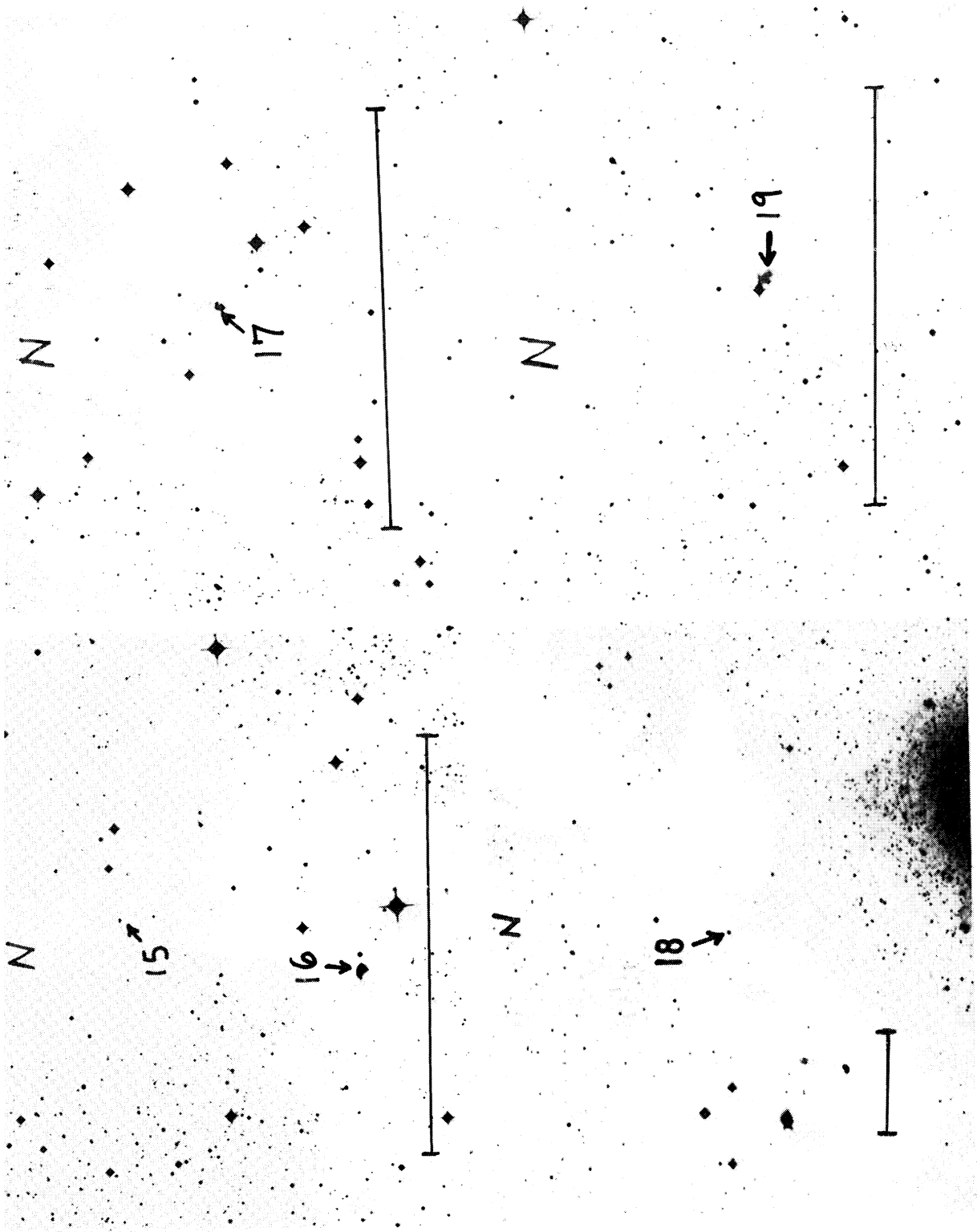


Fig. 1d. Same as Figure 1a.

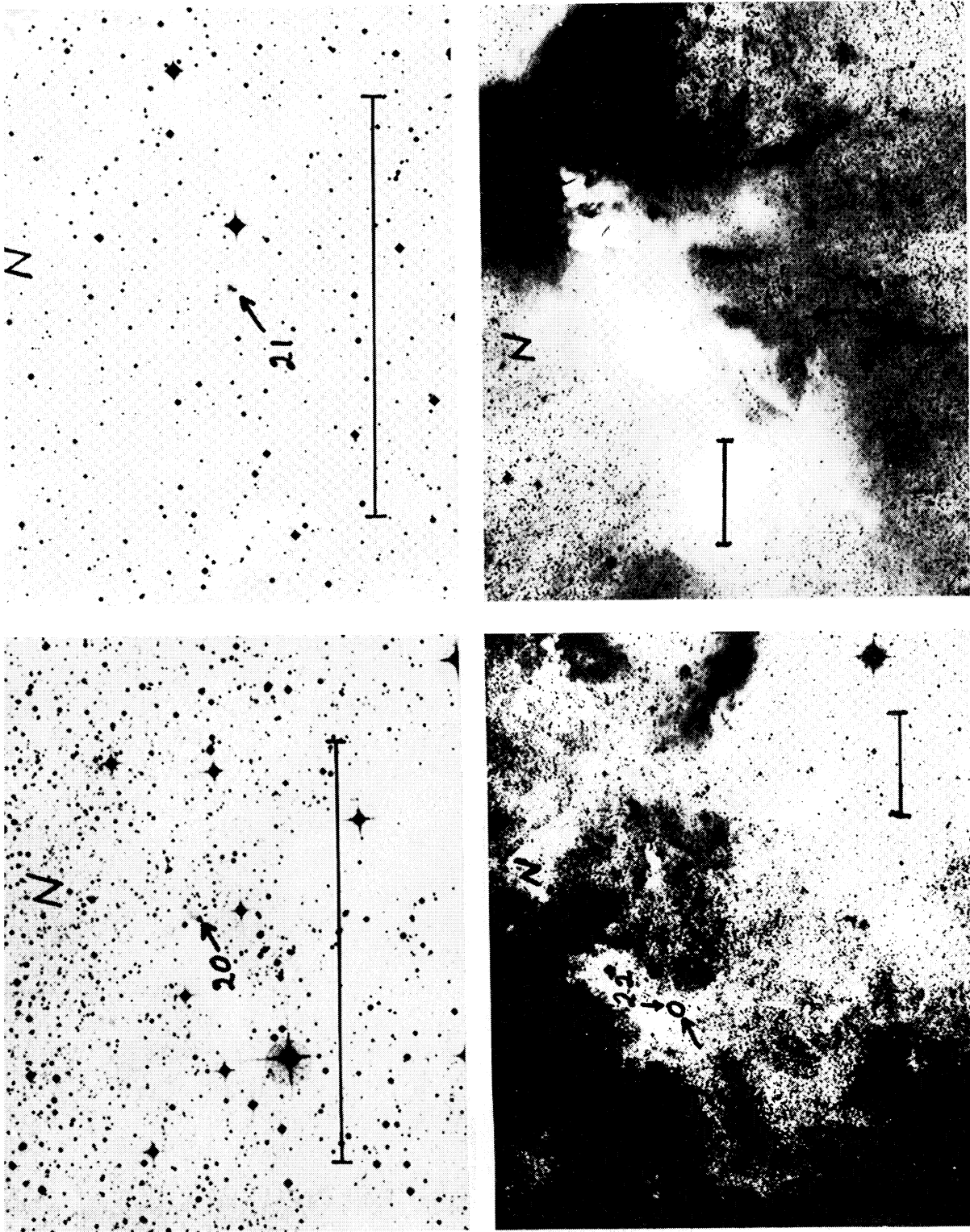


Fig. 1e. Same as Figure 1a.