Groups and Clusters of Galaxies

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Descriptions and locations of 34 previously unreported possible groups and clusters of southern galaxies are given. These results are based upon direct inspection of photographic plates taken with the 20-inch double astrograph of the Yale–Columbia Southern Observatory at El Leoncito, Argentina.

I. INTRODUCTION

THE purpose of this note is to report the existence and location of previously unreported possible groups and clusters of southern galaxies which were found by direct inspection of plates taken for the Yale–Columbia southern proper-motion program.

The plates and their processing are described elsewhere (Klemola 1969).

The plate pairs scanned were chosen in an unsystematic manner determined by the selection available at Yale when the work was done. Those in the −25° zone overlap the region included in Abell's Catalogue of Rich Clusters of Galaxies (1958); groups or clusters which are probably associated with objects listed there or in the NGC are so noted.

The scanning was done with the blink comparator at the Yale Observatory. Although primarily the blue member of each pair was viewed, the yellow mate was always mounted and aligned for comparison and confirmation of objects of interest. A relatively high-power (20×) eyepiece was used, so that very faint objects could be reliably observed. The resulting small field of view probably caused some loose groups of galaxies to go unidentified, as the individual members appeared quite isolated.

II. DESCRIPTION OF GROUPS AND CLUSTERS

The equatorial coordinates given below (Table I) for the objects observed were found by plotting the positions on enlargements of the Union Observatory Atlas of the southern sky. The positions are given to 0.′1 of arc, although the actual uncertainty is about 1.′0 of arc. The magnitudes given are crude eye estimates, and may be quite inaccurate.

Object 1. Mostly round in form and faint. SE section dominated by larger, brighter ellipticals.

Object 2. All four are elliptical, except that the westernmost is slightly irregular.

Object 3. Cluster elongated N–S. Most members are circular or elliptical in form.

Object 4. Mostly circular or elliptical.

Object 5. Central member is the largest and brightest; an elliptical. Others are round in form. This and objects 1–4 are all close together and may be associated, including Abell object 14.

Object 6. Compact cluster; most members are round.

Object 7. Mostly round or elliptical.

Object 8. All five are round.

Object 9. Possibly part of a very large, loose cluster including objects 11 and 12.

Object 10. Mostly round in form. Abell object 51.

Object 11. Easternmost member: open spiral. Northernmost: elliptical. Southernmost: round.

Object 12. Intervening space populated by faint round galaxies.

Object 13. All four members lie on a straight line, oriented NW–SE.

TABLE I. Description of 34 probable groups and clusters.

Object	1875 R. A.	1875 Dec.	Size	No. Gal.	B	Type
*1	0h09m30	−24°35′	17′ × 25′	50	15–19	cluster
*2	0 09.65	−24 49.9	10	4	15	group (loose)
*3	0 10.16	−24 34.2	10 × 20	15	15–19	cluster
*4	0 10.62	−24 46.8	7	6	18	group
*5	0 10.68	−24 29.4	10	6	18	group
6	0 11.29	−24 59.3	5 × 3	15	16–19	cluster
7	0 16.99	−24 06.2	5	6	19	group
8	0 18.55	−24 23.1	4	5	19	group
†9	0 24.10	−23 39.7	10		16	cluster (loose)
10	0 25.53	−24 22.0	5	10	19	group
†11	0 25.90	−23 18.7	8	3	12	group
†12	0 25.98	−23 42.6	7	3	16	group
13	1 18.29	−45 12.1	6	4	17	group (linear)
14	1 21.25	−23 25.6	10	7	14–16	group
15	1 57.10	−45 23.2	20	25	15–17	cluster
16	2 03.56	−43 05.8	3	8	17–19	group
17	4 10.23	−24 57.5	7	6	17	group
18	4 19.04	−28 02.2	20	20	18–19	cluster
19	4 24.41	−27 43.2		6	13	group (linear)
	4 24.49	−26 47.3				
20	5 14.70	−25 25	10 × 50	20	18	cluster (loose)
21	5 29.20	−23 38.6	14	8	15–19	group
22	6 24.33	−35 31.4		7	16–18	group (linear?)
	6 24.60	−34 02.3				
23	6 28.00	−37 34	15	12	16–19	group
24	6 29.20	−36 33.2	6	5	15–18	group
25	6 40.80	−36 54.1	35	6	16–19	group (linear)
26	9 55.3	−27 to −33		30	12–18	cluster (loose)
27	20 30.04	−22 28.6	6	15	17–19	cluster
28	20 36.06	−26 50.5	12	7	17	group (linear)
29	22 04.10	−28 21.0		4	17	group
30	22 12.05	−28 59.1	7	4	16	group
31	23 49.13	−25 54.7	7	3	16	group (linear)
32	23 54.12	−28 10.3	10	7	15–17	group
33	23 54.60	−25 54.8	10	15	19	cluster
34	23 57.55	−27 57.1	10	8	17	group

* 1, 2, 3, 4, and 5 are possibly associated, and may include Abell object 14.
† 9, 11, and 12 are possibly associated.

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Object 14. All but one are round; the other is elliptical.
Object 15. Mostly distinctly round in form.
Object 16. All members are round.
Object 17. Mixed elliptical and round galaxies.
Object 18. Mostly round in form.
Object 19. Linear group of four bright and two faint galaxies. Northern three are probably spirals; the southernmost is irregular. Group includes NGC 1591 and NGC 1592. Abell object 495.
Object 20. Half-elliptical, half-round in form.
Object 21. Group dominated by a bright, round galaxy (NGC 1979) at the northern extreme.
Object 22. Two members are elliptical. Central, brightest member appears to have a double nucleus.
Object 23. About half-round and half-elliptical members. Group may extend further south.
Object 24. Group dominated by a bright spiral, the westernmost member.
Object 25. Mixed round and elliptical galaxies.
Object 26. Existence of this cluster may be questionable. Surrounding region has extremely low density of galaxies, which makes this region of high density appear to be a loose cluster of relatively nearby galaxies.
Object 27. Compact cluster; mixed round and elliptical galaxies.
Object 28. Mixed forms.
Object 29. Central member: faint, round. SE of center: large, well-defined spiral. SSE of center: small, bright, round galaxy. S of center: elliptical galaxy.
Object 30. Two round members; two ellipticals.
Object 31. Three ellipticals, very well aligned in NW–SE direction. Possibly spirals seen edge-on with axes of rotation aligned.
Object 32. Two members in SE section appear to be double. Mixed form.
Object 33. Mostly round in form. Abell object 2690.
Object 34. One elliptical member; the others round.

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