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Candidates for a Southern Extension of the Karachentsev Catalogue of Isolated Pairs of Galaxies

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The paper presents a sample of double galaxies selected from *The Surface Photometry Catalog of the ESO-Uppsala Galaxies* using the Karachentsev (1972: K72) criteria. Considering the large and growing number of observing facilities in that hemisphere, the sample aims to supply investigators with targets as homogeneous as possible to those in the *Northern Catalog of Isolated Pairs of Galaxies* (K72) which have been studied in a large frequency range. The paper discusses the sample degree of completeness, separation and velocity distributions. First inferences are sketched from the morphological association of pair members and from the study of the Holmberg effect. Being the primary purpose of the paper to provide a tool to investigators, an Atlas of images for the 301 best candidates pairs obtained using the Digitized Sky Survey † is given. The Atlas reports for each pair member the relevant data as obtained from the current literature.

1. INTRODUCTION

Besides the historical objective of the galaxy mass determination, binary galaxies offer a 'simple' tool through which to study the evolution of the gravitational interaction and induced phenomena. So, the study of the dynamical friction, the angular momentum and energy transfer, merging as well as the secular and/or co-evolution of galaxies stellar populations, the development of stimulation effects (starburst, LINER or even AGN activity) found in pairs a fruitful soil (see Barnes & Hernquist 1992 and reference therein).

Most of these studies need a statistical approach. This requires that the sample of pairs under study has to be *a priori* well determined and homogeneous. The selection criteria have to identify the largest fraction as possible of true gravitationally interacting objects, avoiding or controlling the number of interlopers like *false pairs* (i.e doubles embedded in high density fields) and *optical pairs* (i.e chance optical alignments). At the same time the criteria have to be very clearly defined in such a way that main biases can be mastered in the subsequent analysis.

† The Digitized Sky Survey was produced at the Space Telescope Science Institute (ST ScI) under U.S. Government grant NAG W-2166.

After the pioneer works done by Holmberg (1937, 1954) and Page (1960), Karachentsev built *The Northern Catalog of Isolated Pairs of Galaxies* (K72: CPG hereafter). CPG contains 603 candidate pairs and claims a completeness up to 15.5 magnitude. The source data base was the *Catalog of Galaxies and Cluster of Galaxies* by Zwicky *et al.* (1968: CGCG). CPG cover all the northern hemisphere and extends to $\delta = -3°$. The selection was based on semi-empirical simple criteria of isolation and hierarchy. Different criteria have been adopted in subsequent pair selections in the northern hemisphere by Turner (1976), Peterson (1979) and more recently by Soares (1992). Besides the fact that even starting from the same source (like CGCG) each compilation have a low fraction of pairs in common, due to the different adopted selection criteria, it has been noticed that some compilation failed the aim they set. For instance, the criteria adopted by Turner (1976) produce an high percentage of optical pairs larger than supposed (Rood 1982). Further, Turner's pair are mainly found to belong to groups or even clusters (White *et al.* 1982). Since Turner's criteria tend to select pairs with small projected separation, Peterson's (1979) compilation relaxed the criteria succeeding to include large pairs, but enhancing the fraction of optical alignment.

After having obtained the velocity difference for the members of the entire CPG, it results that optical pairs represent $\approx$11% of the sample (Karachentsev 1989). On the other side, CPG shows a lack of strongly hierarchical pairs, while those with small separation are predominant as in the previous compilations. The mean separation, after correction for the selection criterion, is $\langle x \rangle$=82 kpc ($H_0 = 75$ km s^{-1}Mpc^{-1}) vs. $\langle x \rangle$=142 kpc obtained by Soares (1992) using van Albada criteria.

For the southern hemisphere a compilation similar to the CGCG which is complete up to the 15.5 mag does not exist, if we exclude the surveys done with the COSMOS machine (MacGillivray & Stobie 1984) which can be as deep as b_j=20. These latters cover different sky areas and the subdivision between galactic vs. extragalactic objects is done in automatic way, then introducing a possible source of interloopers if used as starting list (see Heydon-Dumbleton *et al.* 1988).

Different approach in selecting doubles has been attempted using velocity difference (obtained from Southern Sky Redshift Survey: da Costa *et al.* 1991) and projected separation cuts by Charlton & Salpeter (1990). No isolation criterion has been adopted, but galaxy density constraints, so the sample include binary galaxies with separations up to 1.5 Mpc. More traditional compilations of pairs have been produced using different kind of criteria in limited southern sky areas by Arp & Madore (1985), Zhenlong *et al.* (1989), Sulentic (1991: unpublished). In particular, Soares *et al.* (1994) have obtained from *The Surface Photometry Catalog of the ESO-Uppsala Galaxies* (Lauberts & Valentijn 1989: ESO-LV) a sample of binaries using the criteria of likelihood of physical association. They estimated that the frequency of optical pairs (velocity separation $>$ 1000 km s^{-1}) is $\approx$20% .

We will adopt the following, already in use, terminology through all the paper. 'Binary' refers to the underlying physical objects comprising the population we wish to identify, 'double' to an observationally selected sample of objects. 'Pairs' are those double systems which are chosen to represent the underlying population. Then, considering the higher and growing concentration of observing facilities in the southern hemisphere, the paper aims to provide a compilation of double systems and propose a sample of southern candidate pairs as partial complement to the CPG.

This latter will be useful to study the properties of binary galaxies in different key problems. We started from the ESO-LV catalogue, exploiting the photometric data there available both for identifying double galaxies (following the K72 criteria) and for deriving the first properties of the selected sample. In §2 will be discussed the candidates selection criteria and their application to the ESO-LV. The sample properties will be presented in §3. Since this paper is intended as a tool for pairs investigation, in an Atlas are collected the image of each candidate together with a pair description and the basic data for each pair member.

2. SAMPLE SELECTION

Although big efforts have been done in the recent years in order to conduct redshifts surveys most of them are devoted to the mapping of the large scale structure and then they do not reach an homogeneous and complete covering of the sky. Therefore, a realistic expression for recognition of double galaxies must be still formulated operating on more easily obtainable observables like angular separation, apparent magnitudes, and angular diameters of the galaxies as most of the previous investigation on double galaxies. From general considerations a physical pair of galaxies should consist of galaxies sufficiently close each other that the energy of interaction between them and any neighbouring galaxies should be smaller than the potential energy of the interaction between the two galaxy in the pair. To express this using the previous observable properties necessarily leds to some assumptions which basically tend to limit the inclusion of chance optical systems.

The criteria we adopted are similar to the ones adopted in K72 for the selection of the doubles in the CPG. They are based on simple observable properties of galaxies: their angular projected separation and apparent diameters.

Selection criteria applied to ESO-LV

Two galaxies of angular diameter a_1 and a_2 whose separation is $x_{1,2}$ will satisfy the Karachentsev isolation criterion if

$$\left(\frac{x_{1,i}}{x_{1,2}}\right) \geq \chi\left(\frac{a_i}{a_1}\right),$$
$$\left(\frac{x_{2,i}}{x_{1,2}}\right) \geq \chi\left(\frac{a_i}{a_2}\right),$$

where i indicates each of the neighbour galaxies whose diameter a_i is included in the intervals set by

$$\xi a_1 \leq a_i \leq \lambda a_1,$$
$$\xi a_2 \leq a_i \leq \lambda a_2.$$

Since we are looking for isolated pairs, last conditions imply that are not considered possible perturbers those galaxies whose diameters are significantly different from that of the galaxies under investigation. Possible values of x/a measured by Turner (1976) and Peterson (1979) are in the range $x/a < 5$, while in the loose groups the nearby members have separation typically of the order 10 diameters or larger. The selection criteria have then been calibrated following the previous indication. We adopted here as adimensional coefficients in the two previous formulae values

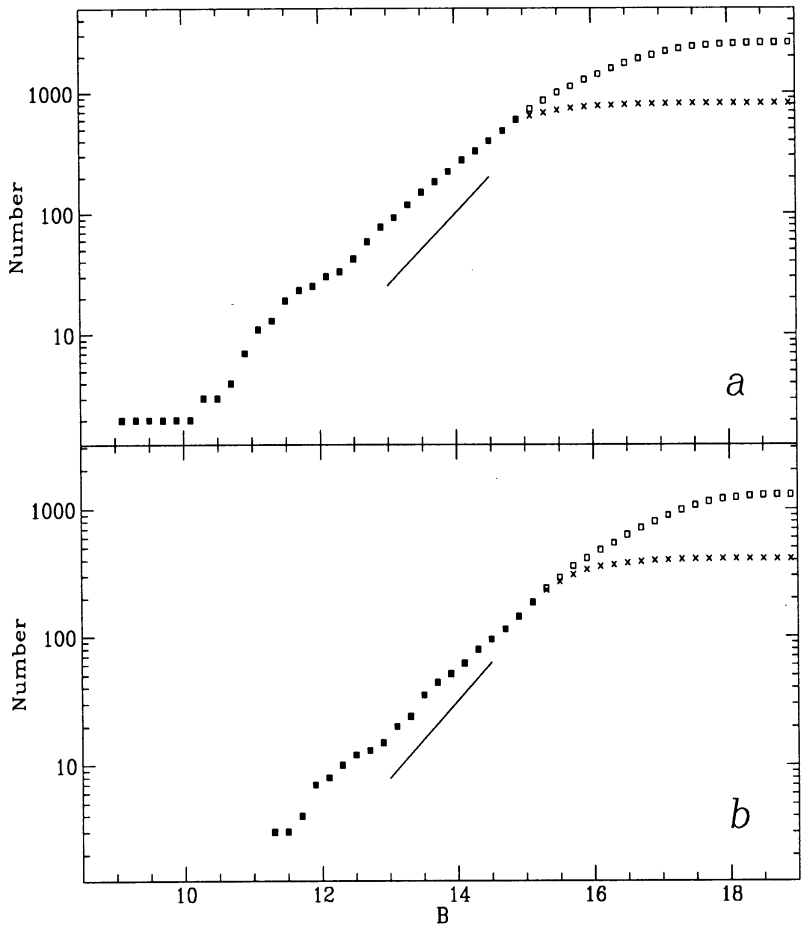

FIGURE 1. Integral distribution of galaxies (panel *a*) and pairs (panel *b*) as function of the total B-band apparent magnitude. The solid line indicates the slope of the homogeneous distribution ($N \approx 10^{0.6B}$). The different symbols indicate the entire sample (1302 candidates: open squares) and the final selection (409 pairs: crosses)

similar to those in K72:

$$\chi = 5, \qquad \xi = 1/2, \qquad \lambda = 4.$$

The ESO-LV catalogue, obtained from the ESO-SERC plates, contains all the galaxies larger than 1 arcmin south of $\delta = -17°$ for a total of 15467 objects. This catalogue is diameter limited and complete up to B=14.5. If some galaxies were found to show sign of interaction and a possible nearby companion smaller than 1 arcmin is visible it was also included in the catalogue. The authors explicitly say that "a strong aspect of the ESO-LV is that, in a rather homogeneous way, photometric and structural parameters have been determined for a large sample of galaxies irrespective of their environment. Therefore, the catalogue can be used for

studies of galaxy parameters in relation to their environment". Since ESO-LV gives galaxies positions with an average precision of 3 arcsec and different photometric diameters (e.g. a_{25} the diameter at $\mu = 25$ magnitudes arcsec^{-2}), all the parameters needed to apply the criteria are available. As representative diameter of the galaxy we selected a_{25}, avoiding any 'statistical' correction. In fact, a_{25} is 1) a reasonably well determined measure (typical uncertainties within 0.2 magnitudes arcsec^{-2}, see for example Rampazzo *et al.* 1994) while at fainter surface brightness they rapidly fall to 0.5 magnitudes arcsec^{-2} or larger frustrating any sort of correction. 2) a_{25} is considered in many astrophysical works, like in galaxy dynamics, the typical optical radius within which to compare galaxy properties. 3) Any correction for inclination for the S members should be due to galaxy internal extinction which is largely unknown and matter of debate (Disney *et al.* 1989). The latter authors estimate that 'if the external galaxies have star:gas:dust ratio not dissimilar to our Galaxy's, their surface brightness and their known column densities in HI and CO suggest that indeed they ought to be optically thick out to isophotes between 23 and 25 μ_B'. This means that the surface brightness may be considered independent of inclination (while apparent luminosity have to be corrected).

For each galaxy in the catalogue, a circular area of a radius 20 times the diameter of the galaxy under investigation has been inspected. The criteria have then been applied recursively to all the objects found inside. We extracted in total 1302 candidate doubles. In Fig. 1 is shown the integral distribution of the member's apparent total magnitude compared with the line slope expected for a uniform distribution in a Euclidean space. Together with perturbations at bright magnitudes due to nearby structure (see §3), it is possible to infer that the distribution starts to lose galaxies approximately at 14.5 -15 magnitudes. A similar information can be deduced from Fig. 2. In this latter is shown the result of the application of the classical $\langle V/V_{max} \rangle$ test (see Thuan & Seitzer 1979 for a full explanation). The $\langle V/V_{max} \rangle$ test has the important characteristic that can be applied without the knowledge of the redshifts of the galaxies, as in our case. The value of $\langle V/V_{max} \rangle$ should be 0.5 for objects uniformly distributed in a Euclidean space if the sample is complete. We see that our compilation is reasonably complete up to 14.5 magnitudes (which is the limit of completeness of the ESO-LV) and for diameters greater than 1 arcmin. This is the reason because we cut our sample excluding those pairs in which both members have a total B magnitude lower than 15. Without losing completeness, the final sample is composed by 409 doubles.

TABLE 1: Fiducial classes for the selected doubles

class	meaning
P	the double verifies criteria and visual inspection on DSS
PT	Possible Triplets, the third member is not in ESO-LV
PG	Possible Group, some members are not in ESO-LV
NO	the double is in a very high density region and most of the galaxies are not in the ESO-LV
OP	Optical Pair when ΔV is > 1000 km s^{-1}
S	two entries in ESO-LV but indistinguishable in the DSS

Since the ESO-LV catalogue is diameter limited and we automatically applied

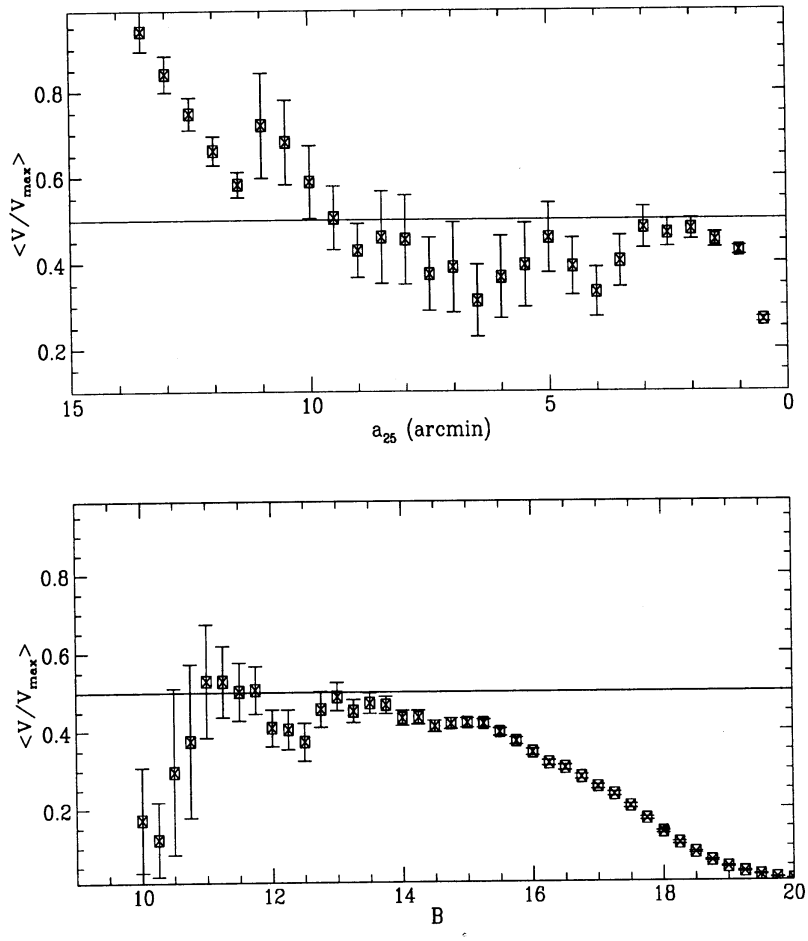

FIGURE 2. The $\langle V/V_{max} \rangle$ classical test (see Thuan & Seitzer 1979 and reference therein). The distribution of our candidate pairs differs from the 0.5 canonical value of a complete distribution in a Euclidean space at very bright magnitudes and starting from 14.5 - 15 magnitudes. This means that we lose nearby pairs, a known bias due to the selection criteria, and fainter pairs due to the source catalogue incompleteness.

the selection criteria, it is possible both 1) that a companion is lost if its diameter is lower than 1 arcmin or 2) that a double could be classified as isolated although there are possible faint companions nearby. The first cause of double loss is balanced by the fact that the K72 criteria select nearly similar size members but a full strategy cannot be adopted. Concerning the second point all the extracted doubles have been checked on the *Digitized Sky Survey* (DSS hereafter) and on the ESO-LV catalogue itself. In some critical cases we looked in detail if all the galaxies, having similar size and nearby the investigated double were in the catalogue so that the K72 criteria have been applied to them. Each double has been then classified on the ground of the inspection of the DSS. We devised different fiducial classes for the doubles in

order to take into account the degree of isolation which is, at certain extent, given by the parameter N_{tot} in the ESO-LV (see later discussion in § 3). The meaning of the different classes is reported in Table 1. The symbols C+ and C-, used in the Atlas and Table 2 indicate the strength of the K72 criteria satisfied by each pair (see the introduction to the Atlas); in some sense they can be used as another indicator of the degree of isolation of the object.

The global properties of doubles with fiducial class P are reported in the Atlas together with their images. These constitute a sample of 301 objects which we consider the best candidate pairs. We have also classified them in DIS, LIN and ATM type following the same classification adopted in K72. The specific meaning of such classes is reported in the Atlas legenda. The properties of the doubles in the remaining fiducial classes are resumed in Table 2.

Some of the pairs in the Atlas have been already observed in order to study their structural properties. CCD images have been obtained at the 92cm ESO-Dutch telescope located at La Silla (Chile), during different observing runs. Typically each pair has been observed in the B, V and R Bessel bands. The seeing was in the average of 1.2 - 1.5 arcsec. Typical exposure times were 45 minutes in B, 20 in V and 15 in R. The average image resolution is 0.4 arcsec px^{-1}. The detailed study of these objects together with their isophotal maps will be presented in a forthcoming paper (Reduzzi & Rampazzo 1994: in preparation).

The bulk of recession velocities has been primarily obtained from those reported in ESO-LV, but a substantial fraction of new measurements come from the recent surveys made by Fairall & Jones (1991: code *F* in the Atlas and Table 2), from da Costa (1994: private communication, code *dC*) and from Maurogordato *et al.* (1991: code *MPB*). A small sample (41 objects) has been also observed in CO at the SEST telescope at La Silla, by Combes et al. (1994); the fluxes derived by this work are also reported. In the same paper the R and H_α images of such candidate pairs are displayed. These latter are coded as CPRS94 in the Atlas. CCD images of two objects are also showed in Rampazzo & Sulentic (1992) and are coded as RS92.

Optical pairs, false pairs and comparisons with similar compilations

Karachentsev and Shcherbanovsky (1978) have numerically simulated both the apparent distribution and dynamics (Hubble flow plus peculiar velocities) of a typical POSS $6° \times 6°$ field examined by K72. Knowing the distribution of doubles in the model they have evaluated what fraction of them were selected applying the criteria adopted. They simulated 127 fields with a distribution of galaxies complete up to 15.7 magnitudes. Applying the criteria a fraction of 11% of doubles demonstrates to be optical, when a velocity difference of 500 km s^{-1} is selected as the cut off limit. Further 32% of the pair detected are member of groups of different richness and then have to be considered false pairs. It is in fact obvious that the members of false pairs are not dynamically isolated from the other members of the group, although they may predominantly gravitationally interact with each other. Since peculiar velocities inside groups are of the order of 200 - 500 km s^{-1} it is not straightforward to separate false pairs from isolated ones. Adopting more restrictive parameters in the criteria, the number of false pairs would diminish at a loss of the physical ones. In fact, the previous authors computed that in order to reduce of a

TABLE 2

Pair numb.	ESO id.	R.A. (1950.)	Decl. (1950.)	a_{25} (arcsec)	B	(B-R)	T	cz (km s^{-1})	Categ.	Sep. (arcsec)	N_{tot} Criteria
1	1930220	00 03 31	-52 29 49	57.5	14.36	1.12	-3.0		PT	434	1.273
	1930250	00 04 18	-52 28 47	61.0	15.48	1.07	5.0				-
5	2410210	00 07 48	-46 41 49	130.3	14.33	1.74	4.0	6123F	PT	268	1.910
	2410220	00 07 54	-46 46 12	78.5	14.20	0.96	4.0				-
6	4090240	00 08 00	-29 04 12	61.0	17.38	0.50	6.0		NO	681	19.667
	4090250	00 08 48	-29 07 58	64.6	14.30	1.53	-4.0	18475			-
10	5400010	00 31 43	-21 43 01	92.3	13.66	1.30	6.0	8031	PG	108	0.637
	5400020	00 31 43	-21 44 49	64.6	15.45	0.82	3.0	7065			+
14	4740160	00 40 23	-23 48 54	75.9	14.24	1.61	-3.5	6692	PG	17	1.273
	4740170	00 40 24	-23 49 04	72.4	13.97	1.42	4.5	6772			+
28	1130490	01 26 25	-61 41 49	47.9	15.47	0.59	0.5		PT	535	0.955
	1130500	01 27 40	-61 43 19	86.1	13.90	1.49	-5.0	865F			-
30	2970030	01 32 00	-38 52 30	51.3	14.86	1.65	-3.0	5870dC	PG	38	
	2970031	01 32 40	-38 52 19	127.4	14.05	1.54	1.0				+
37	1140071	01 44 44	-58 55 19		14.44	0.58	7.3		S	9	0.000
	1140070	01 44 46	-58 55 19	92.3	14.22	0.42	9.0	2248F			+
40	1520320	01 52 24	-56 56 06	75.9	14.04	1.40	-1.4	5929	PT	41	
	1520321	01 52 27	-56 55 37	64.6	15.21	0.83	7.0				+
46	520200	02 04 53	-71 21 10	80.4	14.58	1.11	4.0	8126F	PT	84	0.637
	520210	02 05 06	-71 22 01	38.5	14.97	1.06	3.2				+
50	1980010	02 14 53	-48 03 07	73.3	14.40	1.30	-4.0	19190	OP	1283	13.333
	1980020	02 16 10	-47 46 04	69.2	14.51	1.84	0.0	6406dC			-
51	4150190	02 18 52	-32 10 12	78.5	14.81	0.99	2.0	9471	PT	115	0.318
	4150200	02 18 56	-32 08 34	35.9	15.71	1.48	-2.0	9555			-
59	2990061	02 30 40	-39 31 01	107.2	14.60	1.21	6.4		S	18	0.955
	2990060	02 30 41	-39 30 54	97.7	14.86	1.20	10.0	1406			+
60	5450340	02 31 13	-20 23 59	61.0	14.65	1.49	-3.0	10118dC	PT	307	2.228
	5450350	02 31 35	-20 25 19	49.5	15.62	1.02	6.0				-
64	5460060	02 39 30	-21 00 43	50.1	15.90	0.61	10.0	3060dC	OP	61	2.546
	5460071	02 39 34	-21 01 26	98.9	14.92	0.54	6.0	7785dC			-
66	4800010	02 45 23	-25 21 18	92.3	14.94	1.07	1.0	6543dC	S	7	2.546
	4790430	02 45 23	-25 21 25	57.5	15.15	1.26	0.0	6467			+
74	2480110	03 19 38	-43 46 48	21.4	16.05	1.37	-2.0	9990	PT	82	0.637
	2480120	03 19 43	-43 45 46	76.7	14.93	1.46	1.0	9150			-
78	5480400	03 31 37	-21 37 19	82.2	14.59	0.95	8.0	4082dC	NO	7	3.183
	5480381	03 31 38	-21 37 19	79.4	14.82	1.06	8.0	4082dC			+
88	4210022	04 27 36	-27 30 57	61.0	15.31	-0.45	7.4		PT	32	1.592
	4210020	04 27 38	-27 31 01	66.8	14.49	0.48	0.2	906dC			+
89	1570351	04 27 56	-53 56 02	66.1	15.15	1.29	-0.4		NO	11	
	1570350	04 27 58	-53 56 06	52.5	14.95	1.5	-4.0	12005			+
95	5520210	04 53 13	-20 38 59	73.3	14.21	1.51	-3.0	10602	PG	64	0.637
	5520220	04 53 17	-20 39 46	50.7	15.47	0.92	3.0				+
96	850141	04 54 08	-62 52 55	199.5	12.76	1.02	8.3		NO	42	3.183
	850140	04 54 13	-62 52 40	199.5	13.42	0.85	9.4	1119			+

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TABLE 2 *(continued)*

Pair numb.	ESO id.	R.A. (1950.)	Decl. (1950.)	a_{25} (arcsec)	B	(B-R)	T	cz (km s^{-1})	Categ.	Sep. (arcsec)	N_{tot} Criteria
97	1580152	04 54 41	-56 19 01	81.3	14.64	0.49	9.5	1638dC	S	17	0.318
	1580150	04 54 42	-56 18 46	85.1	15.34	0.54	10.0	1404			+
98	330040	04 58 52	-75 29 49	82.2	14.18	1.33	4.0	5192	PT	86	0.955
	330050	04 58 58	-75 31 11	66.8	14.35	1.24	1.0				-
100	3610250	04 59 52	-34 06 10	75.9	14.26	0.78	3.1	5287	PG	173	0.955
	3620010	05 00 06	-34 06 07	49.0	15.08	1.27	3.0	5312dC			+
102	4860180	05 01 05	-24 04 19	62.4	15.57	1.86	1.0		NO	697	1.273
	4860230	05 01 55	-24 03 54	64.6	14.16	2.06	-3.0	12440			-
109	3050170	05 13 24	-41 26 49	112.2	14.61	0.51	10.0	1084	S	26	0.318
	3050171	05 13 26	-41 26 34		14.31	0.59	6.5				+
110	1190460	05 14 00	-62 13 30	74.1	15.04	1.39	3.0		PT	209	2.865
	1190470	05 14 01	-62 16 58	79.4	14.07	0.97	3.0	5100			-
111	4860530	05 17 41	-25 06 53	102.3	13.81	2.29	-3.0	10344	PT	140	2.865
	4860531	05 17 46	-25 08 59		14.89	1.40	-2.0				-
112	4230200	05 32 08	-28 29 52	101.2	13.53	1.01	5.0	3804	NO	493	19.000
	4230250	05 32 46	-28 30 46	63.8	15.83	1.25	1.0				-
129	3640350	06 08 06	-33 38 24	87.1	14.59	0.91	4.0	8803	PG	76	21.500
	3640360	06 08 11	-33 37 40	77.6	14.39	0.73	0.0	8610			-
134	3650130	06 22 07	-34 59 49	41.2	15.13	1.48	-1.6		PG	18	
	3650131	06 22 09	-35 00 00	58.9	14.87	1.43	-0.5				+
135	2550070	06 26 00	-47 08 49	74.1	14.48	0.88	4.7	11786	PT	19	
	2550072	06 26 01	-47 09 07		15.98	0.79	6.5				+
141	340110	06 44 24	-74 11 06		13.60	1.26	10.0	6505	PT	108	0.955
	340112	06 44 44	-74 12 17		14.81	1.44	2.0				+
145	870520	06 54 28	-65 25 22	59.6	15.24	1.28	1.0		PG	306	1.273
	870540	06 55 17	-65 25 48	59.6	14.58	1.37	4.0				-
146	3090120	06 57 27	-39 32 52	65.3	15.85	1.27	1.0		PG	195	0.637
	3090130	06 57 28	-39 36 07	51.9	14.41	1.33	2.7				+
147	2070131	07 00 00	-47 29 38	38.0	15.56		0.3		S	51	
	2070130	07 00 00	-47 30 28	75.0	14.61	0.53	10.0				+
151	1220150	07 11 12	-60 18 46	70.8	15.75	1.96	2.0		PG	402	0.318
	1220160	07 11 22	-60 25 22	56.2	14.62	1.82	-2.0				-
152	4280221	07 18 21	-28 53 38	92.3	14.18	1.47	7.5		S	5	2.865
	4280220	07 18 22	-28 53 34	92.3	14.18	1.47	8.0				+
154	880170	07 28 51	-66 47 31	113.5	13.69	1.39	3.0	5155	PG	65	2.228
	880180	07 28 57	-66 48 25	43.2	14.91	0.32	-5.0	5120			-
160	2580070	08 06 43	-42 57 00	134.9	14.52		-1.3		NO	1205	0.318
	2580080	08 07 16	-43 16 12	95.5	16.18		9.9				-
165	4970141	09 05 27	-23 25 40	30.5	15.34	0.16	10.0		PT	37	2.865
	4970140	09 05 28	-23 25 4	80.4	14.19	1.68	3.0	3409dC			+
168	910090	09 22 16	-63 35 49	142.9	12.51	1.45	-3.0	2939	NO	483	1.273
	910110	09 22 17	-63 27 46	116.1	15.32	1.17	3.0				-
178	3740460	10 11 48	-34 53 31	47.9	14.39	1.31	-3.0	9326dC	PG	30	1.910
	3740461	10 11 49	-34 53 02		15.35	1.22	-3.0	9326dC			+

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TABLE 2 *(continued)*

Pair numb.	ESO id.	R.A. (1950.)	Decl. (1950.)	a_{25} (arcsec)	B	(B-R)	T	cz (km s^{-1})	Categ.	Sep. (arcsec)	N_{tot} Criteria
179	370120	10 16 45	-73 39 25	40.3	15.31	1.56	-0.6		PG	290	
	370130	10 17 05	-73 34 47	51.9	14.85	1.35	1.0				-
184	4360180	10 23 23	-29 16 40	61.7	15.12		-0.2		PG	268	1.592
	4360190	10 23 30	-29 20 52	68.4	14.73	1.28	1.0				-
185	5680080	10 23 43	-19 58 48	63.8	14.65	1.50	-5.0		PG	756	0.955
	5680090	10 24 05	-19 47 13	71.6	14.28	0.87	6.0	3108			-
186	4360271	10 26 00	-31 15 43	114.8	13.21	1.40	5.3	3132dC	S	5	16.500
	4360250	10 26 00	-31 15 46	118.9	13.27	1.27	4.0	3132			+
188	4360451	10 32 26	-28 14 23	75.9	14.05	1.40	-2.9	3221dC	PG	6	16.500
	4360440	10 32 27	-28 14 23	71.6	13.90		-2.0	3200			+
190	3760060	10 38 49	-33 13 11	66.1	14.91	1.51	0.0		NO	1083	0.318
	3760090	10 39 42	-32 58 58	97.7	13.67	1.28	-2.0	3028			-
196	5020111	11 00 05	-25 53 59	51.9	15.34	0.59	3.4	3909dC	S	15	1.273
	5020110	11 00 06	-25 53 52	70.8	14.81	0.98	1.4	3897			+
201	4400320	11 54 09	-32 06 25	83.2	14.09		-3.0	8091	PG	239	2.228
	4400330	11 54 15	-32 10 12	47.3	15.74	1.48	1.0				-
203	5720400	11 57 46	-17 31 55	51.9	16.92	1.54	2.4		NO	240	0.955
	5720420	11 58 00	-17 33 46	133.4	12.79	1.47	-3.0	1521			-
224	5070390	12 50 52	-26 23 24	75.0	16.20	0.87	6.4		PT	98	4.775
	5070430	12 50 59	-26 22 55	55.6	14.44	1.29	-3.0				-
225	5070450	12 52 53	-26 33 10	125.9	12.84	1.56	-2.0	4875	PG	131	3.820
	5070460	12 53 02	-26 32 16	70.0	13.96	1.32	-3.5	4602			+
230	5750440	12 57 39	-22 25 22	48.4	15.06	1.84	-6.0	9146dC	PT	29	2.546
	5750441	12 57 41	-22 25 33	103.5	13.53	1.06	-5.0				+
231	5070660	12 58 58	-23 43 11	56.9	14.83	1.74	-5.0	13916dC	OP	1029	2.228
	5070700	13 00 11	-23 39 18	75.9	14.77	1.53	10.0	6446dC			-
232	2190221	12 59 28	-49 12 28	127.4	14.60	1.66	9.7		S	19	2.228
	2190220	12 59 29	-49 12 10	80.4	15.55	2.26	8.0	1810F			+
234	3820081	13 03 19	-37 19 44		15.49	1.71	10.0		PG	49	15.500
	3820080	13 03 22	-37 19 04	69.2	14.12	1.85	-0.8	4742			+
244	4440270	13 22 02	-30 02 49	147.9	13.17	1.60	-5.0	4250	PG	102	4.775
	4440280	13 22 06	-30 04 22	105.9	14.09	1.36	0.0	4727			-
245	2700090	13 22 32	-42 45 25	840.8	7.60	1.31	-2.0	534	NO	10916	0.955
	2700170	13 31 46	-45 17 45	683.9	11.69	1.66	9.0	825			-
249	5090211	13 25 14	-26 50 56	84.1	14.70	1.18	7.0	7580dC	PG	15	
	5090210	13 25 15	-26 50 41	0.0	14.76	1.22	1.4	8181			+
250	3830140	13 28 58	-32 58 58	88.1	14.00	1.96	-2.0	3519	PT	63	40.667
	3830150	13 29 02	-32 58 40	136.5	12.69	1.38	-2.0	3723			+
253	2700221	13 34 39	-42 35 27	47.3	15.22	1.25	1.0	373	S	13	0.318
	2700220	13 34 40	-42 35 34	130.3	13.26	0.92	3.4	373			+
254	5090920	13 37 34	-23 36 18	105.9	13.63	1.27	5.0	6539	PG	241	3.183
	5090930	13 37 40	-23 40 04	75.9	15.94	1.39	2.0				-
256	4450170	13 40 32	-28 43 01	67.6	14.58	1.12	6.0	8946	S	4	1.910
	4450171	13 40 32	-28 43 04	27.2	17.03	-1.43	9.3	8898dC			+

continued on next page

TABLE 2 *(continued)*

Pair numb.	ESO id.	R.A. (1950.)	Decl. (1950.)	a_{25} (arcsec)	B	(B-R)	T	cz (km s^{-1})	Categ.	Sep. (arcsec)	N_{tot} Criteria
258	3250190	13 43 50	-37 39 35	51.3	14.74	1.53	2.3	11360	PG	15	
	3250191	13 43 51	-37 39 21	50.7	14.88	1.45	3.5				+
259	4450300	13 44 32	-30 09 28	53.7	15.18	1.61	-2.0	4386	PG	41	15.167
	4450301	13 44 34	-30 08 52	75.0	14.09	1.70	2.0	4386dC			-
260	2210011	13 45 09	-50 10 01	27.2	15.83	0.56	-0.2	8240	S	40	
	2210010	13 45 09	-50 10 40	42.2	14.68	0.96	-3.0	8150dC			+
264	5100360	13 57 36	-23 03 54	50.7	15.19	1.54	4.7	10960	PG	29	
	5100361	13 57 38	-23 03 43	65.3	14.99	1.56	-0.2	10960dC			+
268	5780290	14 06 42	-17 37 47	50.7	14.31	0.76	-5.0		PG	680	10.000
	5780320	14 07 30	-17 36 07	74.1	15.08	0.82	2.0				-
269	970120	14 06 45	-65 20 49		14.16	2.05	8.5		NO	1297	0.318
	970130	14 09 17	-65 06 18	518.8	10.89		3.0	436			+
275	5110310	14 16 30	-27 08 24	85.1	14.26	1.48	-2.0	6689	PG	95	5.093
	5110320	14 16 36	-27 08 41	73.3	14.41	1.59	0.0	6421			-
279	2720250	14 40 09	-44 29 34		14.79	0.79	7.5	597dC	S	13	0.637
	2720251	14 40 10	-44 29 27	88.1	14.54	0.67	7.7				+
282	2740050	15 12 22	-43 52 11	68.4	15.31	1.46	7.0		PT	315	1.273
	2740060	15 12 47	-43 49 47	63.1	14.53	1.94	-5.0				+
285	1370440	16 46 24	-61 43 47	96.6	13.68	1.90	-2.0	4563	PG	25	
	1370441	16 46 26	-61 44 05	44.2	15.38	1.97	-1.6				+
291	1820130	18 18 40	-56 30 43	80.4	14.07	1.26	-3.0	5151F	NO	817	0.318
	1820140	18 20 05	-56 23 49	71.6	14.41	1.31	1.0				-
294	1410171	18 56 23	-62 07 48	110.9	14.00		9.8		PG	29	
	1410172	18 56 27	-62 07 48	113.5	14.70		7.7				-
297	1040360	19 02 18	-65 32 24	83.2	13.75	1.53	-3.0		PG	155	1.273
	1040370	19 02 35	-65 30 25	68.4	14.31	1.46	-5.0				-
310	1850611	20 01 44	-54 31 04	117.5	13.39	1.35	-5.0	5709dC	S	8	3.183
	1850610	20 01 45	-54 31 12	113.5	13.52	1.46	-3.0	5285F			+
315	4620130	20 19 41	-31 43 22	70.8	15.00	0.93	6.0	3011	PT	248	0.637
	4620140	20 19 55	-31 40 30	65.3	15.12	1.45	2.4				-
317	4000290	20 25 20	-36 11 34	167.9	12.67	1.55	-2.0	2277	PT	63	1.592
	4000300	20 25 22	-36 12 36	158.5	13.47	0.52	-3.0	2281			+
324	5280350	20 40 35	-26 46 04	62.4	15.99	1.38	-5.0		PG	207	10.833
	5280360	20 40 47	-26 43 55	50.1	14.90	1.91	-3.5	12195			+
326	740091	20 44 06	-69 16 48	21.9	13.35	-0.17	-1.5		S	24	
	740090	20 44 11	-69 16 40	24.3	15.23	1.06	2.5	11413			+
328	2850551	20 45 15	-43 28 15	67.6	14.82	1.42	1.4		S	6	0.637
	2850550	20 45 16	-43 28 11	41.7	15.12		-1.4				+
332	1870250	20 48 16	-52 58 40	97.7	14.08		-5.0	13073	PG	33	
	1870251	20 48 19	-52 58 47	98.9	14.06		7.6				+
339	2350430	21 00 17	-49 13 40	104.7	13.36	1.55	-5.0	7508	PG	345	6.048
	2350460	21 00 34	-49 18 43	68.4	14.61	1.43	-1.0	7200			-
347	2360130	21 24 05	-49 16 55	70.8	14.15	1.19	-5.0	9048dC	PG	145	0.955
	2360140	21 24 06	-49 19 19	65.3	14.86	1.04	-2.0	9600			-

continued on next page

TABLE 2 *(continued)*

Pair numb.	ESO id.	R.A. (1950.)	Decl. (1950.)	a_{25} (arcsec)	B	(B-R)	T	cz (km s^{-1})	Categ.	Sep. (arcsec)	N_{tot} Criteria
348	3420520	21 25 54	-41 59 49	75.0	14.30	1.11	4.0		PG	771	1.910
	3420530	21 26 06	-42 12 28	53.7	16.66	0.97	6.6				-
353	2880010	21 43 01	-46 45 07	89.1	13.74	1.25	0.2	9588	PG	22	10.000
	2880020	21 43 03	-46 44 49	75.9	13.54	1.19	4.1	9875			+
355	4660090	21 47 09	-31 09 28	82.2	15.82	0.74	3.0		PG	368	0.955
	4660110	21 47 30	-31 13 40	121.6	13.34	1.51	-3.0	5362			-
366	4670030	22 03 24	-28 12 10	46.2	15.12	1.25	4.0	7024	PT	38	3.820
	4670031	22 03 25	-28 12 43	136.5	13.83	1.12	6.7				-
367	4670080	22 04 00	-31 17 42	78.5	14.54	0.65	3.0	2590	NO	17	
	4670081	22 04 01	-31 17 56	60.3	14.93	0.99	3.5	2590dC			+
368	4670120	22 06 17	-28 03 17	139.6	12.48	1.08	4.0	6899	PG	34	4.775
	4670121	22 06 17	-28 02 45	154.9	12.64	1.07	5.4	6949dC			+
370	1080180	22 08 42	-62 58 19	42.2	14.82	0.84	-2.5	8430	PG	45	
	1080181	22 08 49	-62 58 04	23.2	16.41	0.84	4.5				+
372	2880510	22 09 22	-47 28 04	114.8	13.37	1.48	1.1	1537	S	12	2.228
	2370460	22 09 23	-47 28 11	110.9	13.30	1.04	3.0	1570			+
374	6020031	22 14 04	-21 30 00	130.3	13.99	0.57	7.4	2586dC	S	27	2.546
	6020030	22 14 05	-21 30 00	149.6	14.35	0.49	9.5	2571			+
375	1460200	22 19 12	-60 01 37	74.1	14.74	0.52	5.0	4750dC	PG	108	1.910
	1460210	22 19 25	-60 02 23	33.9	15.98	0.56	7.0				-
376	5330200	22 19 46	-23 46 37	34.3	14.74	1.29	-2.0	11612dC	PT	35	0.955
	5330210	22 19 47	-23 46 04	61.0	14.32	1.32	-5.0	11620dC			+
379	4670570	22 22 50	-31 27 17	71.6	14.25	1.50	0.0	8494dC	PG	22	
	4670571	22 22 52	-31 27 14	56.2	15.44	1.26	3.7				+
390	4060200	22 52 34	-34 09 28		14.29	1.36	1.5		PT	37	
	4060201	22 52 35	-34 09 57	156.7	13.51	1.26	6.0	8624dC			+
391	2900511	23 04 05	-43 09 14	46.2	15.72	1.38	3.0		PT	29	
	2900510	23 04 05	-43 09 43	60.3	14.80	1.32	-3.0	12534			-
394	3470150	23 23 42	-39 29 31	35.9	15.27	1.43	-2.0	10980dC	PG	36	0.955
	3470160	23 23 42	-39 30 07	53.1	14.95	1.45	-2.0	10456dC			-
395	3470171	23 24 13	-37 37 19	124.5	14.19	0.33	8.5		S	23	0.000
	3470170	23 24 15	-37 37 19	58.2	15.77	-2.50	9.4	690			+
403	500020	23 41 39	-70 08 06	60.3	14.81	1.26	6.3	3816dC	S	5	0.637
	770300	23 41 40	-70 08 06	67.6	14.59	0.84	6.0				+
405	4710190	23 45 09	-28 25 01	197.2	13.42	1.43	-5.0	8631	PG	25	29.500
	4710191	23 45 10	-28 24 50	147.9	13.46	1.34	-4.0	8607dC			+
406	1100290	23 49 31	-62 51 00	90.2	14.68	1.36	1.0		PT	120	0.637
	780090	23 49 48	-62 50 31	39.8	15.58	0.89	1.0				+

Notes: Some of the galaxies in the field around above pairs are not in the ESO-LV catalog because their diameter is lower than 1 arcmin. Futher, in few cases, a single object (or what appears as a single object) has two distinct entries in the catalog. Inspecting the fields, using the Digitized Sky Survey, we classified such pairs in the following way: **PG** = possible group, **PT** = possible triplet, **S** = single disturbed, **OP** = optical pair, **NO** = object that we reject after inspection essentially because in high density field.

factor of three the optical pairs and of a factor of two the false ones there is 50% of probability of losing real isolated pairs. Even if estimates done by Karachentsev and Shcherbanovsky (1978) are model dependent, it is realistic to expect similar percentage of optical and false pairs in our compilation. This is among the reasons because we identified in the DSS those candidates pairs with a higher density of nearby objects and devised for them different fiducial classes (classes PT and PG in Table 1 and 2)

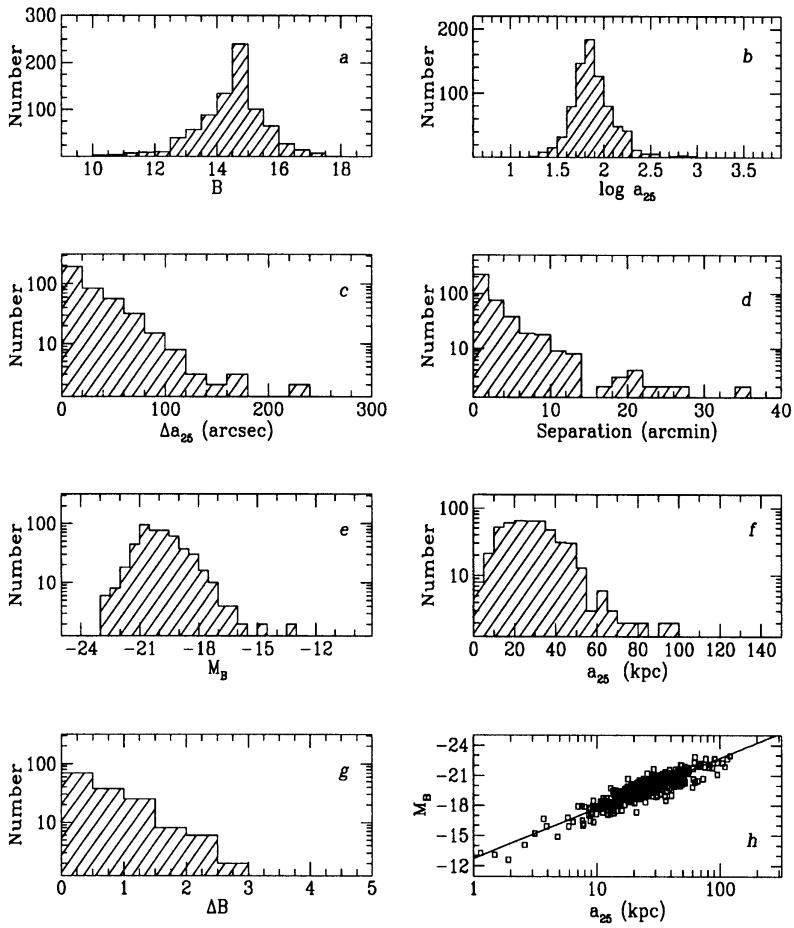

FIGURE 3. Distributions for apparent B magnitudes (panel *a*), diameters (panel *b*), difference of the member's diameters (panel *c*), projected separation (panel *d*), absolute M_B magnitude (panel *e*), linear diameter (panel *f*), difference of member's apparent B magnitude (panel *g*). Relation between linear diameter and M_B (panel *h*). The absolute quantities have been computed for the objects for which the recession velocity is available using H_0=75 km s^{-1} Mpc^{-1}

In Fig. 3 are plotted the main characteristics of the selected 409 doubles whose distribution on the celestial sphere is shown in Fig. 4. The Fig. 3 (panel *a*)

shows, once more, that the distribution starts to miss objects starting from 14.5 magnitudes. The distribution of apparent separation (panel *d*) is peaked toward small values. Similarly there is a small spread between member galaxies apparent magnitudes and diameters, as expected by the application of the K72 criteria (panels *c* and *g*).

Some biases of CPG are emphasized by Sulentic (1990). We wish to remember, in particular, that since small projected separations are privileged this means to select special orbital phases, i.e. near the perigalacticon. At the same time merger candidates, near coalescence, can be lost if they are classified as a single galaxy, irrespective to the double nuclei appearance. Merger candidates may rightly be considered the final phase of the dynamical evolution of pairs. Bergvall (1981 a,b) in his survey, for instance, found a large number of isolated objects that show signs of disturbance. In the ESO-LV there are many objects with two entries in the catalogue that at an inspection on the DSS reveal as single galaxies. Many of such objects have disturbed appearance and this is the reason because we did not discard them. A further analysis is needed in order to investigate the nature of this class that we indicate as S in Table 1 and 2.

None of the compilations are similar to another or free from biases, not only for the different adopted criteria but also because of the different methods used in measuring the applied employed parameters (in particular isophotal diameters). With this in mind we will discuss in the next paragraphs the comparison of our sample with two similar compilations which have been obtained from the direct inspection of the plate material. This will give us a direct check about how reliable is our automatic search procedure.

A first comparison may be obtained with a compilation of 29 pairs published by Sadler & Sharp (1984). 13 objects out of 29 (45%) of the Sadler & Sharp list of objects appear also as candidate pairs in our catalogue. The percentage is justified by the fact that the authors used less restrictive Karachentsev criteria. The effect of the different values adopted on the sample selection can be illustrated with some examples in nearby pairs. NGC 1549/1553 is present in the Sadler & Sharp compilation. The double is in the Dorado Cloud (53 -1 +1; Tully 1988) together with 11 galaxies having an average recession velocity of 1006 km s^{-1} . These objects have a recession velocity respectively of 995 and 1024 km s^{-1} (Rampazzo 1988). NGC 1549/1553 is also known for the system of shells and ripples present in both galaxies (Malin & Carter 1983) which origin is ascribed to the accretion of a small companion (Barnes & Hernquist 1992), so they are probably in a rich environment. The double NGC 1531/37 (our Pair # 85) is also in the Dorado cloud and forms a subclump (53 -13 +13), probably a triplet (Tully 1988), with NGC 1532. On the other side, there are different evidences that NGC 1531/32, excluded by our criteria being too hierarchical, is a real pair. For instance, the spectra of the spiral member NGC 1532 shows an inversion of the [N II]/Hα (see Sperandio *et al.* 1994), a phenomenon which is probably connected to the interaction induced bar formation (see Rampazzo *et al.* 1994). In any case, it is not possible to exclude that all these objects in the Dorado cloud may fall into the general category of false pairs described above.

A second useful comparison is the unpublished compilation by Sulentic (1991: private communication) used as basis in the study done by Rampazzo & Sulentic (1992). Besides the fact that it has been extracted directly from plates, the com-

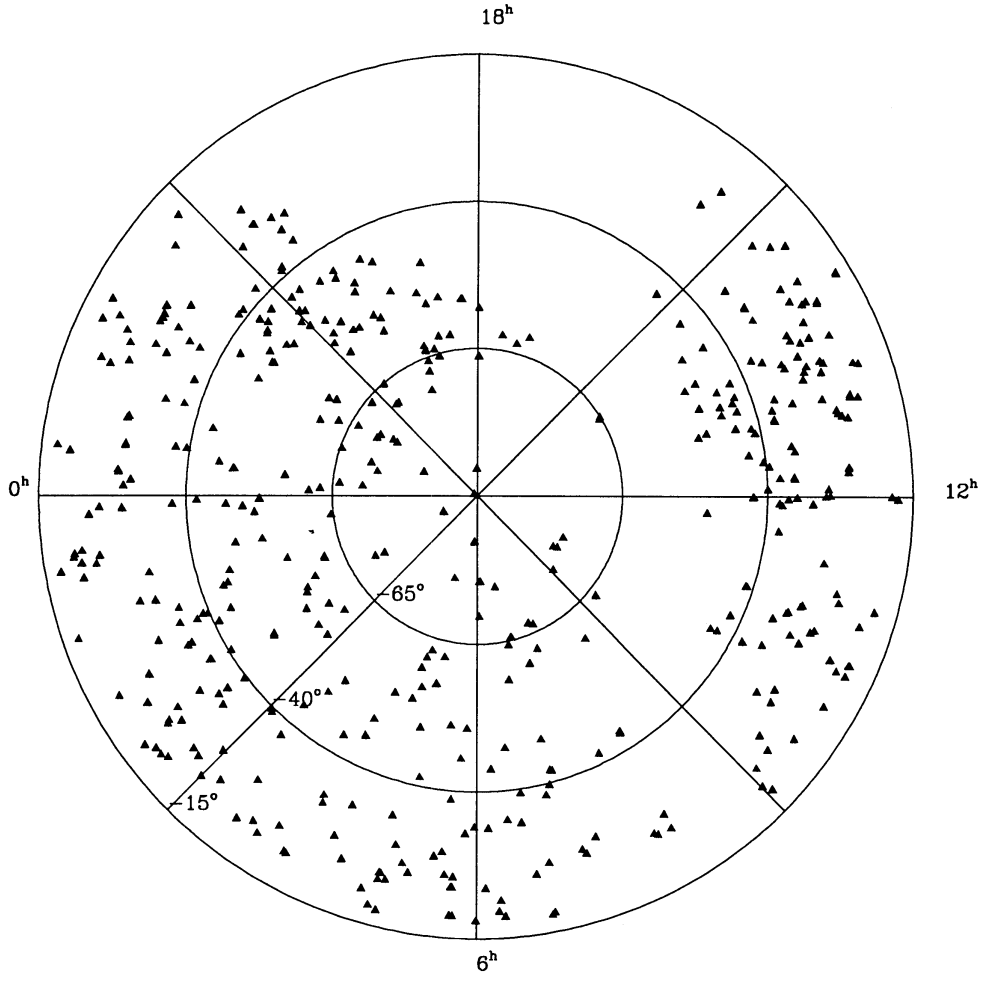

FIGURE 4. Distribution of the sample in celestial coordinates.

pilation includes objects fainter than those listed in ESO-LV. Then it may give us an indication about the completeness of our compilation. The Sulentic compilation contains 119 candidate pairs in the range $15^h - 3^h$. The comparison gives the following results. 47 pairs are not found because members do not belong to ESO-LV, but for only 10 among them one member has a magnitude lower than 15 (8% of the total sample) than have to be in our sample but the lack of the companion in ESO-LV prevents us to find it. Finally 12 are not found because they do not satisfy in a rigorous way the criteria we applied. These latter are, in all cases, candidate pairs in rich environment, where the strict application of the rules is critical. The direct work on the plates does not facilitate the measurement of the diameters and,

in some sense, is a more subjective and less repeatable measurement than one obtained from accurate surface photometry. In any case, even if we consider this 12 as discordant cases, the agreement with the Sulentic compilation reaches the 80%.

3. FIRST ANALYSIS OF THE SAMPLE GENERAL PROPERTIES

For 169 pairs out of 409 (41%) is known the velocity difference of the members while the recession velocity for at least one member is known for 491 objects (60% of the total). In many cases there exists more than one measure for each galaxy member. The estimate given by the different authors for the error on the recession velocity is, in average, 50 km s^{-1}. It corresponds to the typical formal error of the mentioned surveys. In the following analysis we subdivided the pairs into three classes: E+E pairs are composed by members which are both classified as early-type galaxies in ESO-LV (Type ≤ 0.0), in S+S both are late-type (Type > 0.0), while E+S are mixed morphology pairs. 150 out of 169 pairs (89%) have a velocity difference lower than 1000 km s^{-1}. We selected this limit differently from Karachentsev (1989) because pairs with velocity difference larger than his limits (500 km s^{-1}) are actually known to show strong sign of interaction (see Combes *et al.* 1994 and reference therein), although they may represent unbound encounters. We then estimate that 11% of our doubles could be optical alignment.

Distribution of projected separations and relative velocities of members

In Fig. 5 we plot the distribution of the projected separation for the candidates in our sample and for each of the three morphological categories of pairs above described. As noticed before, it appears evident that the pairs with small projected separation are privileged. All categories have a median projected separation $\approx$ 35 kpc similarly to the average value of 32 kpc obtained by Karachentsev (1990) before any bias correction. E+E pairs show a median separation lower than the other two categories (see also Demin 1984).

In Fig. 6 is shown the distribution of the recession velocity for all the galaxies for which a measurement is available (simple shading) and for the doubles for which the velocity of both members is known (double shading). Since the trend of the two distribution is very similar, the analysis we performed on the latter sample (41% of the total) may give useful information on the general properties of all candidate pairs.

The spatial distribution of pairs obeys a common law of hierarchical clustering as in the northern hemisphere (Karachentsev 1990), i.e. they are found, in general, at *the edge of superclusters* as can be shown with appropriate cuts in velocity (see also Fig. 12 at the beginning of the Atlas). In Fig. 7 we show the distribution, in *cz* and *R.A.*, of the objects and indicate the main structure visible in the Southern Hemisphere as deduced from Fairall & Jones (1991). As noticed before, the bulk of the known redshifts come from large scale structure dedicated surveys as emerges from the figure. In fact, in the distribution of Fig. 6 it is possible to identify a peak in the area of Fornax ($\approx$ 1500 km s^{-1}), while to the peak around 3500 km s^{-1} contribute pairs in Centaurus, Hydra I region and in the Sculptor Wall. Pairs in Centaurus-Pavo and the extension of the Sculptor Wall contribute at the peak around 9000 km s^{-1}. On the other side, in Fig. 1 is already visible that the distribution of pairs is not uniform at brighter magnitudes where the influences of

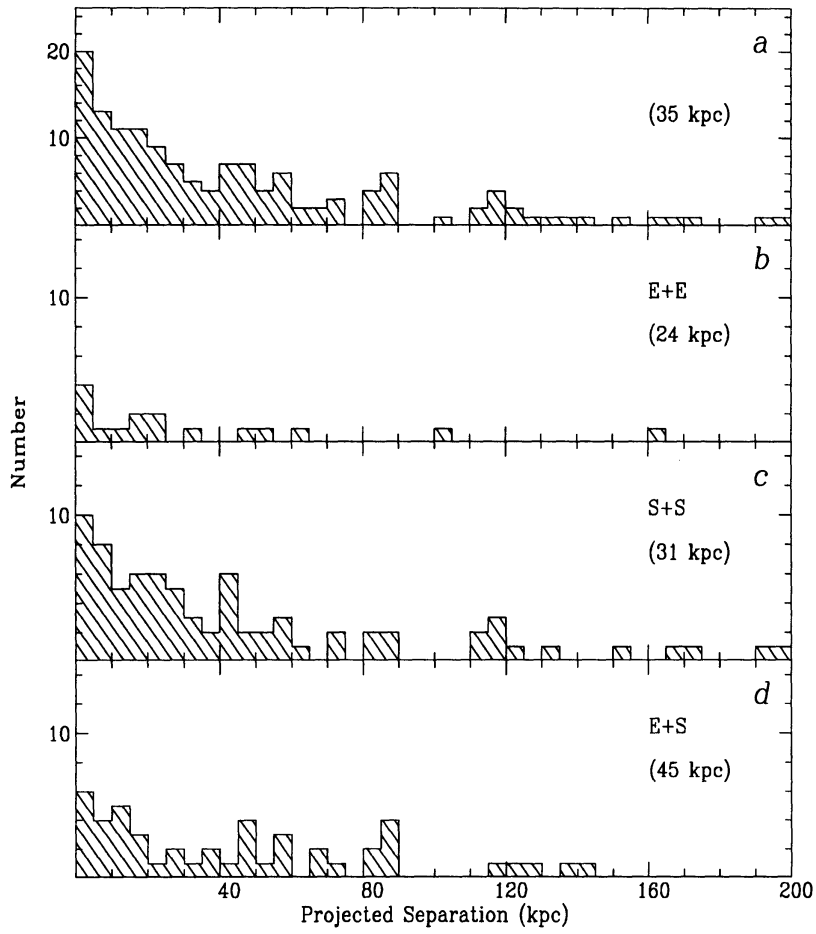

FIGURE 5. Distribution of linear projected separation for the sub-sample of doubles with recession velocity difference known (panel *a*). The same is shown for the three different classes of candidate pairs (panels *b*, *c*, *d*).

the near Large Structures can emerge with more evidence. In the ESO-LV catalogue is given for each galaxy a projected surface density, N_{tot}, i.e. the number of galaxies per square degree, inside a radius of 1 degree. The authors demonstrated that N_{tot} can be an indicative measure of the true local volume galaxy density for $N_{tot} > 10$ which means that the galaxy is located in rich clusters like Centaurus, Hydra, Fornax. When $N_{tot} < 10$ the value is linearly correlated with the 'fraction of galaxies in cluster' (Fig. 11 in ESO-LV). In Fig. 8 (right panel) is shown the distribution of the N_{tot} density parameter for our best candidates sample. If different N_{tot} values are reported in ESO-LV for each pair members we plot and report in the Atlas and Table 2 the larger one. Our best candidate pairs have a median value of $\langle N_{tot} \rangle = 1.59 \pm 0.80$. Following ESO-LV, the distribution indicates that less than 20% of the pairs could be members of rich clusters.

Fig. 8 (left panel) also shows the velocity difference distribution. It can be

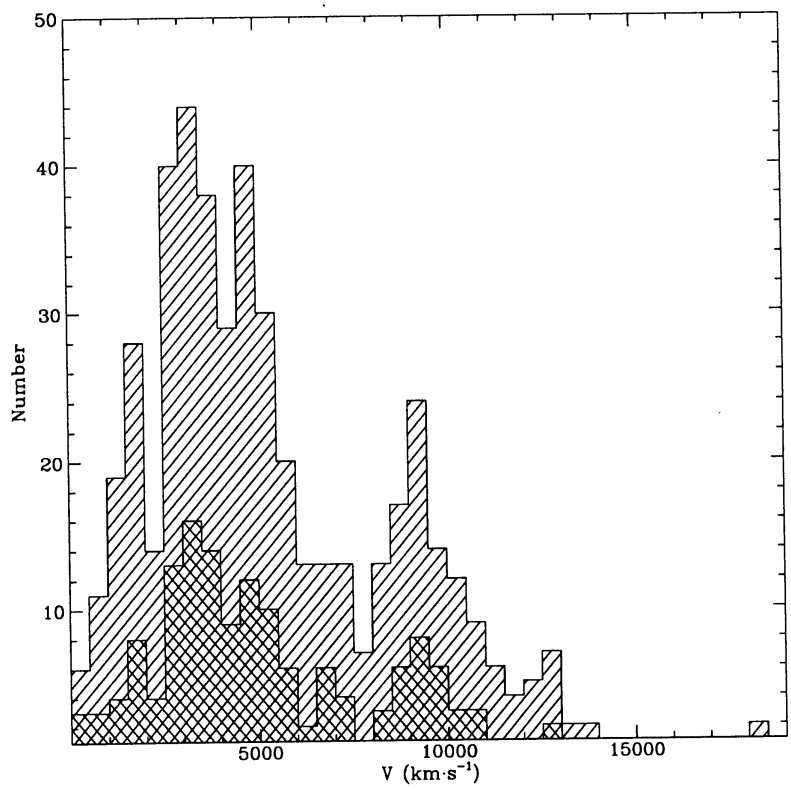

FIGURE 6. Distribution of the recession velocity for the galaxies in the sample for which a measure is available (simple shading) and for pairs with velocity difference known (double shading). Since the trend of the two distribution is very similar, the analysis we perform on the second sub-sample (41% of the total) may give useful information on the general properties of the full sample of candidate pairs.

approximated by an exponential law and the global median value is 129 km s^{-1}.

Pair members morphology

Dressler (1980) has verified that galaxy morphology depends on the environment where the galaxy resides: this is known as the morphology-density relation.

Since the N_{tot} median value, previously discussed, is quite low the pair environment can be safely considered as intermediate between field and group. We can then compare the percentage of pair types with that fraction of morphological types derived from the study of previous environments.

Fig. 9 shows that, according to the classification given in ESO-LV, there is not a strong tendency in pairs to show a morphological concordance between members. This effect is also found by Soares *et al.* (1994) in their sample selected with criteria completely independent from ours. On the other side this contrasts with both Karachentsev (1990) and Yamagata (1990) studies which indicate that there is a tendency of pairs whose members have similar morphological type.

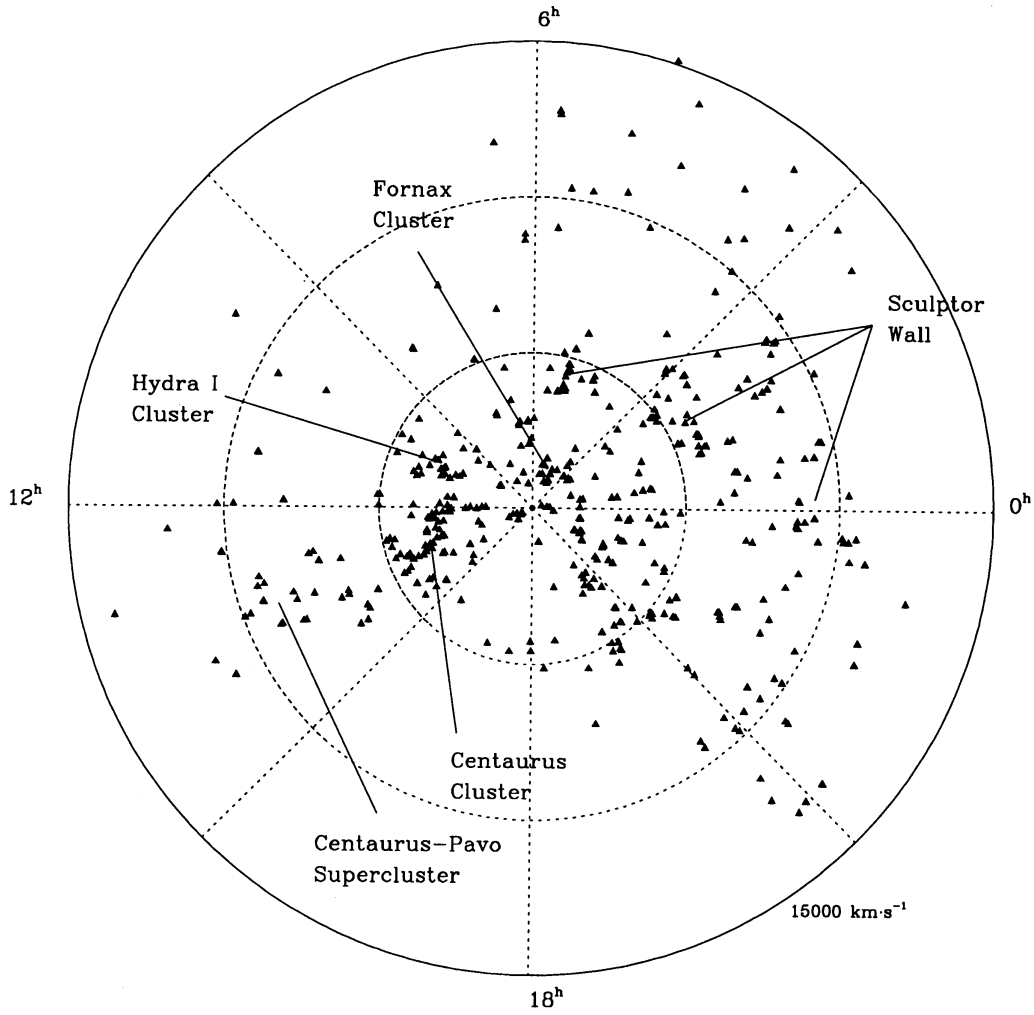

FIGURE 7. Distribution of pairs and main nearby Large Scale Structures in the southern hemisphere. Starting from the center the dashed circles marks 5000 and 10000 km s^{-1} respectively. The information on the large scale structure is derived from Fairall & Jones (1991).

Sulentic (1990) computed the expected frequency of E+E, E+S, S+S random association from available compilations of isolated galaxies (Noerdlinger 1979, Gisler 1980). The expected rate from the field is 4% for E+E, 32% for E+S and 64% for S+S. Jerjen *et al.* (1992) in order to represent the global luminosity function (LF) of 'extreme field' and 'group' galaxies used a percentage of early-type galaxies respectively of 0% and 9%. So the expected fraction of E+E pairs has to be in this range.

Using the pairs of our sample which have $\Delta V < 1000$ km s^{-1} we obtain the following distribution: 14% of E+E, 35% of E+S and 51% of S+S. If then com-

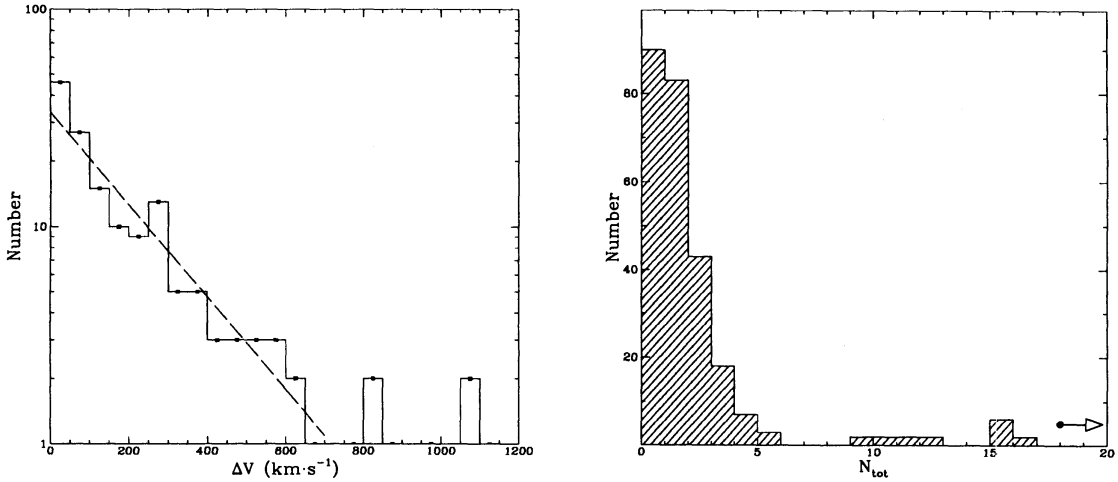

FIGURE 8. (left panel) Distribution of the velocity difference for the candidate pairs for which this measure is available. The distribution can be represented by an exponential function similarly to the one obtained in the CPG. The median of the velocity difference is 129 km s^{-1} which compares quite well with 120 km s^{-1} of CPG. (right panel) The distribution of the N_{tot} parameter. For values larger then 10 the objects are in cluster. The arrow indicates that two pairs have values larger then 20.

pared with the values expected there is an overaboundance of E+E with respect to both random association and even with the fraction in groups. Following Jerjen *et al.* (1992) it is comparable to that used to fit the luminosity function of Virgo cluster. The same effect is also noticed in the CPG. One of the possible explanation suggested is that E+E pairs represent an evolved phase of loose groups (Sulentic 1990). On the other side also the large fraction of E+S poses a challenge to current theories of galaxy formation which foresee for early and late-type galaxies quite different formation mechanisms. Rampazzo & Sulentic (1992) in some sense lightened the problem showing that a significant fraction of E+S are actually S0+S or S0+S0 with tails, erroneously classified as spiral arms.

An accurate morphological classification obtained from CCD high resolution images need, in any case, to be done in order to clarify the fraction of morphological concordant pairs and twin galaxies. This phenomenon is deeply connected with the effect we will describe in next paragraph.

The Holmberg effect

Holmberg (1954) suggested that there is a correlation between the integrated colors of the pair members. There are few systematic studies in the literature about the so called 'Holmberg effect' and most of them obtained on a relatively small number of objects (Sharp & Jones 1980: 36 pairs; Demin *et al.* 1982, 1984: 40 S+S, 13 E+E). We studied the Holmberg effect on our pair candidates showing results in Fig. 10 and 11. We computed the color of each galaxy starting from

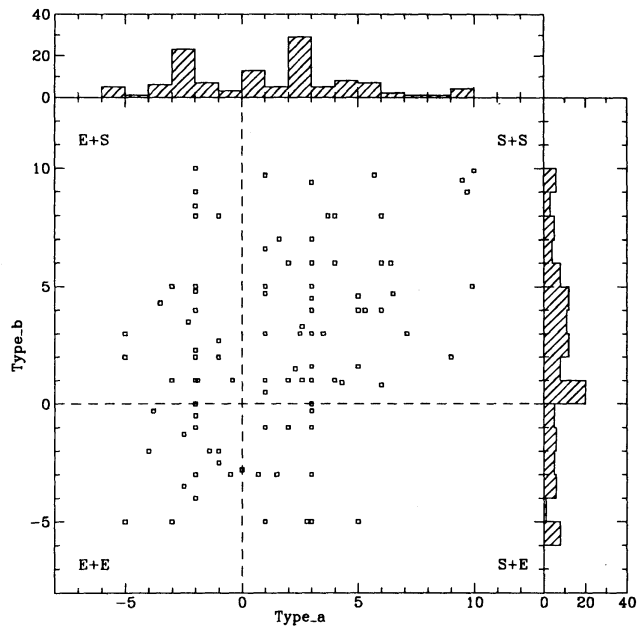

FIGURE 9. Comparison of morphological types for the members of P doubles having ΔV<1000 km s^{-1}. No morphological concordance between pair members is evident from the distribution. A large number of pairs is of mixed type (35%).

the magnitudes in ESO-LV. Since in RC3 the galactic absorption was not available for all the galaxies, we adopted the simple model where the Galaxy absorption is described by a uniformly absorbing layer similar to that proposed in RC2 (de Vaucouleurs *et al.* 1976). The internal absorption has been evaluated using RC3 recipe (de Vaucouleurs *et al.* 1991) for the B magnitude while we followed Cardelli *et al.* (1989) in building the correction for the R filter. For the analysis we applied the Spearman rank correlation coefficient test giving in the Tables 3 and 4 the following columns: N the number of data on which the test has been applied, r_s the Spearman rank correlation coefficient and t the Student's-t distributed significance parameter.

The total sample (Fig. 10, panel *a*) shows a positive correlation which do not ameliorate significantly if we consider contact pairs ($x_{1,2} \leq a_1 + a_2$) but get worse when larger pairs are considered (see Table 3). In fact, while for the contact pairs the level of significance is well besides 3 σ, for the wider ones it is not larger than 2 σ. This can be explained in a simple framework in which the stronger interaction took place after the passage at the perigalacticon. A large noise is expected because on the ground of different effect: 1) some pairs may have already undertaken interaction, 2) others are viewed just before the interaction take place, 3) in some pairs the effect is long lasting depending on the population of stars which has been triggered.

We further studied the Holmberg effect using the P sample divided in the 3 subclasses of pairs E+E, E+S and S+S (see Fig. 11). The Spearman test applied to the three categories provided significance levels besides 3 σ for E+E and S+S

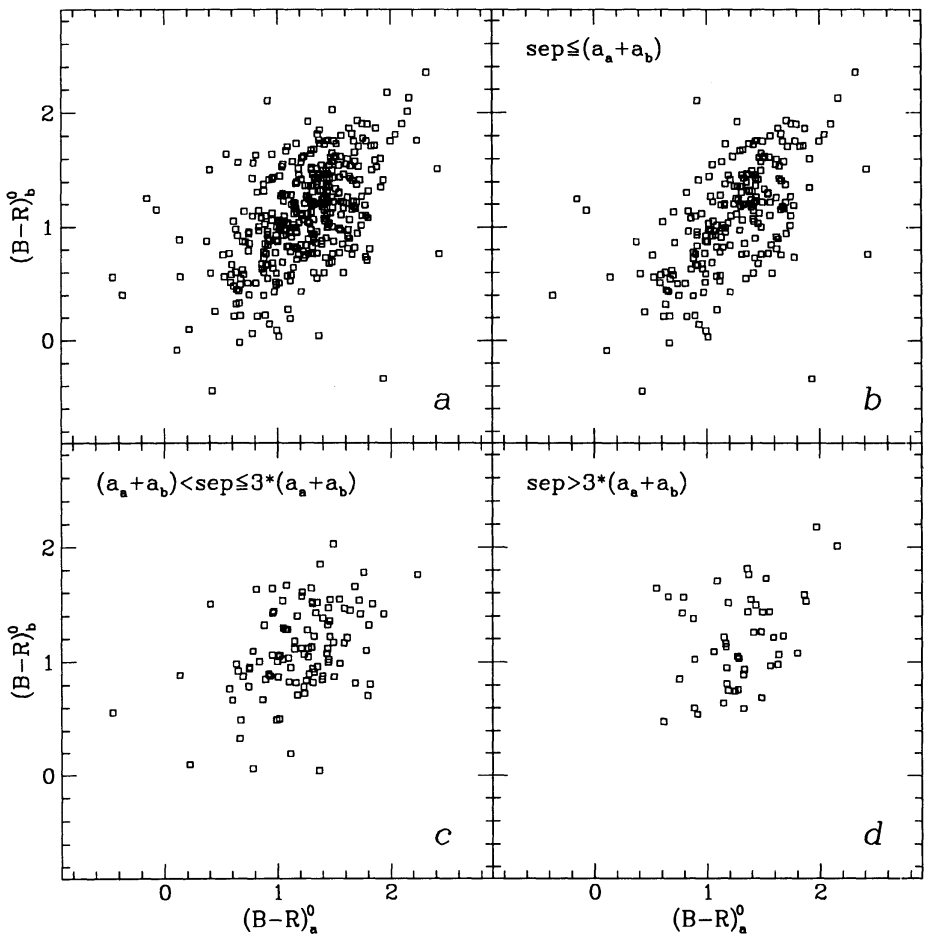

FIGURE 10. Study of the Holmberg effect. The (B-R)^0 colors of the members a and b are plotted one vs. the other for the whole sample for which colors are available (panel a). Pairs are then distincted into three classes according to their separation: contact pairs (panel b), intermediate (panel c) and large pairs (panel d)

TABLE 3: Spearman analysis applied on separation classes.

Sample	N	r_s	t
Total	373	0.51	11.32
$\text{sep} \leq (a_a + a_b)$	220	0.59	10.80
$(a_a + a_b) < \text{sep} \leq 3 * (a_a + a_b)$	105	0.39	4.35
$\text{sep} > 3 * (a_a + a_b)$	48	0.29	2.04

(see Table 4). Not significant appears the correlation for mixed (E+S) pairs, where the null hypothesis can be rejected with a 20% level of confidence.

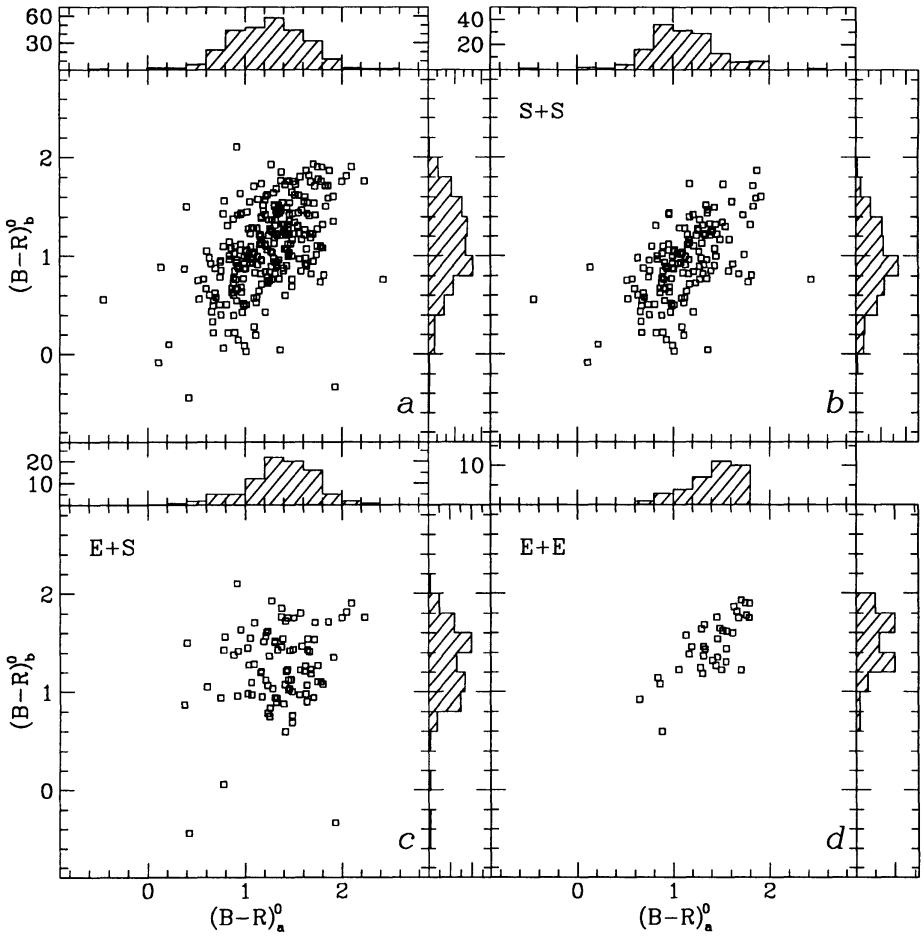

FIGURE 11. The Holmberg effect using the P sample (panel *a*) is displayed also separately for the three different classes of pairs: S+S (panel *b*), E+S (panel *c*) and E+E (panel *d*). Largely significant is the correlation for E+E and S+S pairs.

TABLE 4: Spearman analysis applied on pair classes.

Sample	N	r_s	t
Total	275	0.52	10.04
S+S	148	0.54	7.75
E+S	91	0.13	1.22
E+E	36	0.69	5.62

4. DISCUSSION AND CONCLUSION

The large and growing concentration of observing facilities in the southern hemisphere suggests the convenience of extending homogeneously well studied samples of pairs, restricted to northern declination, in order to enrich the study of the subject. From this viewpoint a sample of candidate pairs has been selected from

ESO-LV following the criteria used by K72 in selecting CPG. Our compilation, 409 candidates, has to be considered a partial complement to CPG both because it shows sign of incompleteness starting at 14.5 magnitudes and because reports candidate pairs south $\delta = -17$. The above limits are inherited from the starting catalogue. We have assembled an Atlas of the images of our best candidate pairs. Images are derived from the DSS.

The isolated pairs are found at the edge of clusters or super-clusters since the selection criteria tend to eliminate pairs which are in dense environments.

41% of the candidate pairs have the velocity difference directly available from the literature. 11% of such pairs have a velocity difference larger than 1000 km s^{-1} and were considered optical alignments. We subdivided the pairs having $\Delta V < 1000$ km s^{-1} into three large categories: E+E (14%), E+S (35%) and S+S (51%). We do not see any overaboundance of morphologically concordant pairs, although a first analysis of CCD images and previous studies (see Rampazzo & Sulentic 1992) suggest that a not negligible fraction of ESO-LV morphological classification has to be revised.

Previous percentage of E+E confirms the presence of an overaboundance of early-type galaxies in pairs with respect to association deduced from the field distribution (Sulentic, 1990) and groups (Jerjen *et al.* 1992). Sulentic (1990) suggests that these pairs could be the debris of loose groups in which merging has played a dominant role. Also E+S are very well represented in the sample challenging galaxy formation theories unless merging is taken into consideration, since chance encounters which led to physical pairing are negligible.

The Holmberg effect presence has been studied for all the three classes of pairs in a significant number of objects with respect to the previous attempts in literature. While the color of the members correlate significantly for E+E and S+S, the correlation is less significant for E+S pairs, as found by Demin *et al.* (1984). Bergvall (1981b) shows that the effect is also present significantly in hierarchical systems, but the companion is found to be redder than the primary galaxy. Since there is a nearly monotonically decrease of colours with morphological type (see Roberts & Haynes 1994), different classes of pairs may ask for different explanations being the gas richness the dominant factor. In gas poor pairs (E+E), in fact, it could simple reflects the similar stellar population. The consistency of the hypothesis of merging origin for the Es in pairs has to be tested versus the concordance between the member's colors. In fact, during a merging event both stellar populations mixing and star formation are foreseen (Barnes & Hernquist 1991) leaving long lasting signs in colors, especially if the E type merger remnant comes from gas rich progenitors. Concerning gas rich pairs (S+S and at certain extent E+S) observations in many wavelength regimes show that galaxy interactions can enhance the rate of star formation, both for galactic nuclei and disks. Together with the optical evidence cited before, evidences comes from emission lines (Keel *et al.* 1985, Bushouse 1987, Kennicutt *et al.* 1987), radio continuum emission (Hummel *et al.* 1987) and FIR emission (Xu and Sulentic 1991 and reference therein). Keel (1993) has studied the connection between star formation, the galaxy kinematic and the encounter parameters. Direct percentage of young stellar population induced by interaction has been computed by de Mello *et al.* (1994) on Pair #76 using population synthesis model. All these facts suggest that the so called Holmberg effect may not be a simple consequence of the morphological concordance of the pair members.

On the other side, we have shown that our pairs do not show a clear morphological concordance between members.

The proposed sample have to be refined at least obtaining missing redshifts. Even if not aimed to this purpose, a spectroscopic study of the pairs in the sample is going on using ESO telescopes.

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THE ATLAS

The Atlas presents the images and the properties of the doubles which we consider of fiducial class P, i.e. the best candidate pairs. The image orientation is North to the top and East to the left. The abbreviations used in the Atlas are resumed in Table 5.

The CO data come from Combes *et al.* (1994); the paper shows also Hα images of southern pairs (indicated with CPRS94 in the Atlas). Quantitative morphology of some objects in the catalog have been obtained by Rampazzo and Sulentic (1992: RS92 in the Atlas). CCD frames in B,V, R bands of 62 pairs have been obtained at the 92cm Dutch telescope at La Silla, Chile. The photometry and isophotal maps will be available in Reduzzi & Rampazzo (1994: in preparation). The abbreviations used for the recession velocity reference are: F (Fairall & Jones 1991), dC (da Costa: private communication), MPB (Maurogordato *et al.* 1991). The velocity difference, ΔV, given in the table has been obtained from the *cz* values given in ESO-LV. When different sources are available ΔV has been obtained from those measurements as homogeneous as possible (e.g. published by the same authors).

TABLE 5

abbreviation	meaning
F	the image field in arcmin
CCD	CCD photometry and isophotal map available
C-	pair satisfy the basic isolation criteria with $\chi = 5, \xi = 1/2, \lambda = 4$
C+	pair satisfy stronger isolation criteria with $\chi = 10, \xi = 1/2, \lambda = 4$
LIN ta *or* br	one dimensional attending filaments at the components with a subtype of bridges (br) or tail (ta)
ATM	luminous atmosphere that envelopes both components
DIS 1 *or* 2	the distorsion of one (1) or both (2) components is existent

In the following four pages (Fig. 12 panels a,b c, d) the projection on the celestial sphere of all the 15467 galaxies in the ESO-LV catalogue (points) is reported along with the position of the 409 candidate pairs (818 galaxies, triangles). Each panel shows a zone of 6^h in right ascension. Declination is between -15° and -90°.

FIGURE 12a

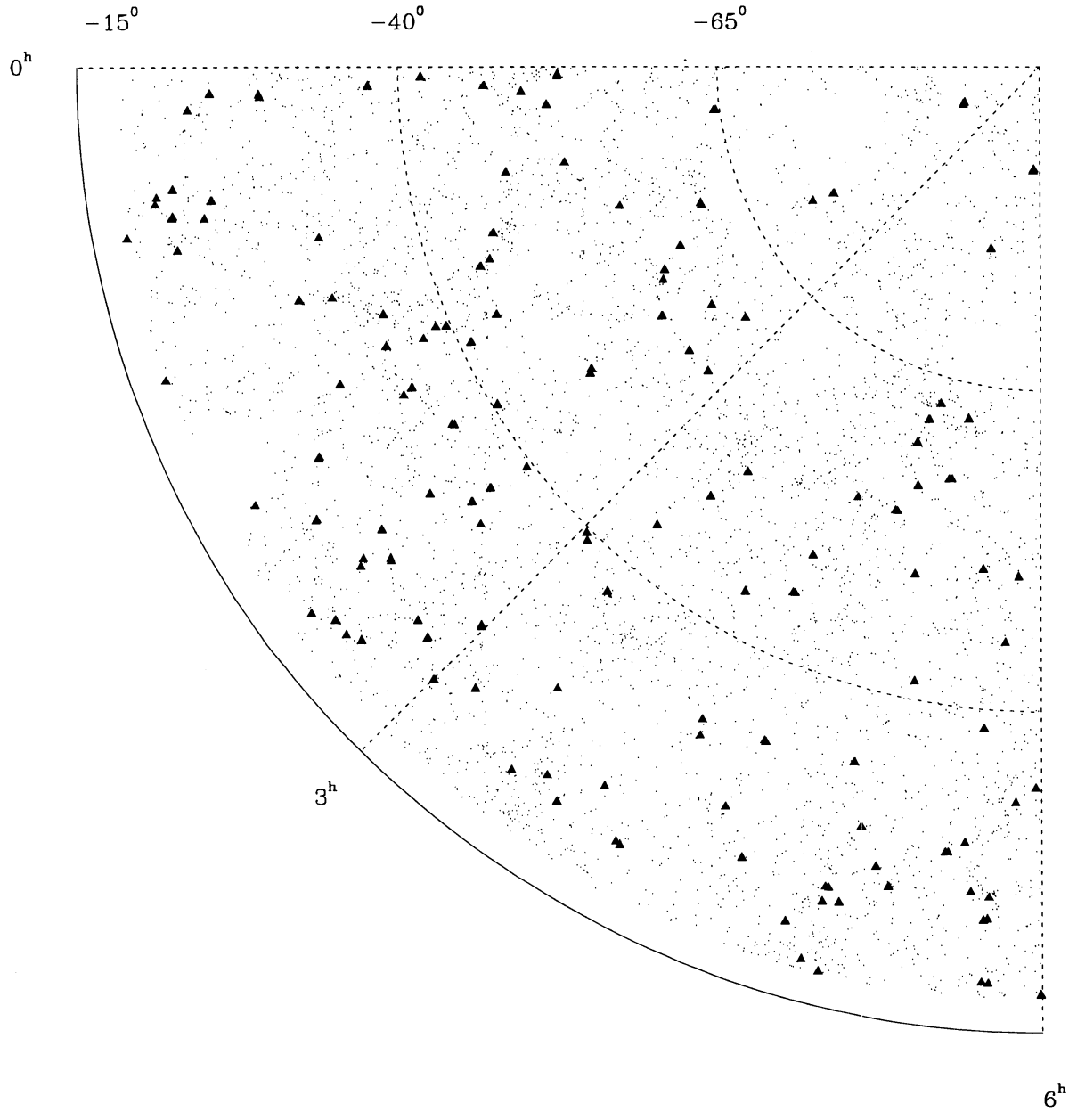


FIGURE 12b

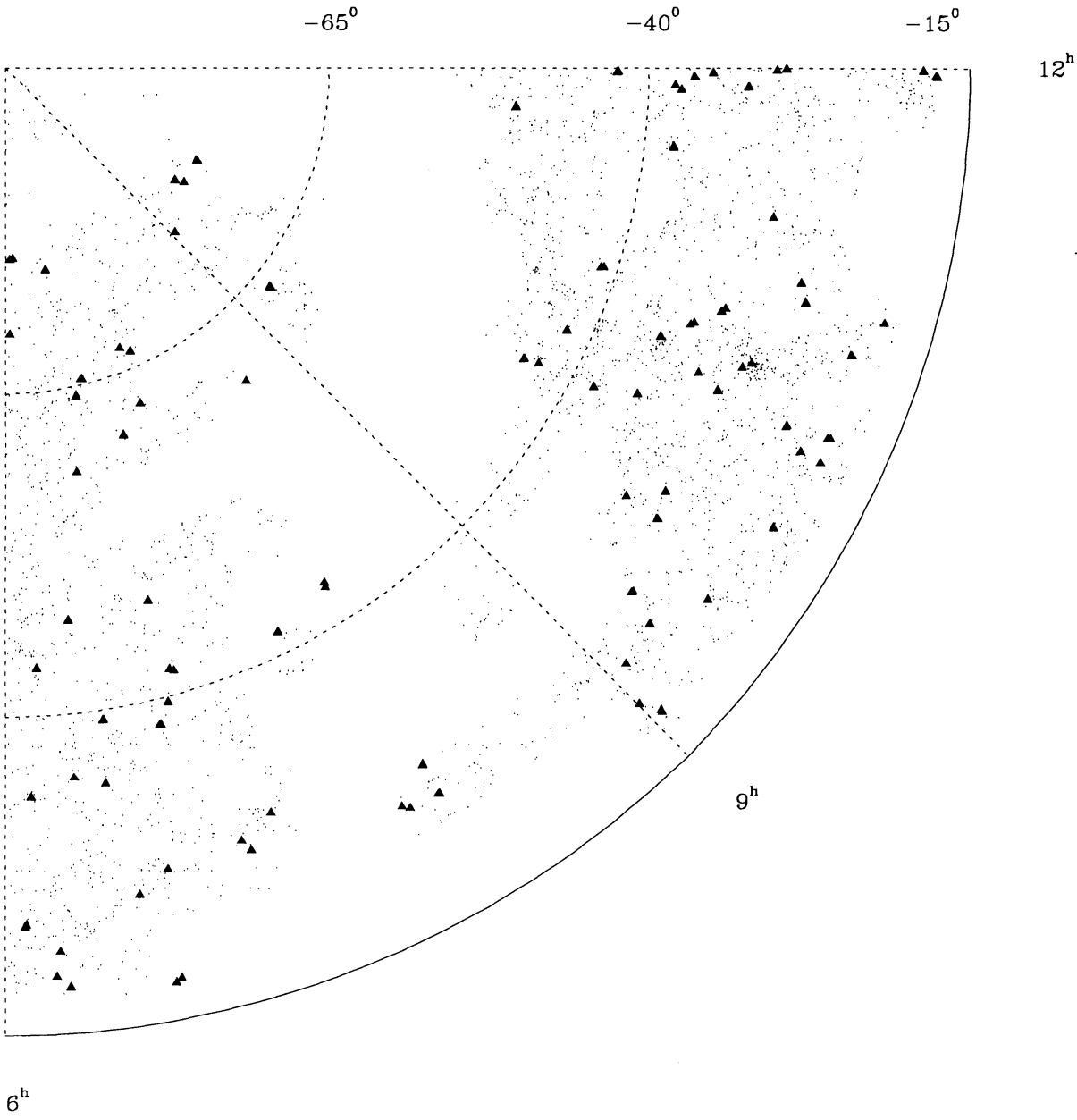


FIGURE 12c

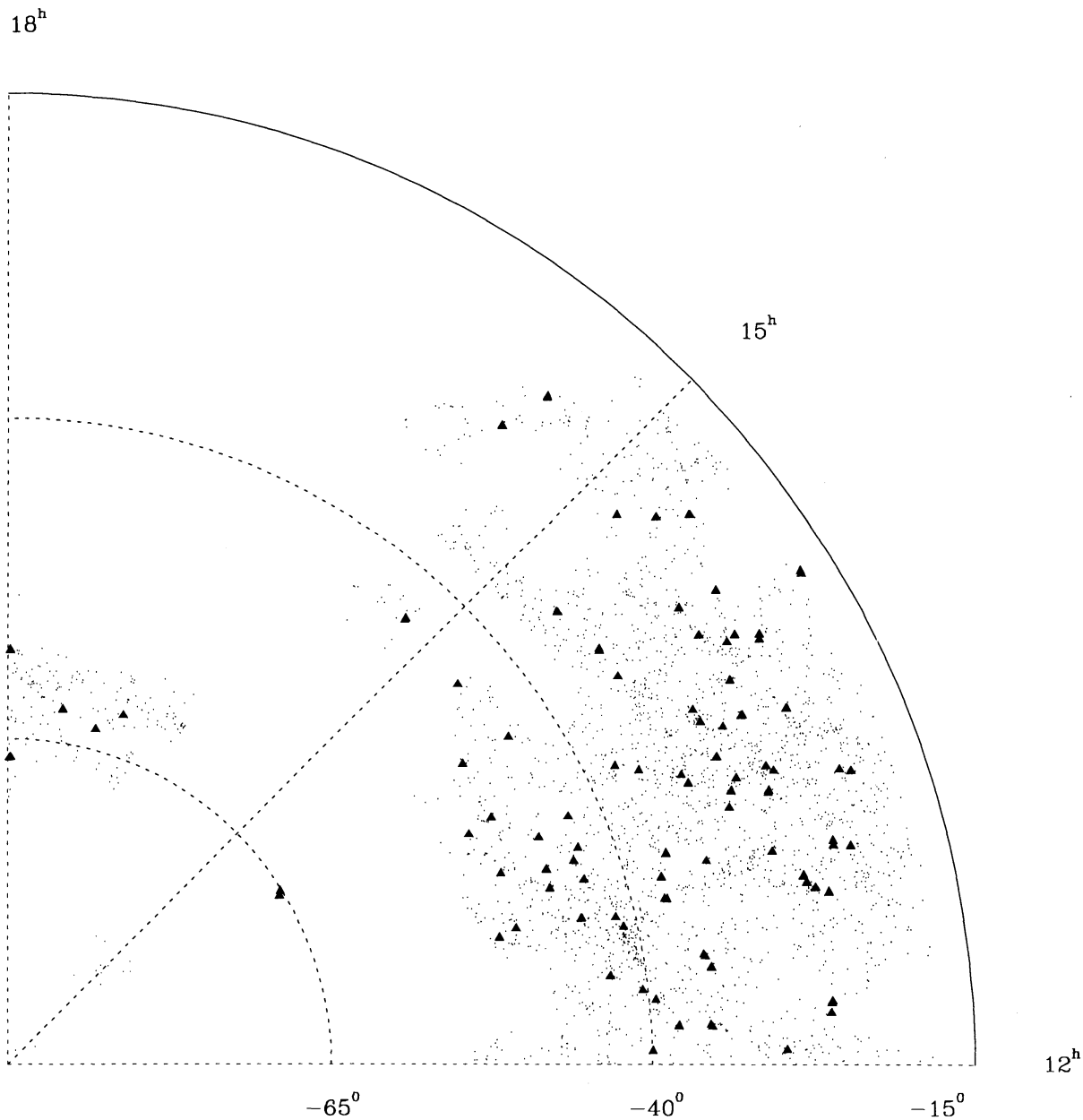
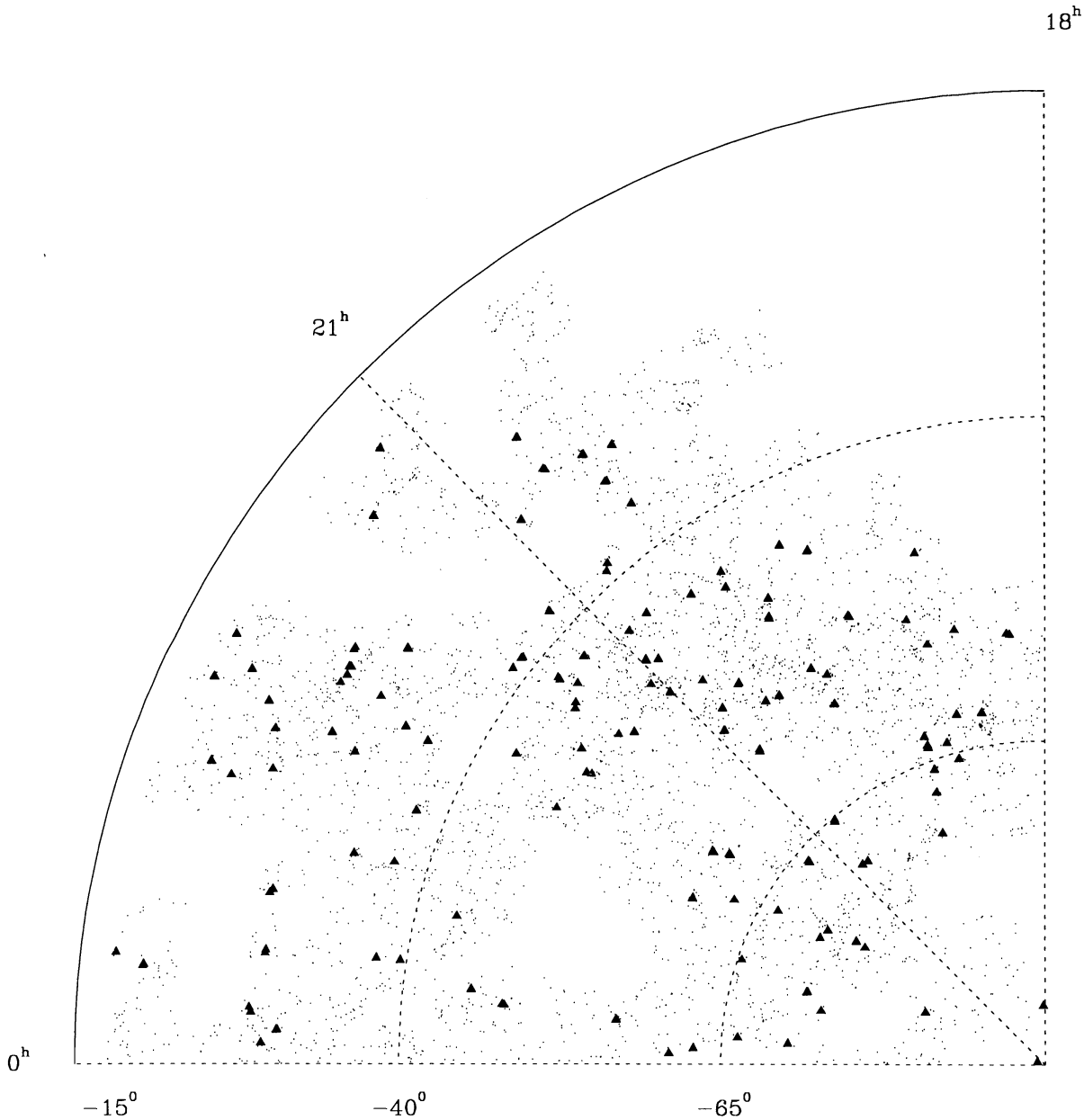


FIGURE 12d

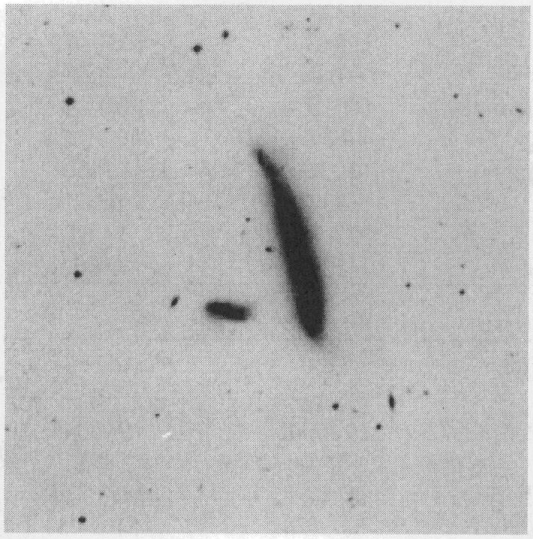


Pair 2 Data		**Galaxy Data**		
Projected separation (")	68	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	2930340	2930341
Type	DIS 1	Type	5.0	3.6
Ntot	1.592	R.A. (1950.) (h m s)	00 03 47	00 03 53
		Decl. (1950.) (° ' ")	-41 46 19	-41 46 48
Notes:		Hel. velocity (km/s)	1542	
			1500F	
F7, C+		a(25) (")	190.5	59.6
		B	12.79	15.35
		(B-R)	1.07	0.83

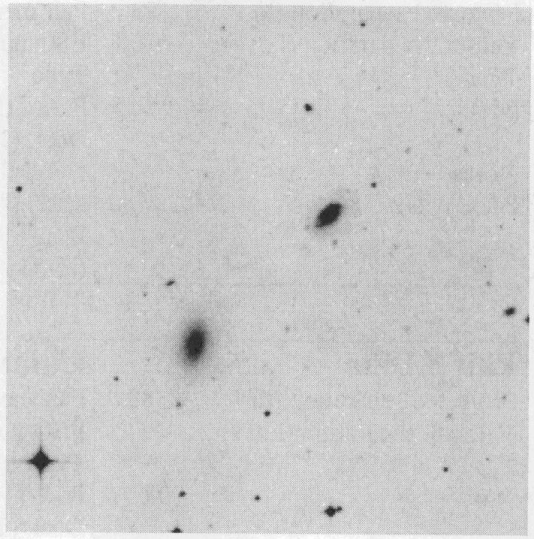
Pair 3 Data		**Galaxy Data**		
Projected separation (")	143	Pair member	**a**	**b**
Velocity separation (km/s)	45	ESO number	2930420	2930430
Type		Type	1.0	-5.0
Ntot	1.910	R.A. (1950.) (h m s)	00 06 25	00 06 35
		Decl. (1950.) (° ' ")	-37 36 25	-37 37 58
Notes:		Hel. velocity (km/s)	8703	8658
F7, C+		a(25) (")	39.4	59.6
		B	15.54	14.98
		(B-R)	1.16	1.41

Pair 4 Data		**Galaxy Data**		
Projected separation (")	7236	Pair member	**a**	**b**
Velocity separation (km/s)	97	ESO number	4720160	4730010
Type		Type	4.0	8.0
Ntot	1.592	R.A. (1950.) (h m s)	00 07 24	00 11 30
		Decl. (1950.) (° ' ")	-25 14 23	-23 27 43
Notes:		Hel. velocity (km/s)	560	463
F7a, F7b, C-		a(25) (")	380.2	380.2
		B	12.12	11.29
		(B-R)		1.26
		Other name	NGC 24	NGC 45

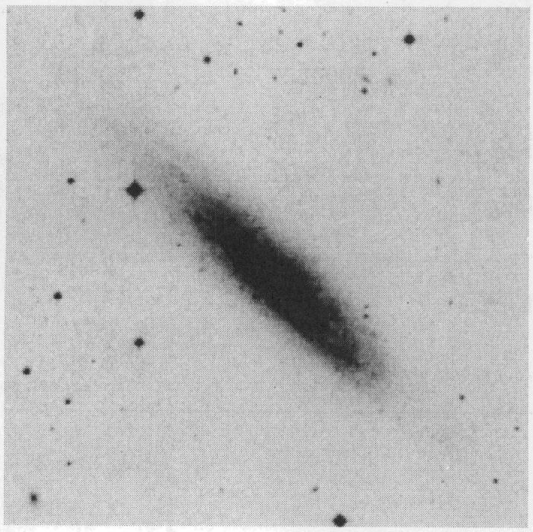
2



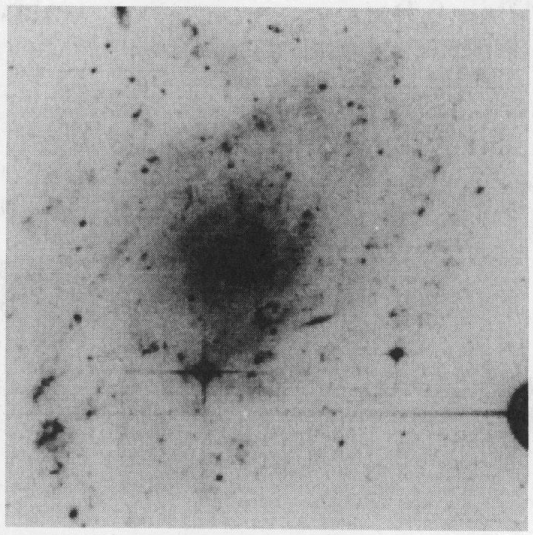
3



4a



4b

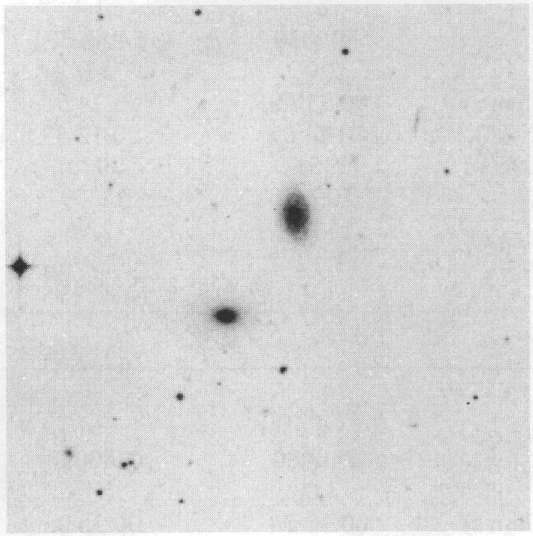


Pair 7 Data		**Galaxy Data**		
Projected separation (")	93	Pair member	**a**	**b**
Velocity separation (km/s)	6100	ESO number	1930360	1930370
Type		Type	0.0	-5.0
Ntot	0.955	R.A. (1950.) (h m s)	00 10 46	00 10 52
		Decl. (1950.) (° ' ")	-49 37 11	-49 38 24
Notes:		Hel. velocity (km/s)	10300	16400
F7, C+, OP		a(25) (")	53.7	46.2
		B	14.98	14.63
		(B-R)	1.25	1.06

Pair 8 Data		**Galaxy Data**		
Projected separation (")	88	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	1940040	1940041
Type		Type	-1.0	-0.8
Ntot	0.637	R.A. (1950.) (h m s)	00 17 12	00 17 20
		Decl. (1950.) (° ' ")	-51 32 42	-51 31 51
Notes:		Hel. velocity (km/s)	6603	
F7, C+		a(25) (")	98.9	40.3
		B	14.52	15.17
		(B-R)	1.35	1.32

Pair 9 Data		**Galaxy Data**		
Projected separation (")	500	Pair member	**a**	**b**
Velocity separation (km/s)	180	ESO number	790020	790030
Type		Type	7.1	3.0
Ntot	0.318	R.A. (1950.) (h m s)	00 29 46	00 29 47
		Decl. (1950.) (° ' ")	-64 40 01	-64 31 40
Notes:		Hel. velocity (km/s)	2772	2592
			2756F	
F14, C-		a(25) (")	113.5	184.1
		B	14.57	13.78
		(B-R)	0.89	1.67
		Lfir/MH2	66.19	6.3
		logCO/LB	-2.49	-0.59

7



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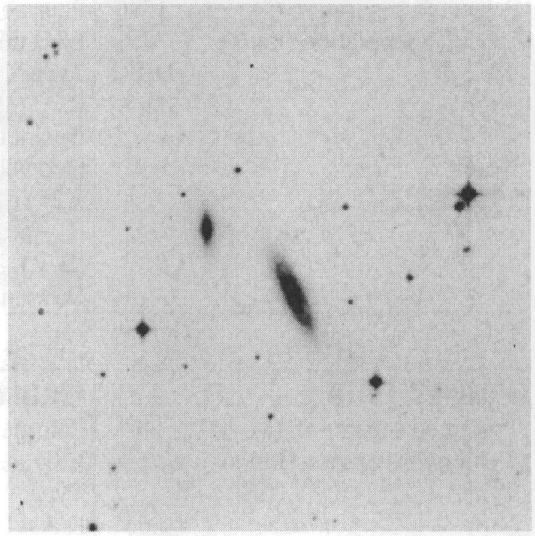

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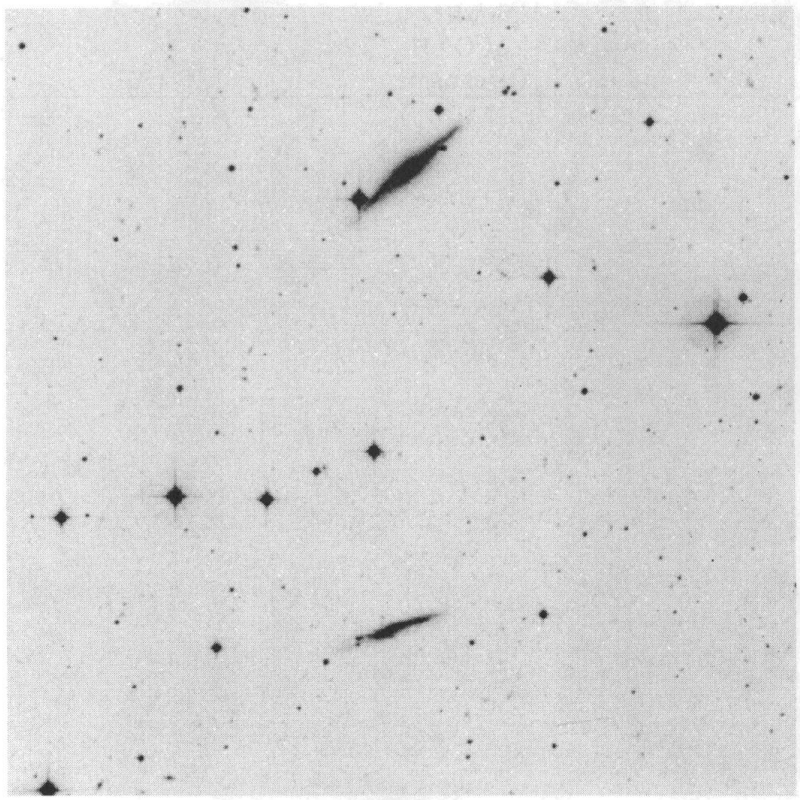

Pair 11 Data		**Galaxy Data**		
Projected separation (")	1590	Pair member	**a**	**b**
Velocity separation (km/s)	579	ESO number	5400030	5400060
Type	DIS 1	Type	3.0	3.0
Ntot	0.955	R.A. (1950.) (h m s)	00 33 10	00 34 52
		Decl. (1950.) (° ' ")	-20 24 07	-20 12 43
Notes:		Hel. velocity (km/s)	3351	3930
F35, C-		a(25) (")	109.6	121.6
		B	13.92	12.95
		(B-R)	1.10	1.22
		Other name		NGC 175

Pair 12 Data		**Galaxy Data**		
Projected separation (")	235	Pair member	**a**	**b**
Velocity separation (km/s)	253	ESO number	4740080	4740090
Type		Type	3.0	5.0
Ntot	0.637	R.A. (1950.) (h m s)	00 36 04	00 36 06
		Decl. (1950.) (° ' ")	-24 36 53	-24 33 00
Notes:		Hel. velocity (km/s)	3886	3633
				3680F
F7, C+		a(25) (")	71.6	89.1
		B	14.92	13.56
		(B-R)	0.97	1.03
		Lfir/MH2		10.22
		logCO/LB		-1.69
		Other name	IC 1561	IC 1562

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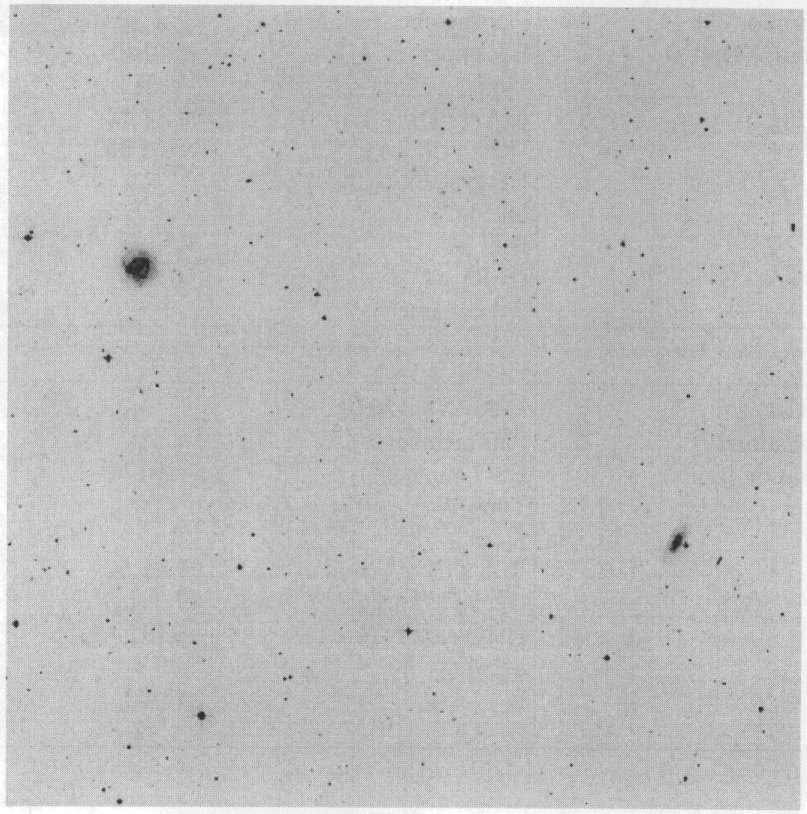

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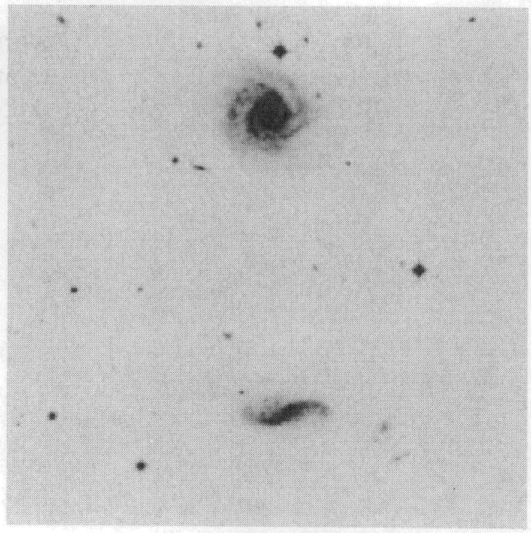

Pair 13 Data		**Galaxy Data**		
Projected separation (")	384	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	5400140	5400150
Type		Type	-1.0	-2.0
Ntot	0.637	R.A. (1950.) (h m s)	00 38 42	00 38 58
		Decl. (1950.) (° ' ")	-21 24 25	-21 19 04
Notes:		Hel. velocity (km/s)		1564
F14, C-		a(25) (")	34.7	120.2
		B	15.05	13.52
		(B-R)	0.60	0.88
		Other name		NGC 216

Pair 15 Data		**Galaxy Data**		
Projected separation (")	22	Pair member	**a**	**b**
Velocity separation (km/s)	302	ESO number	5400170	5400171
Type	LIN br + ta	Type	-2.0	8.4
Ntot	0.318	R.A. (1950.) (h m s)	00 41 52	00 41 53
		Decl. (1950.) (° ' ")	-17 37 30	-17 37 44
Notes:		Hel. velocity (km/s)	9305	9003dC
F7, C+		a(25) (")	80.4	113.5
		B	15.00	14.93
		(B-R)	1.42	1.34

Pair 16 Data		**Galaxy Data**		
Projected separation (")	22	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	1940360	1940362
Type	LIN	Type	5.7	3.1
Ntot		R.A. (1950.) (h m s)	00 44 00	00 44 01
		Decl. (1950.) (° ' ")	-47 42 17	-47 42 03
Notes:		Hel. velocity (km/s)		
F7, C+		a(25) (")	61.0	35.5
		B	15.68	14.94
		(B-R)	0.65	0.65

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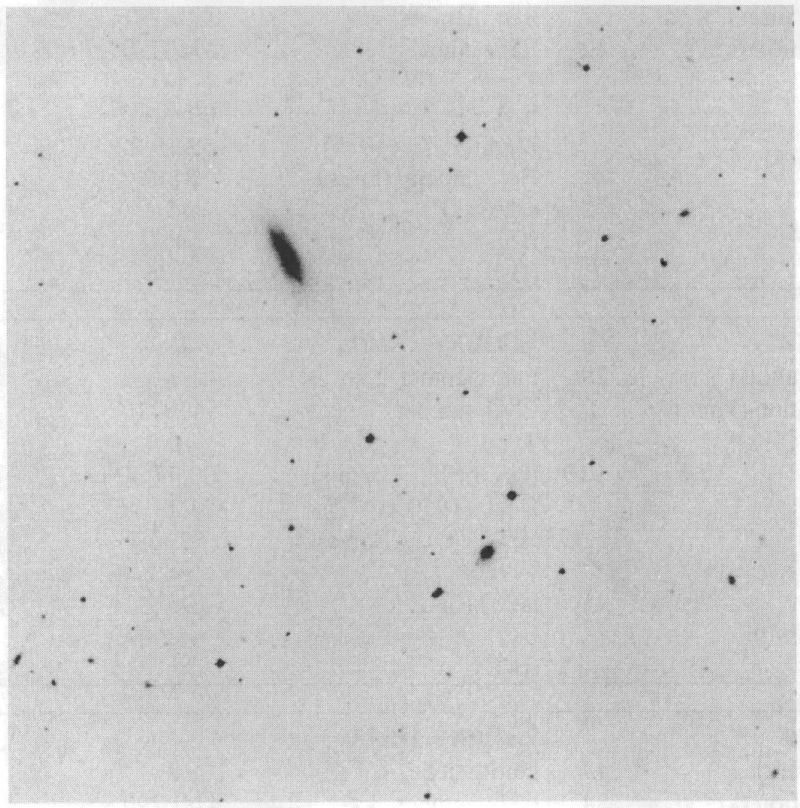

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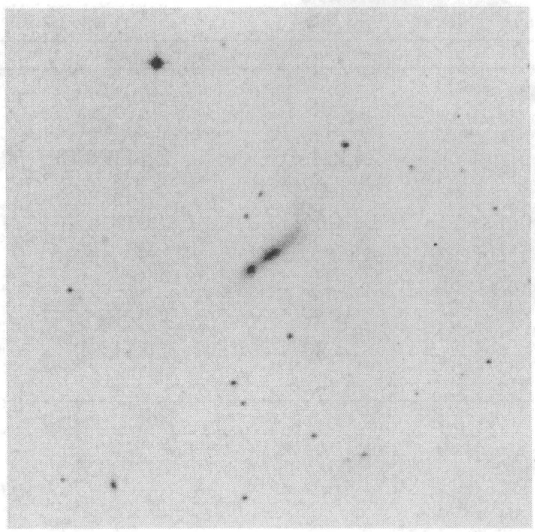

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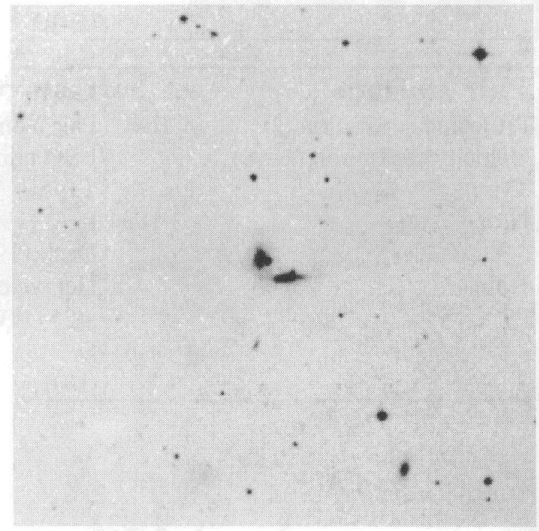

Pair 17 Data		**Galaxy Data**		
Projected separation (")	37	Pair member	**a**	**b**
Velocity separation (km/s)	12	ESO number	1940390	1940391
Type		Type	1.0	6.6
Ntot		R.A. (1950.) (h m s)	00 44 47	00 44 51
		Decl. (1950.) (° ' ")	-52 19 22	-52 19 22
Notes:		Hel. velocity (km/s)	8212	8200F
F7, C+		a(25) (")	46.2	73.3
		B	14.92	15.46
		(B-R)	1.06	0.74

Pair 18 Data		**Galaxy Data**		
Projected separation (")	29	Pair member	**a**	**b**
Velocity separation (km/s)	1	ESO number	5400310	5400311
Type		Type	10.0	9.9
Ntot	1.910	R.A. (1950.) (h m s)	00 47 20	00 47 22
		Decl. (1950.) (° ' ")	-21 17 16	-21 16 55
Notes:		Hel. velocity (km/s)	300	299dC
			302F	
F7, C+		a(25) (")	98.9	76.7
		B	15.40	14.91
		(B-R)		0.40

Pair 19 Data		**Galaxy Data**		
Projected separation (")	43	Pair member	**a**	**b**
Velocity separation (km/s)	84	ESO number	4110290	4110300
Type	LIN ta	Type	-1.0	2.0
Ntot	1.910	R.A. (1950.) (h m s)	00 52 30	00 52 32
		Decl. (1950.) (° ' ")	-32 18 07	-32 17 31
Notes:		Hel. velocity (km/s)	9622	9538dC
F7, C+		a(25) (")	80.4	45.2
		B	14.98	14.77
		(B-R)	1.59	0.90

Pair 20 Data		**Galaxy Data**		
Projected separation (")	164	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	2430430	2430440
Type		Type	1.0	1.0
Ntot	3.183	R.A. (1950.) (h m s)	01 06 41	01 06 46
		Decl. (1950.) (° ' ")	-45 34 12	-45 36 46
Notes:		Hel. velocity (km/s)		
F7, C-		a(25) (")	59.6	56.2
		B	14.83	15.39
		(B-R)	1.45	

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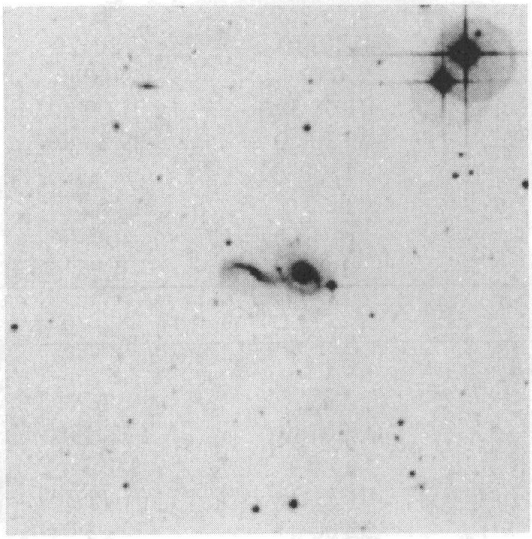

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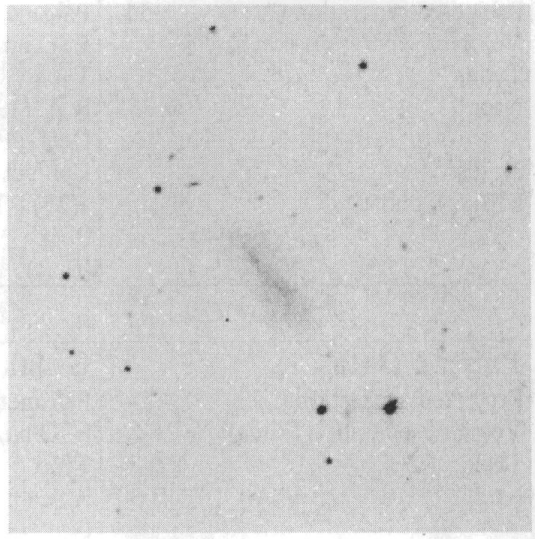

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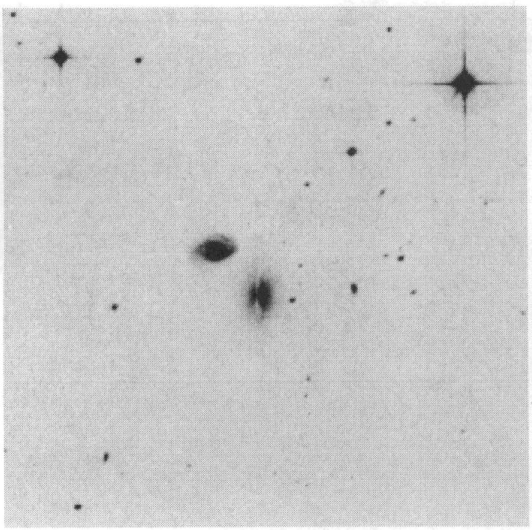

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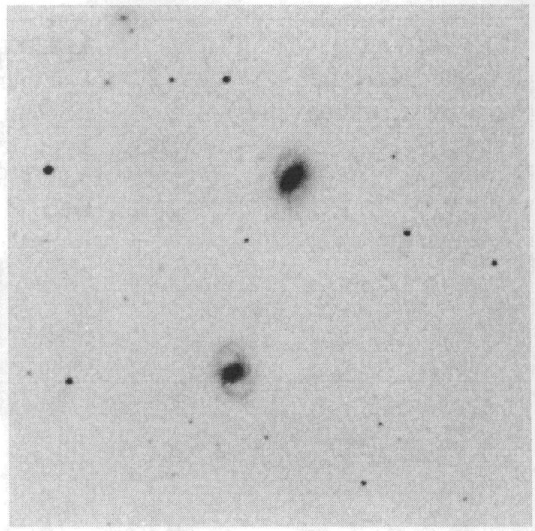

Pair 21 Data		**Galaxy Data**		
Projected separation (")	354	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	4120110	4120120
Type		Type	0.0	9.0
Ntot	0.955	R.A. (1950.) (h m s)	01 08 59	01 09 20
		Decl. (1950.) (° ' ")	-29 30 00	-29 33 46
Notes:		Hel. velocity (km/s)	1300	
F14, C-, ghost		a(25) (")	69.2	46.2
		B	14.40	16.57
		(B-R)	1.28	0.96

Pair 22 Data		**Galaxy Data**		
Projected separation (")	153	Pair member	**a**	**b**
Velocity separation (km/s)	81	ESO number	4120180	4120190
Type		Type	-3.8	-0.3
Ntot	12.00	R.A. (1950.) (h m s)	01 11 26	01 11 30
		Decl. (1950.) (° ' ")	-32 00 43	-32 03 07
Notes:		Hel. velocity (km/s)	5769	5688
F7, C+		a(25) (")	188.4	92.3
		B	12.38	13.76
		(B-R)	1.57	1.58
		Other name	NGC 439	NGC 441

Pair 23 Data		**Galaxy Data**		
Projected separation (")	27	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	1510361	1510360
Type	DIS 2	Type	4.5	1.0
Ntot		R.A. (1950.) (h m s)	01 12 17	01 12 19
		Decl. (1950.) (° ' ")	-55 39 53	-55 39 43
Notes:		Hel. velocity (km/s)		3627
F7, C+		a(25) (")	93.3	112.2
		B	13.11	13.13
		(B-R)	1.03	1.20
		Other name		NGC 454

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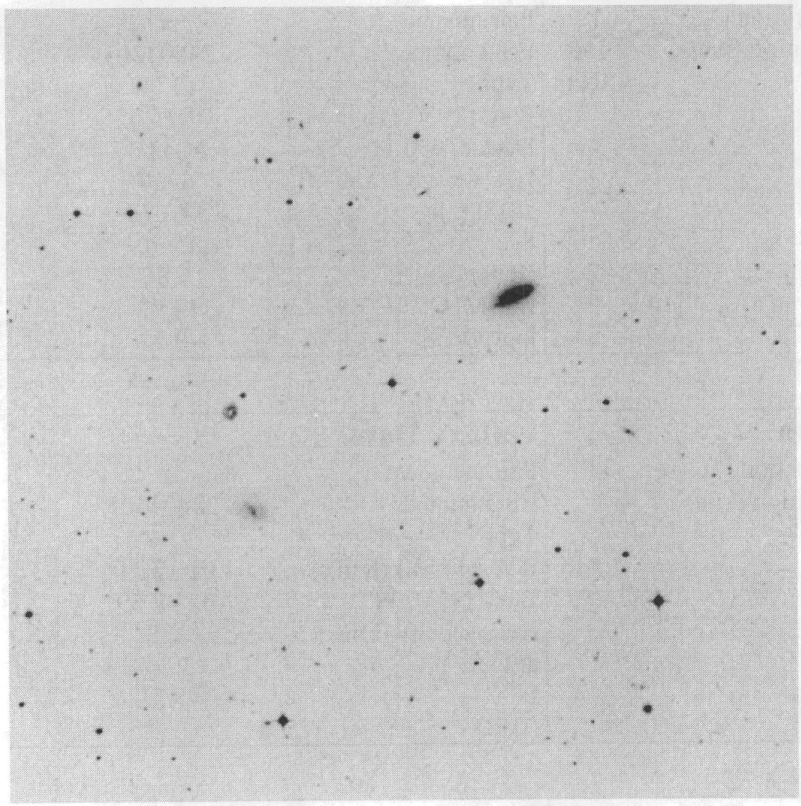

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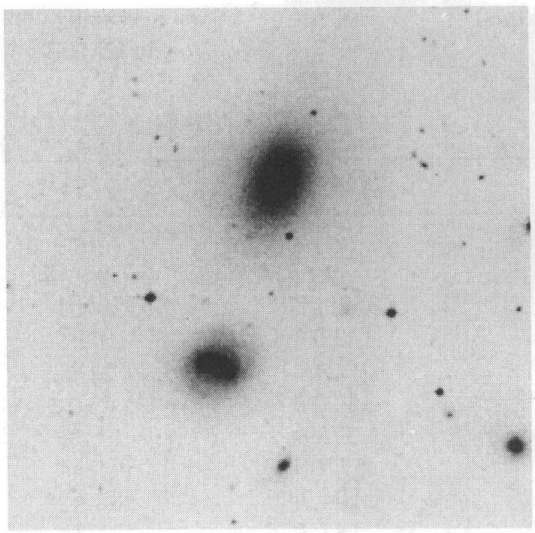

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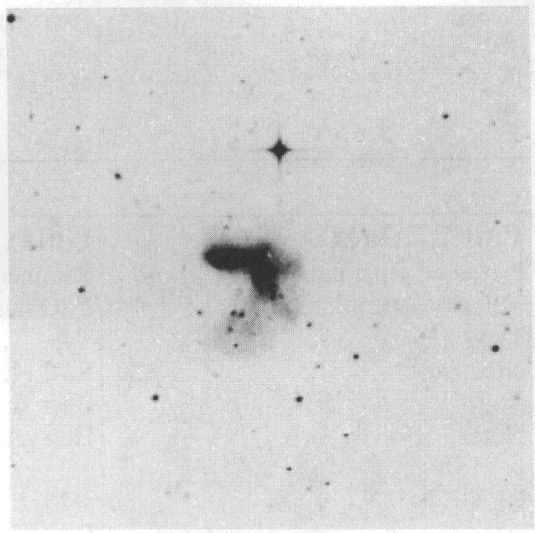

Pair 24 Data		**Galaxy Data**		
Projected separation (")	18	Pair member	**a**	**b**
Velocity separation (km/s)	166	ESO number	2440120	2440121
Type	LIN ta	Type	3.0	-0.3
Ntot	1.910	R.A. (1950.) (h m s)	01 15 55	01 15 56
		Decl. (1950.) (° ' ")	-44 43 37	-44 43 19
Notes:		Hel. velocity (km/s)	6700	6866dC
F7, C+, CCD		a(25) (")	40.7	84.1
		B	15.70	14.43
		(B-R)	1.86	1.37
		Lfir/MH2	14.92	
		logCO/LB	-0.22	

Pair 25 Data		**Galaxy Data**		
Projected separation (")	119	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	2440150	2440160
Type		Type	-2.0	-2.0
Ntot	2.546	R.A. (1950.) (h m s)	01 17 31	01 17 33
		Decl. (1950.) (° ' ")	-43 47 59	-43 49 58
Notes:		Hel. velocity (km/s)		
F7, C+		a(25) (")	39.4	50.1
		B	15.71	14.77
		(B-R)		1.63

Pair 26 Data		**Galaxy Data**		
Projected separation (")	29	Pair member	**a**	**b**
Velocity separation (km/s)	57	ESO number	5420070	5420080
Type	DIS 2	Type	9.9	5.0
Ntot	1.273	R.A. (1950.) (h m s)	01 18 09	01 18 09
		Decl. (1950.) (° ' ")	-17 38 59	- 17 39 28
Notes:		Hel. velocity (km/s)	5927dC	5984dC
				5942MPB
F7, C-		a(25) (")	112.2	110.9
		B	14.55	14.41
		(B-R)	0.83	1.08

Pair 27 Data		**Galaxy Data**		
Projected separation (")	46	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	3520680	3520681
Type		Type	0.0	10.0
Ntot	3.820	R.A. (1950.) (h m s)	01 21 41	01 21 42
		Decl. (1950.) (° ' ")	-35 22 37	-35 23 20
Notes:		Hel. velocity (km/s)	5759	
			5770F	
F7, C+		a(25) (")	104.7	188.4
		B	14.07	13.73
		(B-R)	1.57	1.37

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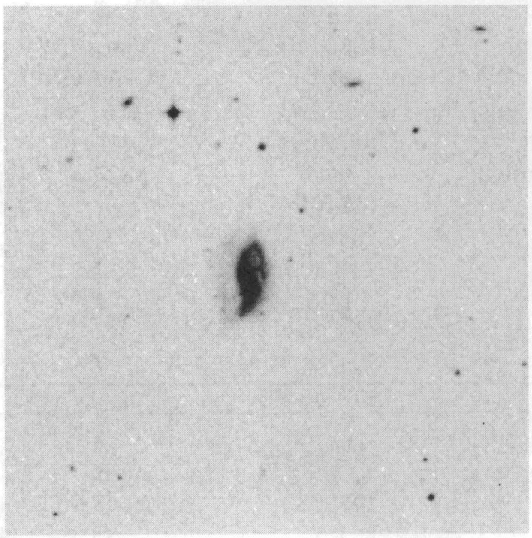

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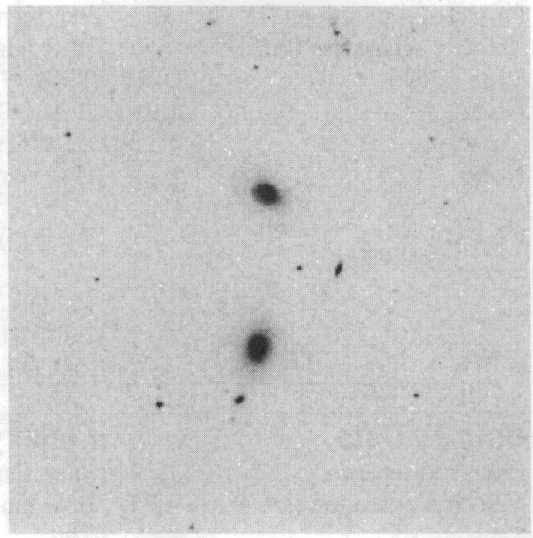

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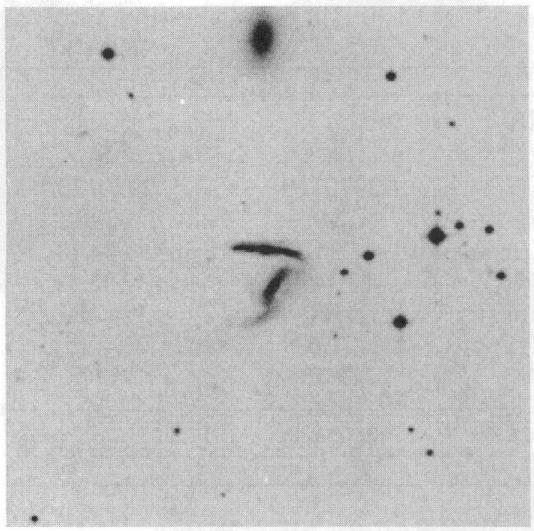

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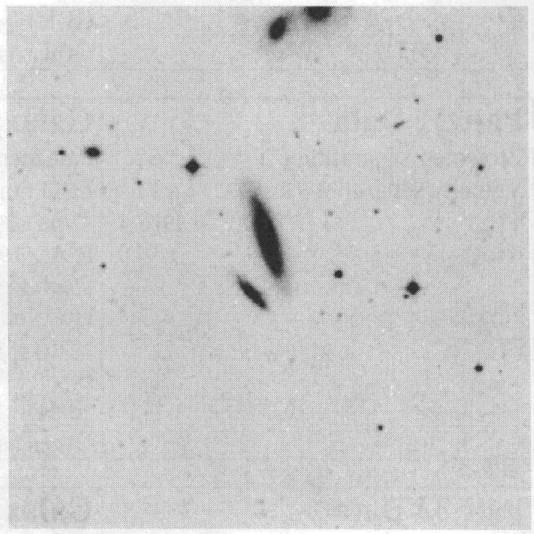

Pair 29 Data		Galaxy Data		
Projected separation (")	221	Pair member	**a**	**b**
Velocity separation (km/s)	17	ESO number	3530140	3530170
Type	DIS 1	Type	2.0	6.0
Ntot	1.910	R.A. (1950.) (h m s)	01 31 43	01 31 48
		Decl. (1950.) (° ' ")	-34 38 34	-34 42 07
Notes:		Hel. velocity (km/s)	3841	3824dC
			3810F	
F7, C-		a(25) (")	104.7	73.3
		B	14.50	15.22
		(B-R)	1.26	0.87
		Lfir/MH2	28.76	
		logCO/LB	-1.85	

Pair 31 Data		Galaxy Data		
Projected separation (")	119	Pair member	**a**	**b**
Velocity separation (km/s)	625	ESO number	2970080	2970090
Type		Type	1.5	-3.0
Ntot	2.228	R.A. (1950.) (h m s)	01 33 18	01 33 24
		Decl. (1950.) (° ' ")	-39 38 31	-39 36 54
Notes:		Hel. velocity (km/s)	5269	5894
			5300F	
F7, C-		a(25) (")	89.1	96.6
		B	13.73	13.57
		(B-R)	1.18	1.56
		Other name		NGC 630

Pair 32 Data		Galaxy Data		
Projected separation (")	68	Pair member	**a**	**b**
Velocity separation (km/s)	13	ESO number	2970110	2970120
Type	DIS 1	Type	2.8	-5.0
Ntot	1.910	R.A. (1950.) (h m s)	01 34 11	01 34 11
		Decl. (1950.) (° ' ")	-37 34 40	-37 35 49
Notes:		Hel. velocity (km/s)	5160	5147dC
F7, C+		a(25) (")	71.6	44.7
		B	13.50	15.06
		(B-R)	1.00	1.30
		Other name	NGC 633	

Pair 33 Data		Galaxy Data		
Projected separation (")	109	Pair member	**a**	**b**
Velocity separation (km/s)	57	ESO number	4130130	4130140
Type	DIS 1	Type	1.0	5.0
Ntot	0.955	R.A. (1950.) (h m s)	01 36 41	01 36 48
		Decl. (1950.) (° ' ")	-30 10 40	-30 10 04
Notes:		Hel. velocity (km/s)	5826	5883
F7, C+		a(25) (")	66.8	109.6
		B	14.67	13.58
		(B-R)	0.85	1.10
		Other name	NGC 639	NGC 642

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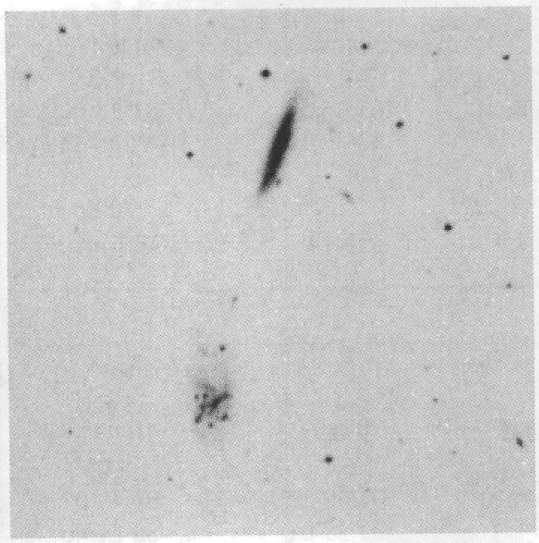

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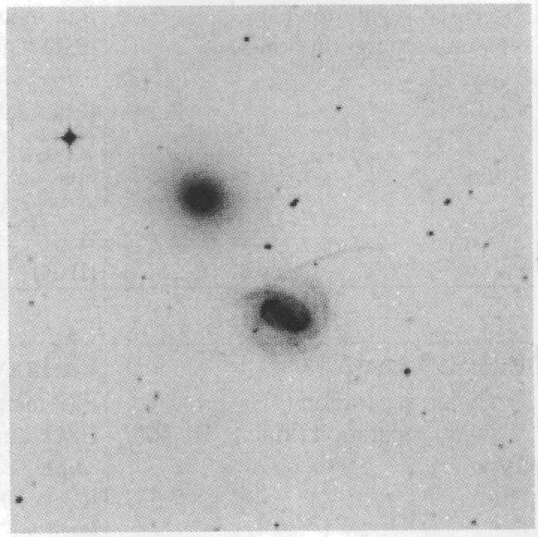

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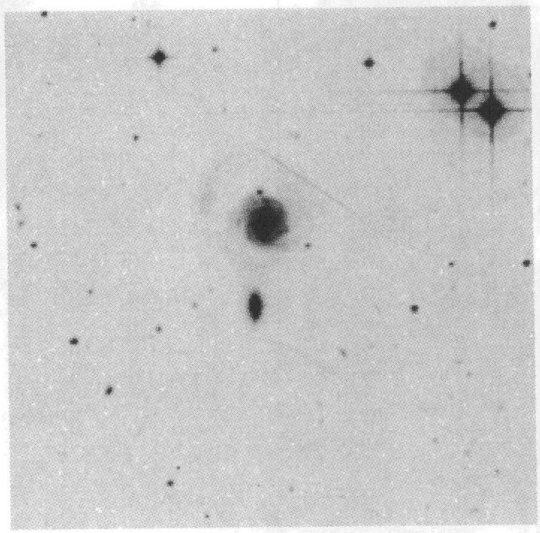

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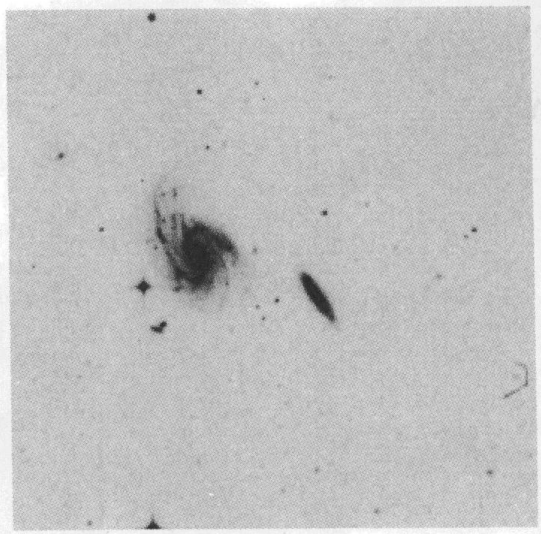

Pair 34 Data		**Galaxy Data**		
Projected separation (")	51	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	2440460	2440470
Type	LIN ta	Type	-2.0	-2.0
Ntot	2.546	R.A. (1950.) (h m s)	01 36 54	01 36 59
		Decl. (1950.) (° ' ")	-43 37 19	-43 36 54
Notes:		Hel. velocity (km/s)		
F7, C-		a(25) (")	21.9	70.8
		B	15.15	14.69
		(B-R)	1.58	1.82

Pair 35 Data		**Galaxy Data**		
Projected separation (")	620	Pair member	**a**	**b**
Velocity separation (km/s)	369	ESO number	30030	30040
Type		Type	6.0	4.0
Ntot	0.637	R.A. (1950.) (h m s)	01 40 20	01 43 05
		Decl. (1950.) (° ' ")	-83 37 01	-83 27 46
Notes:		Hel. velocity (km/s)	4948F	4579F
F14, C-		a(25) (")	93.3	121.6
		B	14.74	15.02
		(B-R)	1.35	1.55

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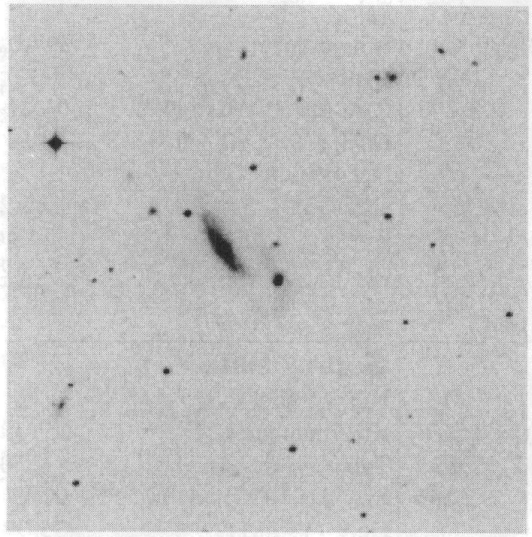

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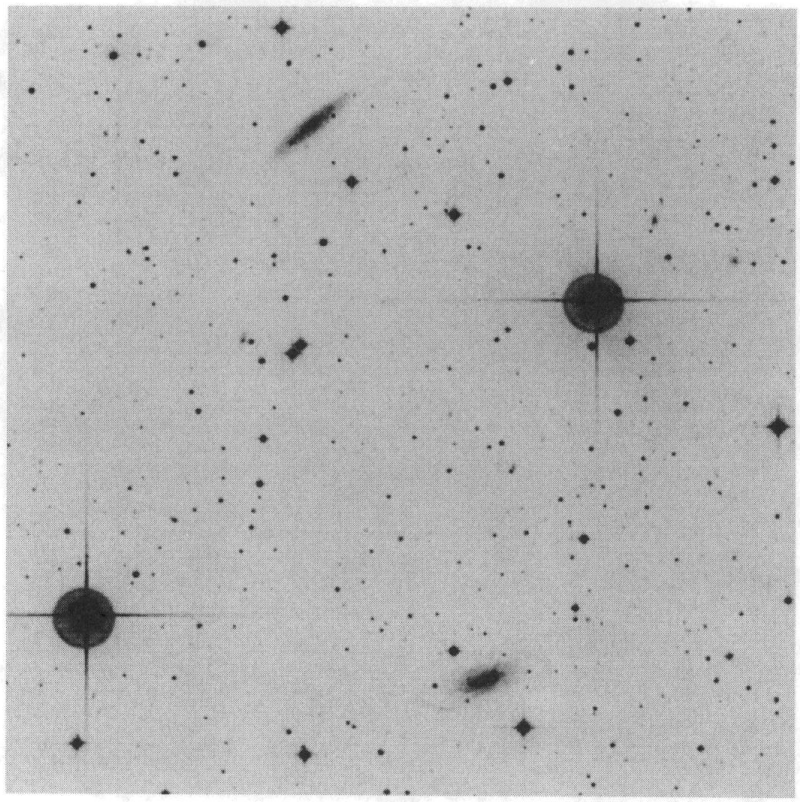

Pair 36 Data		**Galaxy Data**		
Projected separation (")	357	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	2970230	2970240
Type	DIS 1	Type	3.0	3.0
Ntot	1.273	R.A. (1950.) (h m s)	01 42 19	01 42 29
		Decl. (1950.) (° ' ")	-40 54 53	-40 49 12
Notes:		Hel. velocity (km/s)	10121	
F14, C-		a(25) (")	82.2	92.3
		B	14.46	15.91
		(B-R)	1.12	1.06

Pair 38 Data		**Galaxy Data**		
Projected separation (")	313	Pair member	**a**	**b**
Velocity separation (km/s)	267	ESO number	3530500	3530510
Type	DIS 1	Type	-1.0	2.7
Ntot	2.546	R.A. (1950.) (h m s)	01 47 17	01 47 30
		Decl. (1950.) (° ' ")	-35 09 10	-35 04 40
Notes:		Hel. velocity (km/s)	8075	8342
F14, C+		a(25) (")	89.1	58.9
		B	14.37	14.78
		(B-R)	1.73	1.10
		Other name	NGC 696	NGC 698

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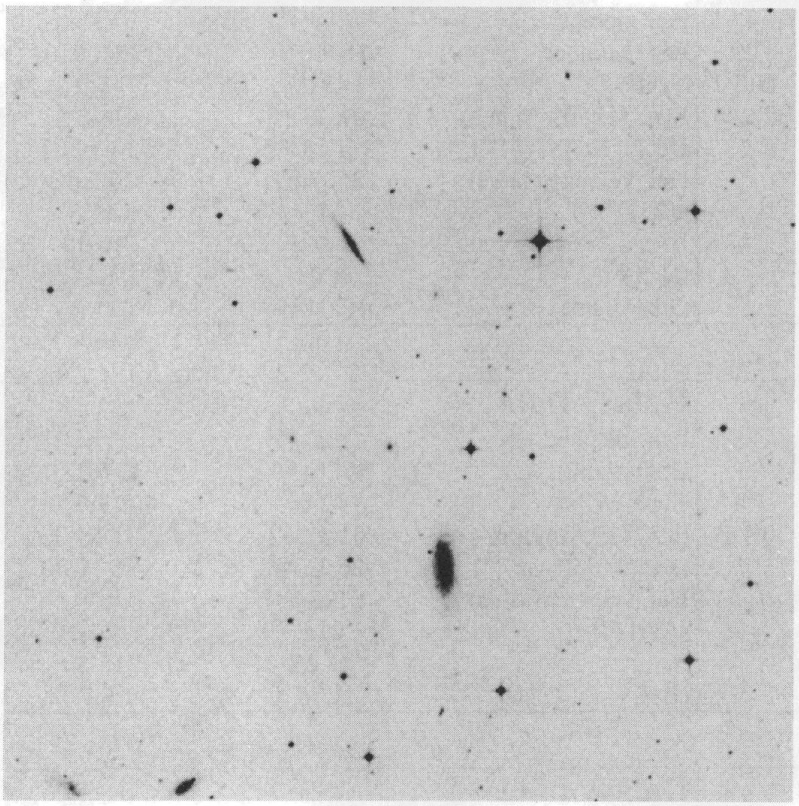

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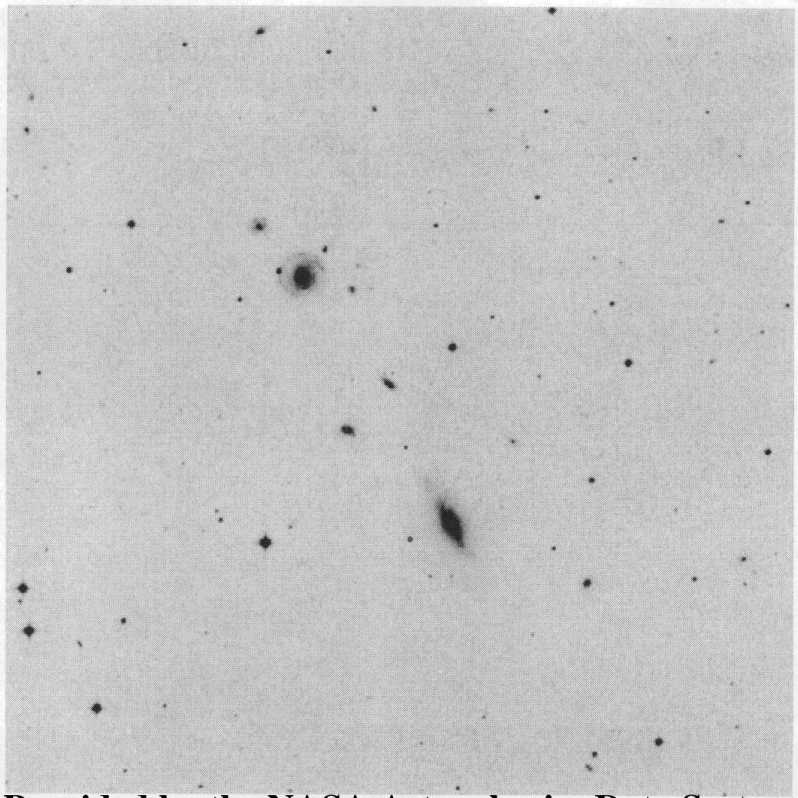

Pair 39 Data		**Galaxy Data**		
Projected separation (")	86	Pair member	**a**	**b**
Velocity separation (km/s)	29	ESO number	3540010	3540020
Type	DIS 1	Type	3.0	3.0
Ntot	2.228	R.A. (1950.) (h m s)	01 48 17	01 48 23
		Decl. (1950.) (° ' ")	-34 18 17	-34 19 01
Notes:		Hel. velocity (km/s)	8537dC	8508dC
F7, C+		a(25) (")	51.9	55.6
		B	14.91	16.39
		(B-R)	1.03	1.25
		Other name	IC 1739	

Pair 41 Data		**Galaxy Data**		
Projected separation (")	452	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	4770140	4770150
Type		Type	-2.0	3.0
Ntot	0.955	R.A. (1950.) (h m s)	01 52 42	01 53 06
		Decl. (1950.) (° ' ")	-26 15 46	-26 10 30
Notes:		Hel. velocity (km/s)	8778dC	
F14, C-		a(25) (")	61.7	70.8
		B	14.52	15.80
		(B-R)	1.75	1.48

Pair 42 Data		**Galaxy Data**		
Projected separation (")	39	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	5440010	5440020
Type	DIS 2	Type	8.6	1.0
Ntot	0.318	R.A. (1950.) (h m s)	01 55 36	01 55 39
		Decl. (1950.) (° ' ")	-20 02 42	-20 03 07
Notes:		Hel. velocity (km/s)		
F7, C+		a(25) (")	43.7	39.4
		B	15.83	14.95
		(B-R)	0.64	0.68

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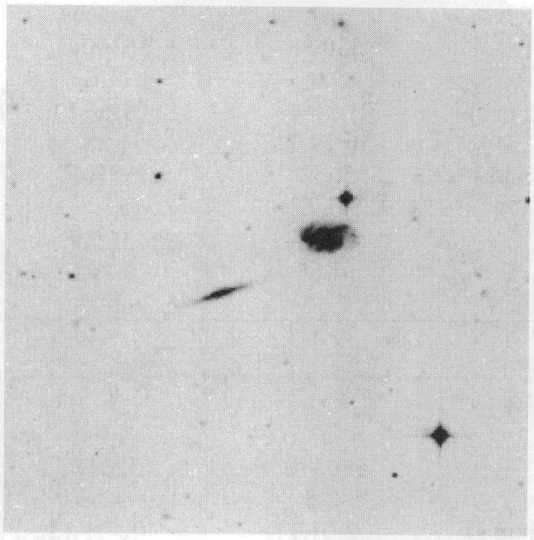

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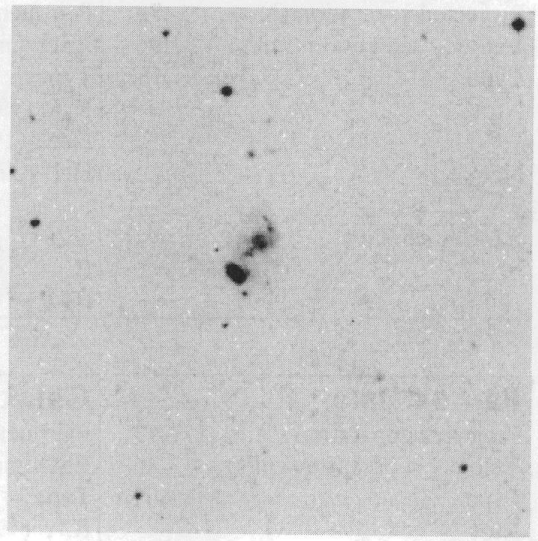

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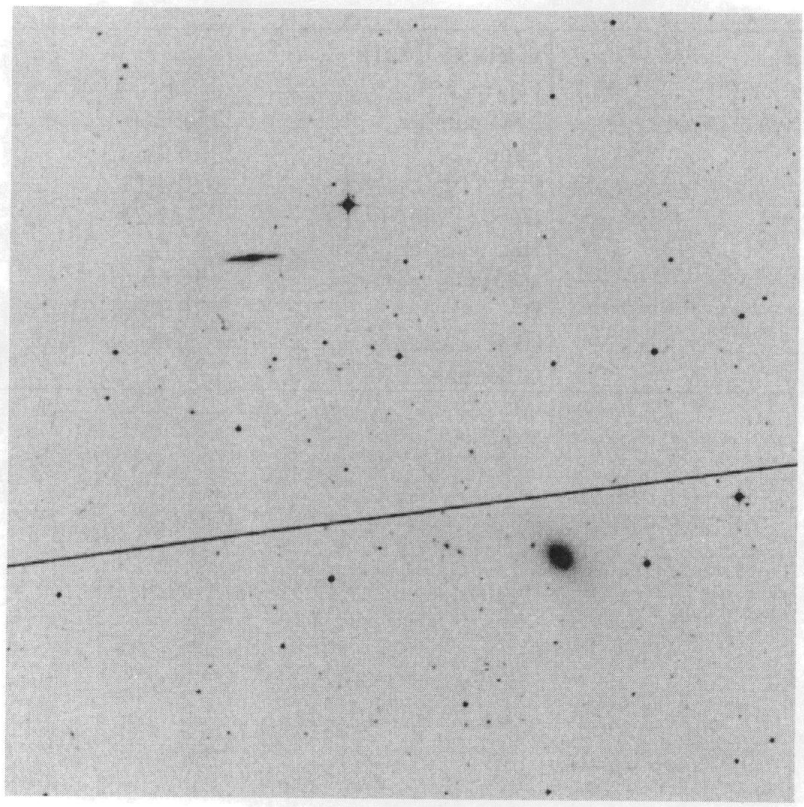

Pair 43 Data		**Galaxy Data**		
Projected separation (")	78	Pair member	**a**	**b**
Velocity separation (km/s)	96	ESO number	1530040	1530041
Type	DIS 1	Type	5.0	1.6
Ntot		R.A. (1950.) (h m s)	01 56 46	01 56 51
		Decl. (1950.) (° ' ")	-56 29 31	-56 28 30
Notes:		Hel. velocity (km/s)	5662	5850F
			5754F	
F7, C+, satellite		a(25) (")	78.5	105.9
		B	14.65	14.85
		(B-R)	1.56	1.19

Pair 44 Data		**Galaxy Data**		
Projected separation (")	13	Pair member	**a**	**b**
Velocity separation (km/s)	36	ESO number	520170	520171
Type	ATM	Type	-2.5	-1.3
Ntot		R.A. (1950.) (h m s)	02 01 11	02 01 13
		Decl. (1950.) (° ' ")	-69 41 16	-69 41 20
Notes:		Hel. velocity (km/s)	7735	7871F
F7, C+, ghost		a(25) (")	57.5	42.7
		B	14.83	15.23
		(B-R)	1.44	1.58

Pair 45 Data		**Galaxy Data**		
Projected separation (")	658	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	3540360	3540370
Type		Type	6.0	5.0
Ntot	0.955	R.A. (1950.) (h m s)	02 04 13	02 04 45
		Decl. (1950.) (° ' ")	-36 32 23	-36 41 23
Notes:		Hel. velocity (km/s)		5836
F14, C+		a(25) (")	103.5	87.1
		B	16.30	14.14
		(B-R)	1.38	1.52
		Other name		NGC 824

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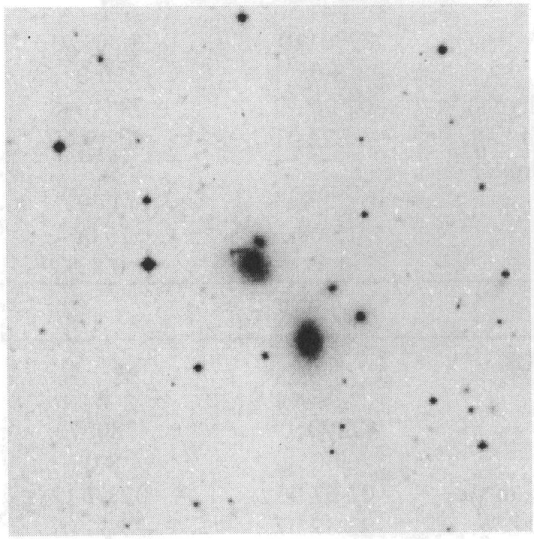

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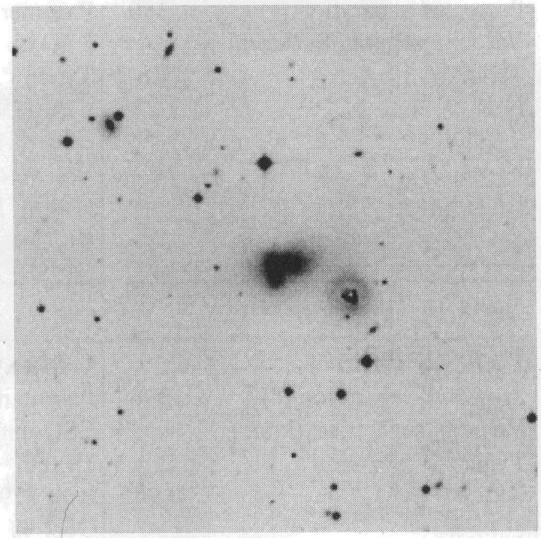

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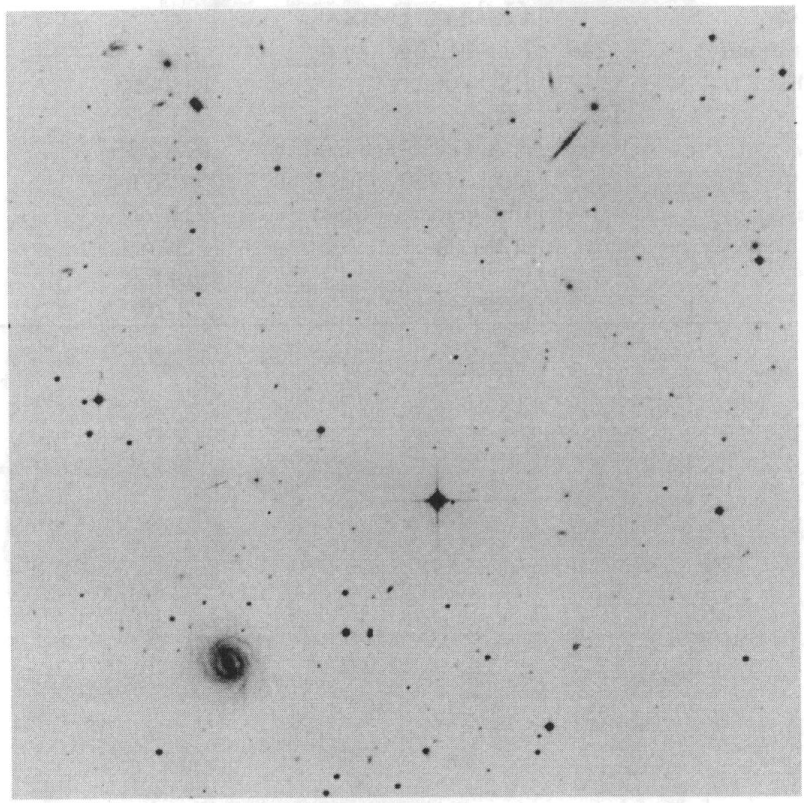

Pair 47 Data		**Galaxy Data**		
Projected separation (")	180	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	2980110	2980120
Type	DIS 2	Type	3.0	10.0
Ntot	2.228	R.A. (1950.) (h m s)	02 06 39	02 06 48
		Decl. (1950.) (° ' ")	-40 22 01	-40 19 40
Notes:		Hel. velocity (km/s)		
F7, C+		a(25) (")	52.5	47.9
		B	15.00	16.00
		(B-R)	0.69	0.85

Pair 48 Data		**Galaxy Data**		
Projected separation (")	396	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	4780060	4780070
Type		Type	4.0	8.0
Ntot	0.955	R.A. (1950.) (h m s)	02 07 00	02 07 12
		Decl. (1950.) (° ' ")	-23 39 07	-23 33 07
Notes:		Hel. velocity (km/s)	5321F	
F14, C-		a(25) (")	109.6	39.8
		B	13.22	16.07
		(B-R)	1.06	0.42

Pair 49 Data		**Galaxy Data**		
Projected separation (")	219	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	1530290	1530300
Type	DIS 1	Type	1.0	4.6
Ntot	0.637	R.A. (1950.) (h m s)	02 12 30	02 12 46
		Decl. (1950.) (° ' ")	-54 55 04	-54 58 01
Notes:		Hel. velocity (km/s)	9187dC	
F7, C+		a(25) (")	59.6	68.4
		B	14.67	14.95
		(B-R)	1.10	1.09

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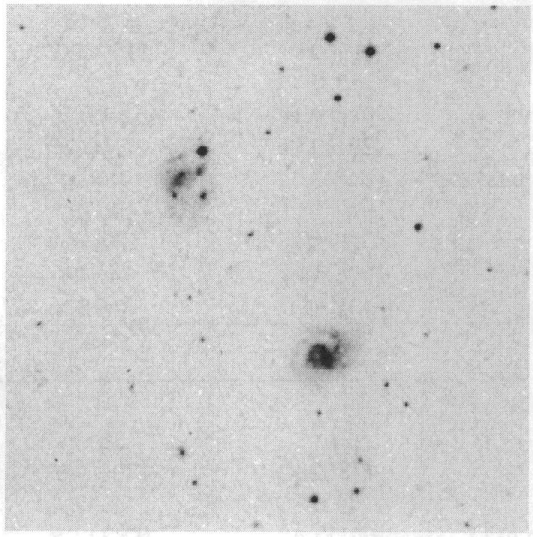

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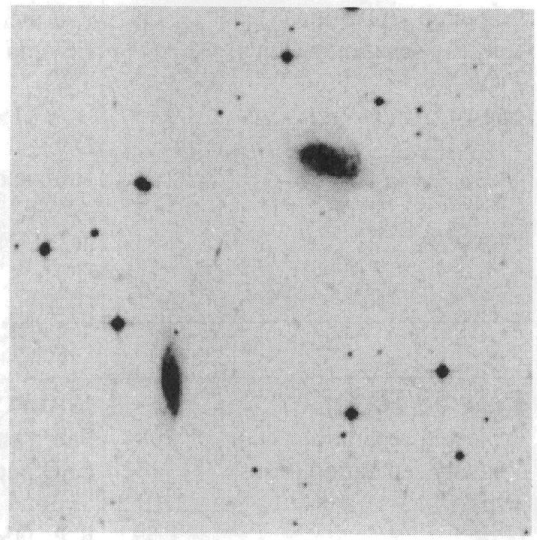

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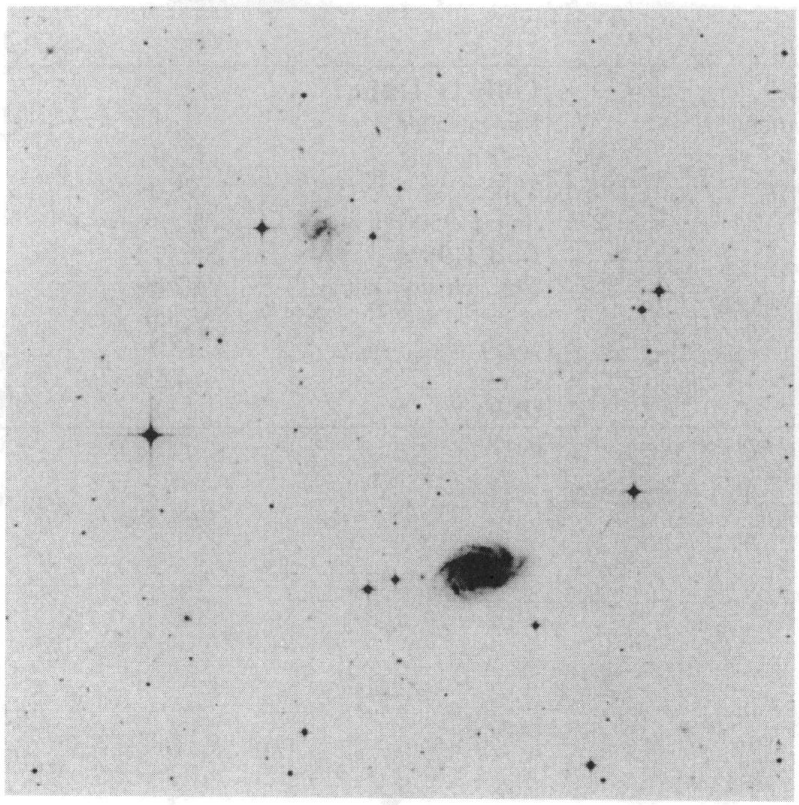
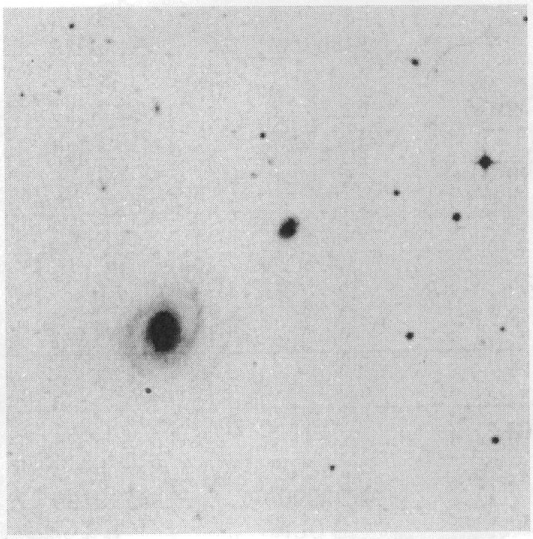


Pair 52 Data		**Galaxy Data**		
Projected separation (")	132	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	4150210	4150220
Type		Type	3.0	1.0
Ntot	0.637	R.A. (1950.) (h m s)	02 19 18	02 19 26
		Decl. (1950.) (° ' ")	-27 29 05	-27 30 25
Notes:		Hel. velocity (km/s)		4883
				4957F
F7, C-		a(25) (")	29.2	82.2
		B	16.34	14.12
		(B-R)	0.70	0.95

Pair 53 Data		**Galaxy Data**		
Projected separation (")	2084	Pair member	**a**	**b**
Velocity separation (km/s)	1571	ESO number	4780280	4790040
Type	DIS 2	Type	9.0	8.5
Ntot	1.592	R.A. (1950.) (h m s)	02 22 48	02 24 05
		Decl. (1950.) (° ' ")	-25 00 54	-24 31 01
Notes:		Hel. velocity (km/s)	3086	1515
F35, C-, OP		a(25) (")	131.8	160.3
		B	12.54	12.87
		(B-R)	0.70	0.98
		Other name	NGC 922	

Pair 54 Data		**Galaxy Data**		
Projected separation (")	147	Pair member	**a**	**b**
Velocity separation (km/s)	100	ESO number	1150080	1150090
Type	DIS 1	Type	-5.0	2.0
Ntot	1.273	R.A. (1950.) (h m s)	02 22 53	02 23 00
		Decl. (1950.) (° ' ")	-58 37 19	-58 39 35
Notes:		Hel. velocity (km/s)	9246	9345F
			9245F	
F7, C-		a(25) (")	53.7	104.7
		B	14.65	15.15
		(B-R)	1.98	2.14

52



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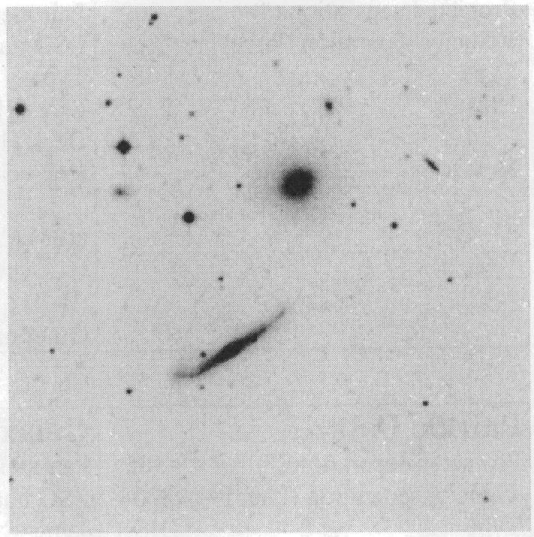

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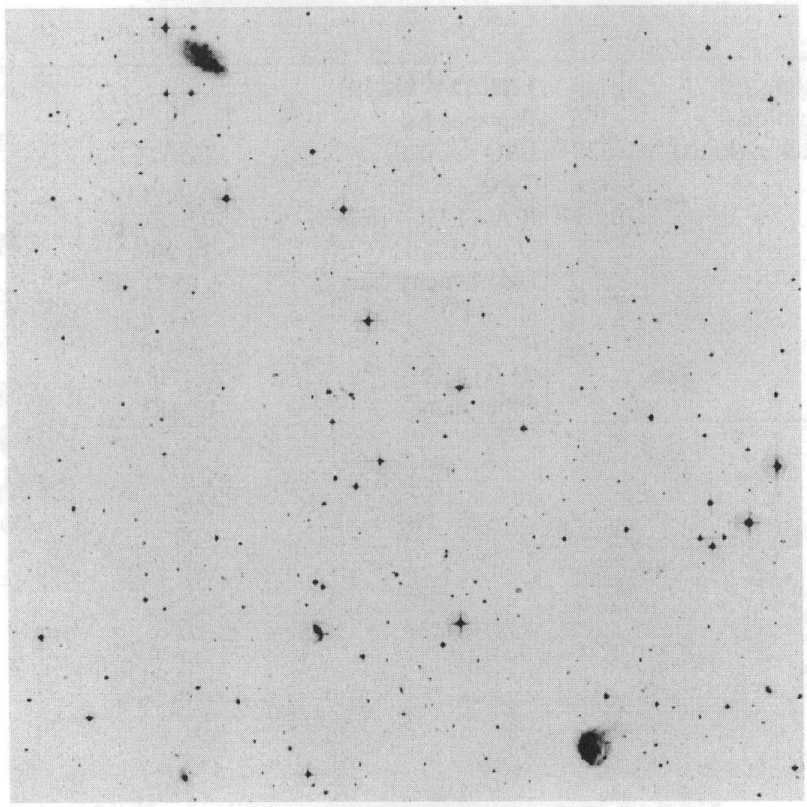
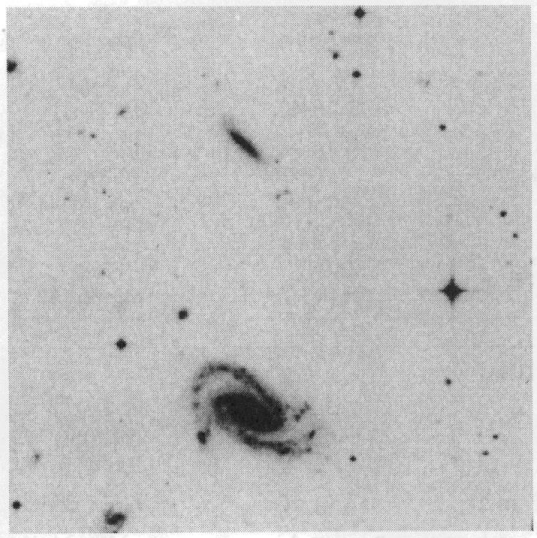


Pair 55 Data		**Galaxy Data**		
Projected separation (")	209	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	5450200	5450210
Type	DIS 1	Type	3.0	5.0
Ntot	2.228	R.A. (1950.) (h m s)	02 26 12	02 26 12
		Decl. (1950.) (° ' ")	-19 12 17	-19 15 46
Notes:		Hel. velocity (km/s)		5012
				5087MPB
F7, C-		a(25) (")	63.8	128.8
		B	15.71	13.43
		(B-R)	1.04	1.13
		Other name		NGC 947

Pair 56 Data		**Galaxy Data**		
Projected separation (")	585	Pair member	**a**	**b**
Velocity separation (km/s)	8004	ESO number	4790090	4790100
Type	DIS 1	Type	3.0	6.8
Ntot		R.A. (1950.) (h m s)	02 27 13	02 27 51
		Decl. (1950.) (° ' ")	-26 45 25	-26 40 19
Notes:		Hel. velocity (km/s)	4871dC	12875dC
F14, C-, OP		a(25) (")	63.1	57.5
		B	14.44	16.19
		(B-R)	0.86	1.06

Pair 57 Data		**Galaxy Data**		
Projected separation (")	206	Pair member	**a**	**b**
Velocity separation (km/s)	338	ESO number	3550200	3550220
Type		Type	2.0	-1.0
Ntot	0.637	R.A. (1950.) (h m s)	02 28 31	02 28 42
		Decl. (1950.) (° ' ")	-34 29 05	-34 26 31
Notes:		Hel. velocity (km/s)	4821	4483
F7, C-		a(25) (")	61.7	61.7
		B	14.35	14.20
		(B-R)	1.28	1.40
		Other name	IC 1811	IC 1813

55



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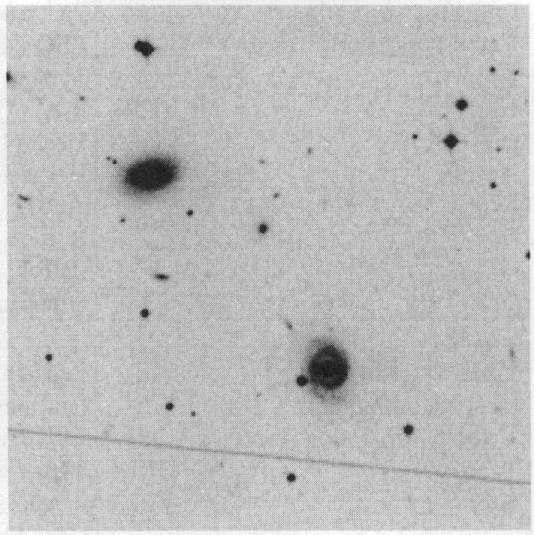

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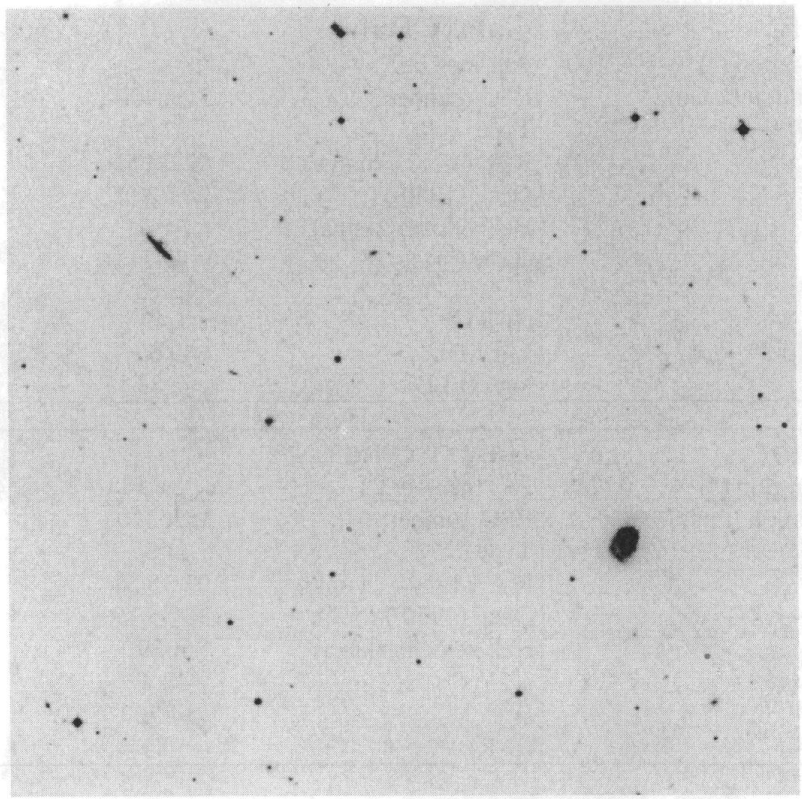

Pair 58 Data		Galaxy Data		
Projected separation (")	214	Pair member	a	b
Velocity separation (km/s)		ESO number	3550230	3550240
Type		Type	3.0	2.0
Ntot	1.273	R.A. (1950.) (h m s)	02 28 47	02 29 01
		Decl. (1950.) (° ' ")	-36 13 22	-36 15 18
Notes:		Hel. velocity (km/s)		4795
F7, C-		a(25) (")	53.1	133.4
		B	16.43	13.48
		(B-R)	0.91	1.68
		Other name	IC 1814	NGC 964

Pair 61 Data		Galaxy Data		
Projected separation (")	164	Pair member	a	b
Velocity separation (km/s)	751	ESO number	1540040	1540050
Type	DIS 1	Type	3.0	0.0
Ntot	1.273	R.A. (1950.) (h m s)	02 34 46	02 35 05
		Decl. (1950.) (° ' ")	-55 04 55	-55 04 37
Notes:		Hel. velocity (km/s)	6389	5638
F7, C+		a(25) (")	51.9	102.3
		B	14.62	13.64
		(B-R)	1.24	1.54
		Other name	NGC 1025	NGC 1031

Pair 62 Data		Galaxy Data		
Projected separation (")	100	Pair member	a	b
Velocity separation (km/s)		ESO number	5450400	5450410
Type		Type	-2.0	5.5
Ntot	1.910	R.A. (1950.) (h m s)	02 35 53	02 35 59
		Decl. (1950.) (° ' ")	-20 22 55	-20 22 01
Notes:		Hel. velocity (km/s)	1494	
F7, C+, CCD		a(25) (")	89.1	88.1
		B	13.83	16.16
		(B-R)	1.40	1.15
		Lfir/MH2	49.52	
		logCO/LB	-2.83	

Pair 63 Data		Galaxy Data		
Projected separation (")	24	Pair member	a	b
Velocity separation (km/s)		ESO number	3550310	3550311
Type		Type	-1.3	7.0
Ntot		R.A. (1950.) (h m s)	02 35 58	02 36 00
		Decl. (1950.) (° ' ")	-33 55 19	-33 55 22
Notes:		Hel. velocity (km/s)	5059	
F7, C+		a(25) (")	48.4	20.4
		B	14.79	16.14
		(B-R)	1.43	0.76

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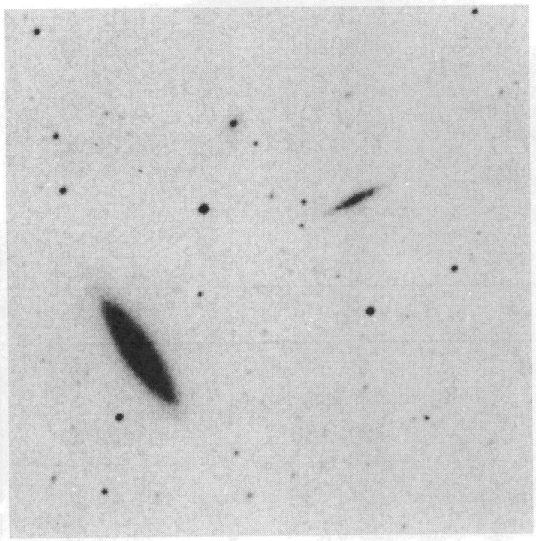

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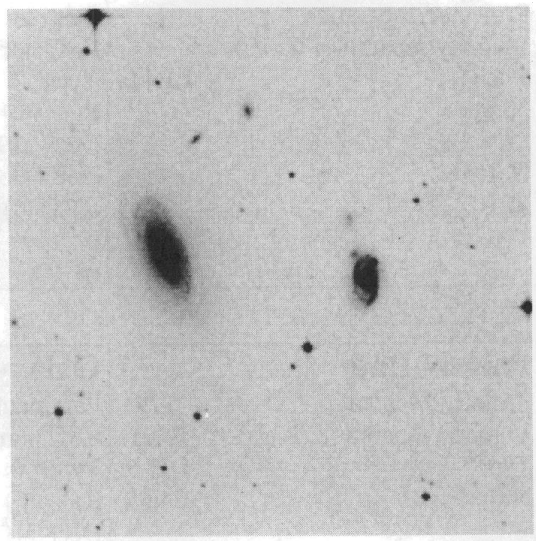

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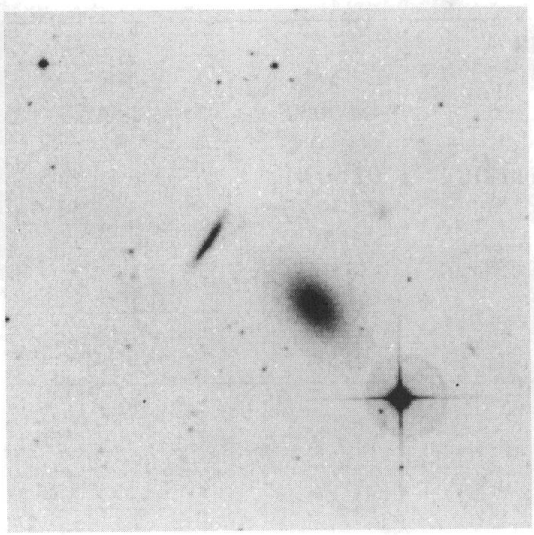

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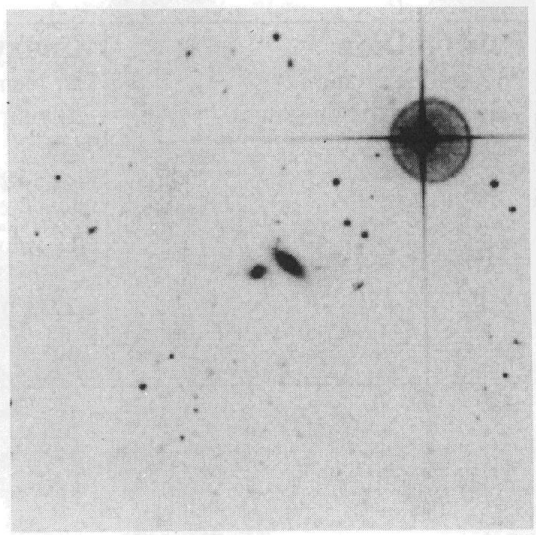

Pair 65 Data		**Galaxy Data**		
Projected separation (")	10	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	1150251	1150250
Type	LIN ta	Type	9.0	-1.5
Ntot		R.A. (1950.) (h m s)	02 40 54	02 40 55
		Decl. (1950.) (° ' ")	-60 06 32	-60 06 35
Notes:		Hel. velocity (km/s)		
F7, C+		a(25) (")	33.9	41.2
		B	14.76	14.90
		(B-R)	0.54	0.99

Pair 67 Data		**Galaxy Data**		
Projected separation (")	179	Pair member	**a**	**b**
Velocity separation (km/s)	7901	ESO number	1540180	1540190
Type	DIS 2	Type	7.0	2.0
Ntot	0.955	R.A. (1950.) (h m s)	02 49 18	02 49 24
		Decl. (1950.) (° ' ")	-55 07 58	-55 10 47
Notes:		Hel. velocity (km/s)	13339	5438
F7, C+, OP		a(25) (")	38.9	84.1
		B	16.16	13.80
		(B-R)	1.28	1.54
		Other name	NGC 1135	NGC 1136

Pair 68 Data		**Galaxy Data**		
Projected separation (")	279	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	4800080	4800090
Type		Type	10.0	5.0
Ntot	0.637	R.A. (1950.) (h m s)	02 50 41	02 50 46
		Decl. (1950.) (° ' ")	-24 59 23	-25 03 54
Notes:		Hel. velocity (km/s)	3720	
			3810F	
F7, C-		a(25) (")	38.9	100.0
		B	15.00	16.51
		(B-R)	0.78	1.35

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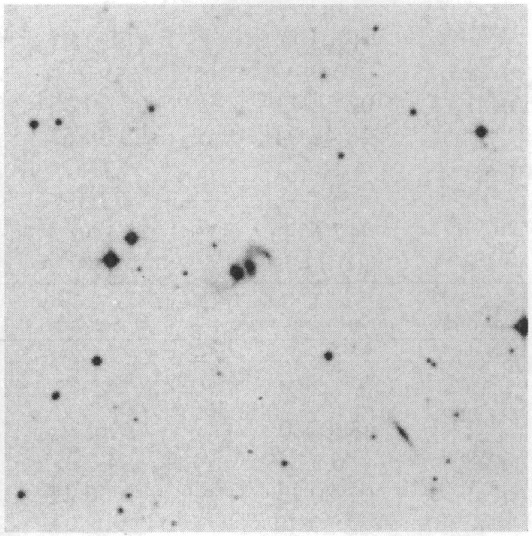

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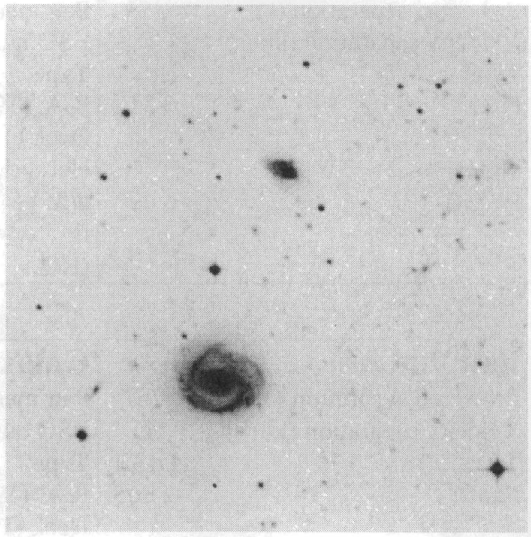

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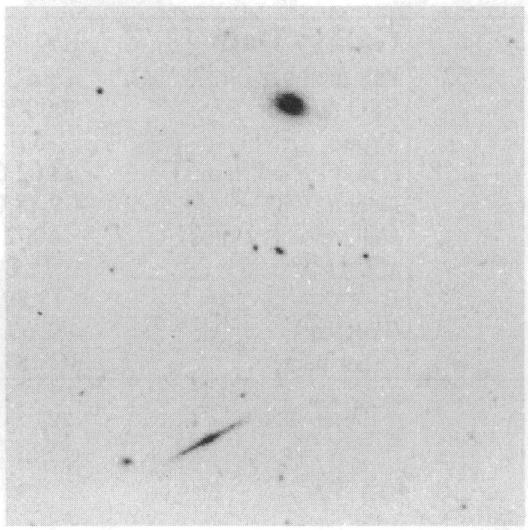
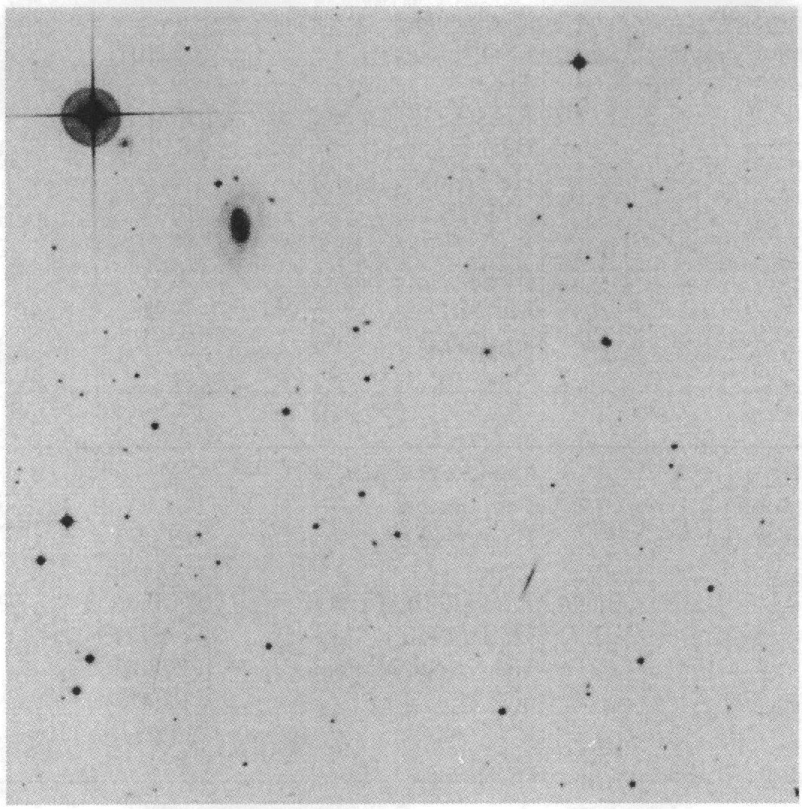


Pair 69 Data		**Galaxy Data**		
Projected separation (")	479	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	4170100	4170110
Type		Type	6.0	-1.0
Ntot	0.318	R.A. (1950.) (h m s)	02 58 43	02 59 06
		Decl. (1950.) (° ' ")	-28 46 04	-28 39 53
Notes:		Hel. velocity (km/s)		6376
F14, C-		a(25) (")	58.2	73.3
		B	17.60	14.40
		(B-R)	0.73	1.55

Pair 70 Data		**Galaxy Data**		
Projected separation (")	267	Pair member	**a**	**b**
Velocity separation (km/s)	45	ESO number	4800200	4800230
Type	DIS 1	Type	6.5	4.7
Ntot	2.865	R.A. (1950.) (h m s)	03 00 15	03 00 24
		Decl. (1950.) (° ' ")	-22 59 49	-23 03 46
Notes:		Hel. velocity (km/s)	1439	1394
F7, C-		a(25) (")	82.2	312.6
		B	14.88	11.41
		(B-R)	0.93	0.98
		Other name		NGC 1187

Pair 71 Data		**Galaxy Data**		
Projected separation (")	62	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	3000060	3000061
Type		Type	-5.0	-3.0
Ntot		R.A. (1950.) (h m s)	03 02 01	03 02 04
		Decl. (1950.) (° ' ")	-39 38 05	-39 37 11
Notes:		Hel. velocity (km/s)	6092	
F7, C-		a(25) (")	74.1	179.9
		B	13.89	13.50
		(B-R)	1.60	1.67
		Other name	IC 1875	

69



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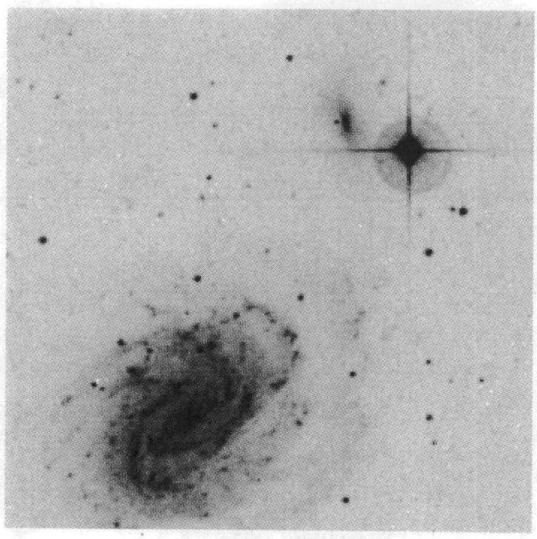

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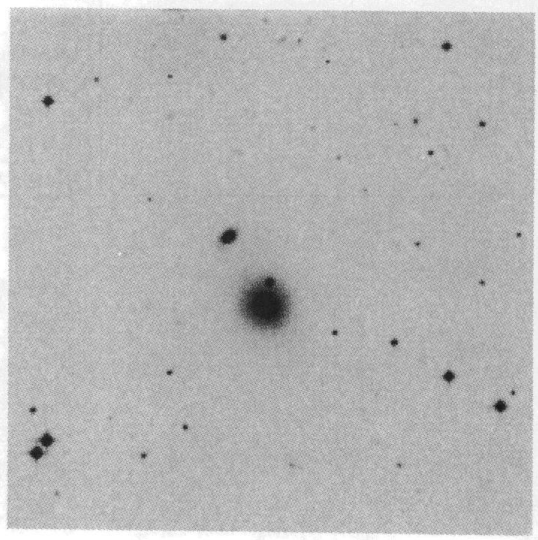
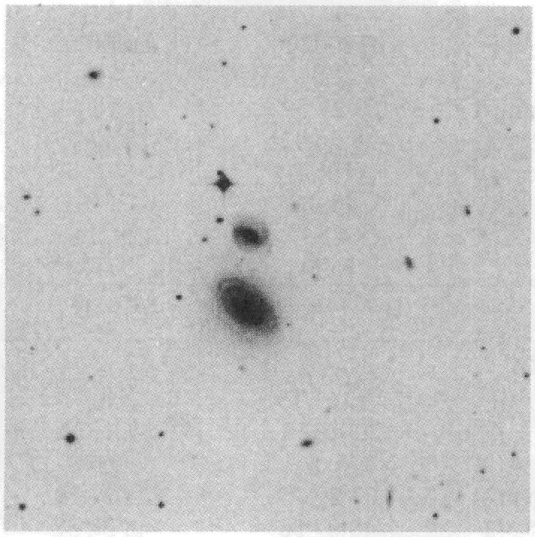


Pair 72 Data		**Galaxy Data**		
Projected separation (")	54	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	3000101	3000100
Type		Type	9.3	1.0
Ntot	1.910	R.A. (1950.) (h m s)	03 04 11	03 04 11
		Decl. (1950.) (° ' ")	-39 12 46	-39 13 40
Notes:		Hel. velocity (km/s)		6236
F7, C+		a(25) (")	197.2	96.6
		B	13.01	13.34
		(B-R)	1.81	1.88
		Lfir/MH2	7.93	
		logCO/LB	-1.58	
		Other name		NGC 1217

Pair 73 Data		**Galaxy Data**		
Projected separation (")	286	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	4810090	4810110
Type		Type	1.0	3.0
Ntot	2.546	R.A. (1950.) (h m s)	03 10 06	03 10 13
		Decl. (1950.) (° ' ")	-24 48 28	-24 43 58
Notes:		Hel. velocity (km/s)	12278dC	
F7, C-		a(25) (")	62.4	89.1
		B	14.68	15.44
		(B-R)	1.62	1.24

Pair 75 Data		**Galaxy Data**		
Projected separation (")	387	Pair member	**a**	**b**
Velocity separation (km/s)	159	ESO number	3570220	3570230
Type	DIS 1	Type	-2.0	0.0
Ntot	10.00	R.A. (1950.) (h m s)	03 20 47	03 20 49
		Decl. (1950.) (° ' ")	-37 23 13	-37 16 48
Notes:		Hel. velocity (km/s)	1739	1898
F14, C-		a(25) (")	812.8	211.3
		B	9.15	11.78
		(B-R)	1.49	1.56
		Other name	NGC 1316	NGC 1317

72



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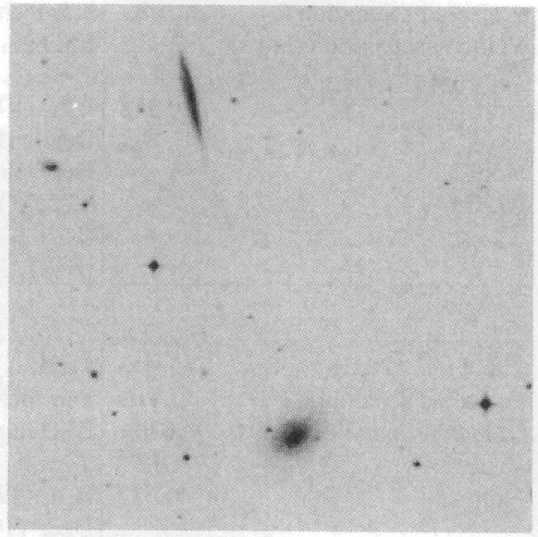

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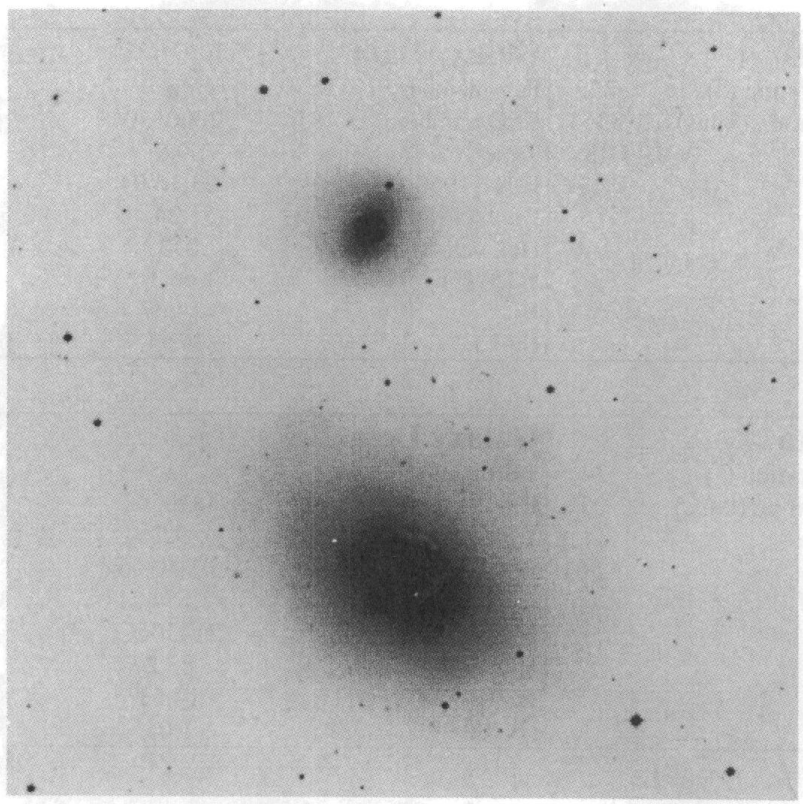


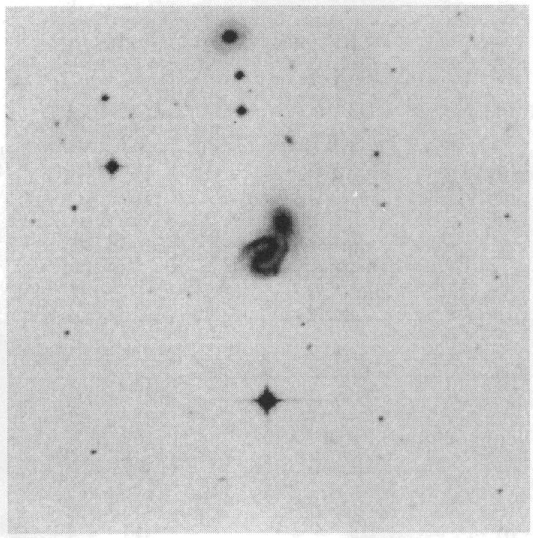
Pair 76 Data		**Galaxy Data**		
Projected separation (")	28	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	4180070	4180071
Type		Type	-2.0	4.5
Ntot	0.318	R.A. (1950.) (h m s)	03 27 52	03 27 53
		Decl. (1950.) (° ' ")	-28 56 42	-28 57 07
Notes:		Hel. velocity (km/s)	11052	
F7, C+		a(25) (")	48.4	77.6
		B	14.94	14.09
		(B-R)	1.58	1.49

Pair 77 Data		**Galaxy Data**		
Projected separation (")	61	Pair member	**a**	**b**
Velocity separation (km/s)	6700	ESO number	2000320	2000330
Type	DIS 2	Type	6.0	6.0
Ntot	0.637	R.A. (1950.) (h m s)	03 29 15	03 29 18
		Decl. (1950.) (° ' ")	-48 07 58	-48 08 52
Notes:		Hel. velocity (km/s)	13800	7100
F7, C-, OP		a(25) (")		67.6
		B	15.53	13.85
		(B-R)	0.70	
		Other name	IC 1948	IC 1949

Pair 79 Data		**Galaxy Data**		
Projected separation (")	222	Pair member	**a**	**b**
Velocity separation (km/s)	8363	ESO number	2000530	2000540
Type	DIS 1	Type	0.0	5.0
Ntot	0.637	R.A. (1950.) (h m s)	03 36 04	03 36 07
		Decl. (1950.) (° ' ")	-51 24 46	-51 21 07
Notes:		Hel. velocity (km/s)	2337	10700
F7, C+, OP		a(25) (")	66.1	70.8
		B	14.67	14.23
		(B-R)	1.54	1.24

Pair 80 Data		**Galaxy Data**		
Projected separation (")	34	Pair member	**a**	**b**
Velocity separation (km/s)	0?	ESO number	4820361	4820360
Type		Type	9.7	9.0
Ntot	3.501	R.A. (1950.) (h m s)	03 40 06	03 40 07
		Decl. (1950.) (° ' ")	-22 54 21	-22 54 46
Notes:		Hel. velocity (km/s)	21430dC	21430dC
F7, C+		a(25) (")	83.2	69.2
		B	14.63	14.97
		(B-R)	1.05	1.25

76



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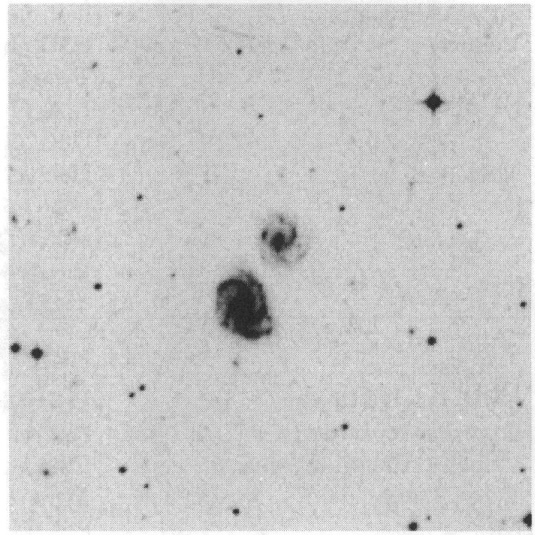

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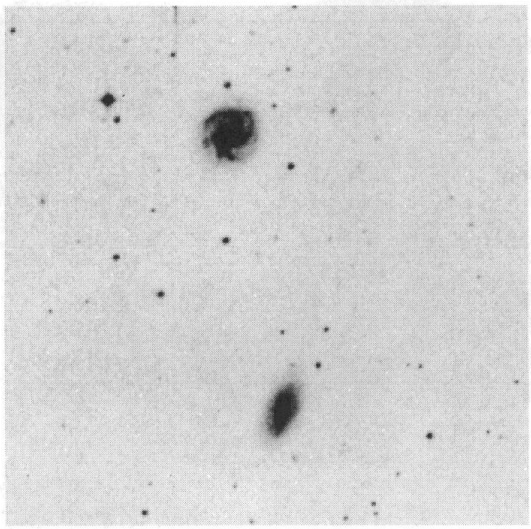

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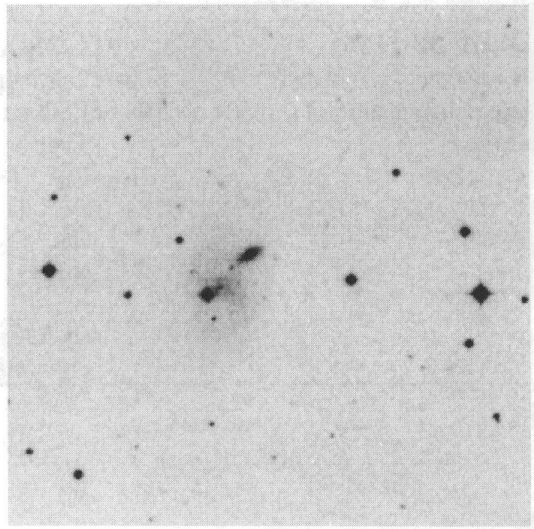
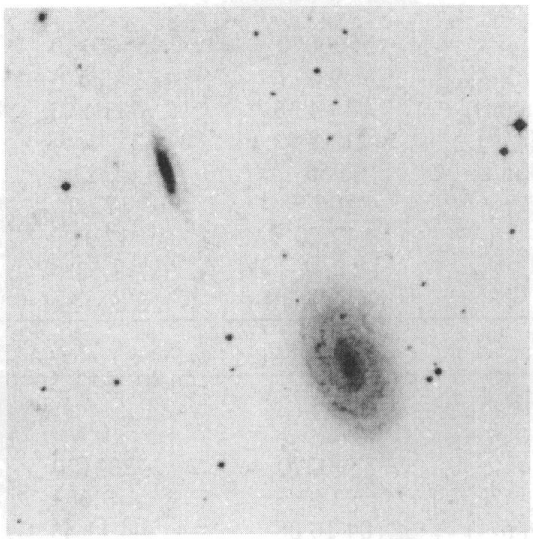


Pair 81 Data		**Galaxy Data**		
Projected separation (")	204	Pair member	**a**	**b**
Velocity separation (km/s)	10907	ESO number	5490180	5490200
Type		Type	5.0	3.0
Ntot	1.592	R.A. (1950.) (h m s)	03 46 03	03 46 12
		Decl. (1950.) (° ' ")	-21 37 37	-21 35 06
Notes:		Hel. velocity (km/s)	1436	12343dC
			1548F	
F7, C-, OP		a(25) (")	138.0	60.3
		B	13.60	15.63
		(B-R)	1.51	1.46

Pair 82 Data		**Galaxy Data**		
Projected separation (")	46	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	4830010	4830011
Type		Type	-2.0	4.5
Ntot		R.A. (1950.) (h m s)	03 54 40	03 54 43
		Decl. (1950.) (° ' ")	-24 38 24	-24 38 16
Notes:		Hel. velocity (km/s)		
F7, C+		a(25) (")	22.6	27.5
		B	14.72	16.28
		(B-R)	0.30	1.01

Pair 83 Data		**Galaxy Data**		
Projected separation (")	300	Pair member	**a**	**b**
Velocity separation (km/s)	108	ESO number	2500030	2500040
Type		Type	-2.0	1.0
Ntot	0.318	R.A. (1950.) (h m s)	04 01 54	04 02 16
		Decl. (1950.) (° ' ")	-43 32 13	-43 29 13
Notes:		Hel. velocity (km/s)	1004	896
F14, C+		a(25) (")	138.0	501.2
		B	13.47	11.08
		(B-R)	0.96	1.29
		Other name	NGC 1510	NGC 1512

81



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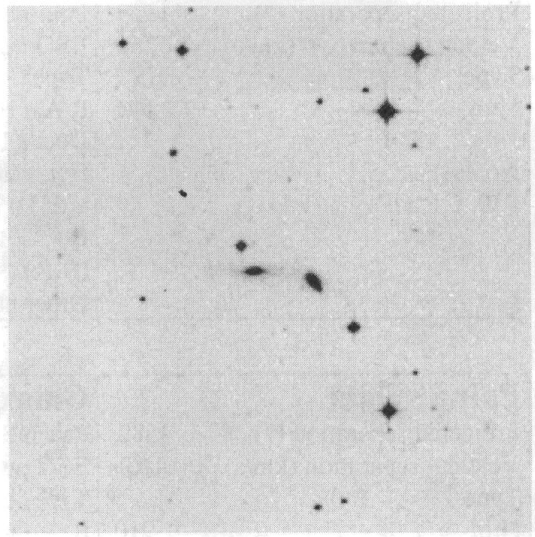

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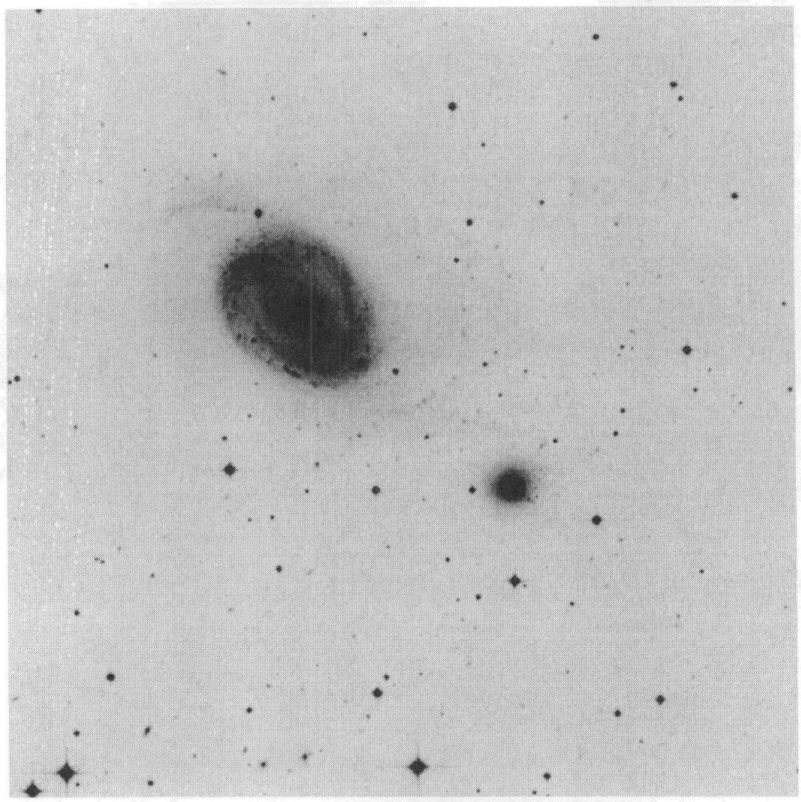
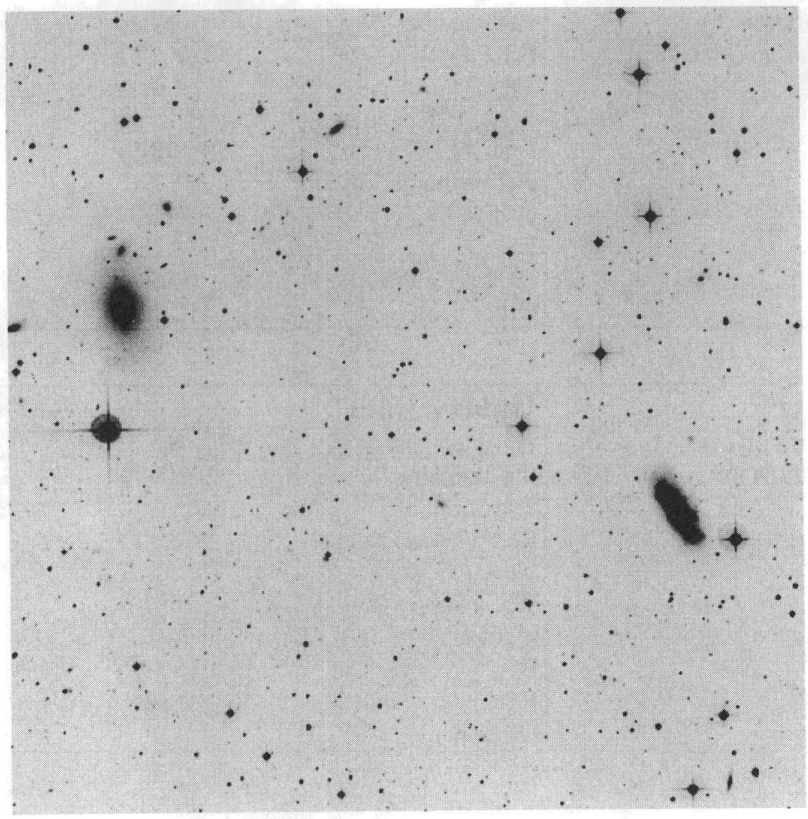


Pair 84 Data		**Galaxy Data**		
Projected separation (")	1329	Pair member	**a**	**b**
Velocity separation (km/s)	3256	ESO number	5500070	5500110
Type	DIS 1	Type	9.0	-3.5
Ntot	2.546	R.A. (1950.) (h m s)	04 04 38	04 06 07
		Decl. (1950.) (° ' ")	-21 18 43	-21 10 58
Notes:		Hel. velocity (km/s)	966	4222
F30, C+, OP		a(25) (")	206.5	182.0
		B	12.20	12.31
		(B-R)	1.01	1.58
		Other name	NGC 1518	NGC 1521

Pair 85 Data		**Galaxy Data**		
Projected separation (")	4582	Pair member	**a**	**b**
Velocity separation (km/s)	163	ESO number	3590270	4200120
Type		Type	3.0	-3.0
Ntot	1.910	R.A. (1950.) (h m s)	04 10 08	04 11 43
		Decl. (1950.) (° ' ")	-33 00 00	-31 46 19
Notes:		Hel. velocity (km/s)	1208	1371
F7a, F7b, C-		a(25) (")	668.3	237.1
satellite		B	10.65	11.54
		(B-R)	1.31	1.43
		Other name	NGC 1532	NGC 1537

84



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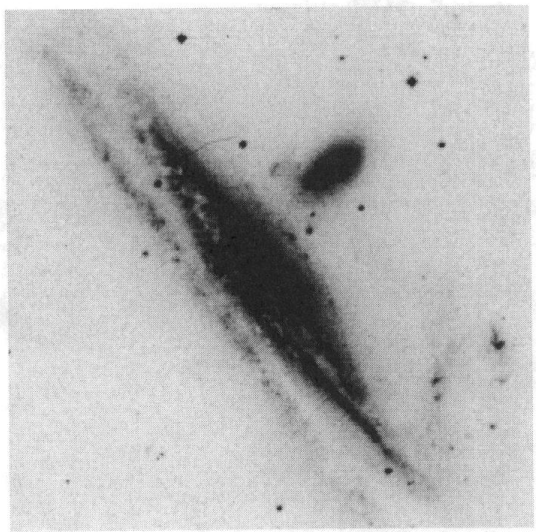

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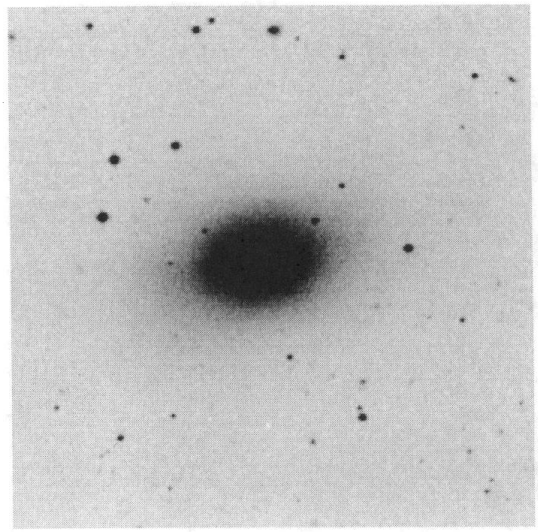
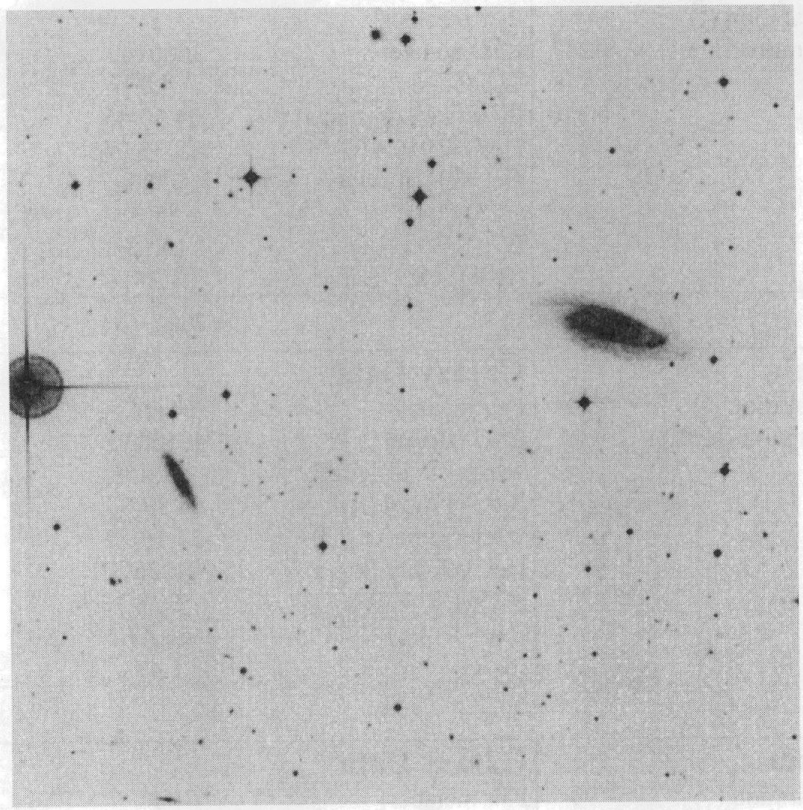


Pair 86 Data		**Galaxy Data**		
Projected separation (")	489	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	2500170	2500180
Type		Type	4.0	3.0
Ntot	0.637	R.A. (1950.) (h m s)	04 18 42	04 19 27
		Decl. (1950.) (° ' ")	-45 08 59	-45 11 23
Notes:		Hel. velocity (km/s)	4541	
F14, C+		a(25) (")	156.7	90.2
		B	13.28	15.11
		(B-R)	1.27	1.22
		Other name	NGC 1558	

Pair 87 Data		**Galaxy Data**		
Projected separation (")	190	Pair member	**a**	**b**
Velocity separation (km/s)	129	ESO number	2020090	2020100
Type	DIS 1	Type	5.0	-5.0
Ntot	1.273	R.A. (1950.) (h m s)	04 19 37	04 19 42
		Decl. (1950.) (° ' ")	-48 25 22	-48 22 19
Notes:		Hel. velocity (km/s)	4681	4552
F7, C+		a(25) (")	74.1	88.1
		B	15.32	13.36
		(B-R)	0.87	1.55
		Other name		NGC 1567

86



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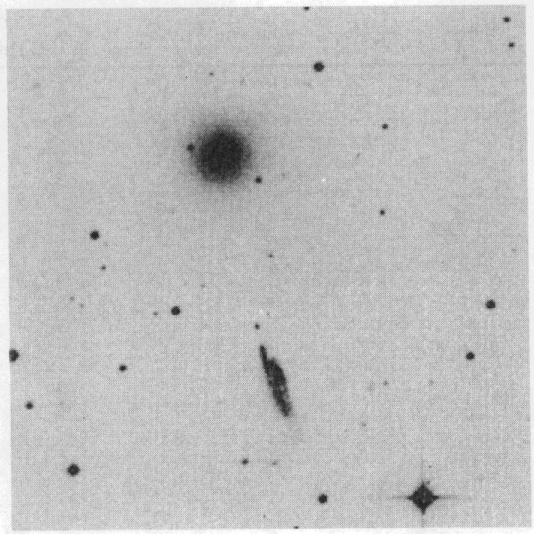
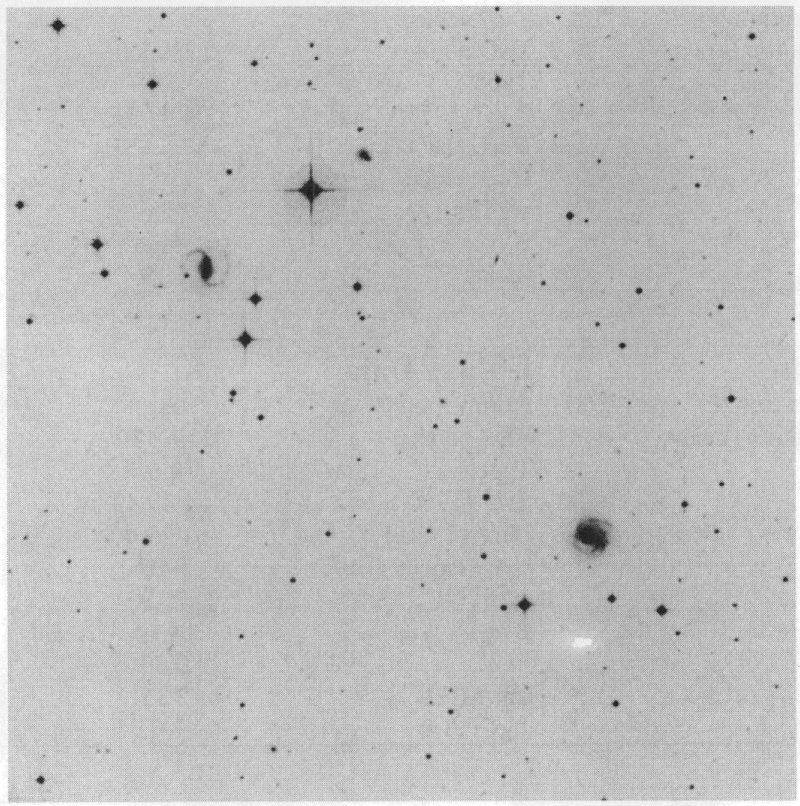


Pair 90 Data		**Galaxy Data**		
Projected separation (")	494	Pair member	**a**	**b**
Velocity separation (km/s)	4247	ESO number	3600140	3600150
Type		Type	4.0	1.0
Ntot	0.318	R.A. (1950.) (h m s)	04 30 46	04 31 17
		Decl. (1950.) (° ' ")	-33 31 04	-33 26 13
Notes:		Hel. velocity (km/s)	9780	14027dC
F14, C-, OP		a(25) (")	55.0	30.9
		B	14.93	15.75
		(B-R)	1.38	3.07

Pair 91 Data		**Galaxy Data**		
Projected separation (")	70	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	4850030	4850040
Type		Type	3.0	6.0
Ntot	0.955	R.A. (1950.) (h m s)	04 37 00	04 37 06
		Decl. (1950.) (° ' ")	-24 16 55	-24 16 40
Notes:		Hel. velocity (km/s)	4422dC	
F7, C+		a(25) (")	66.8	124.5
		B	14.47	15.93
		(B-R)	1.48	1.24

Pair 92 Data		**Galaxy Data**		
Projected separation (")	99	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	1190030	1190040
Type		Type	10.0	1.0
Ntot	2.228	R.A. (1950.) (h m s)	04 47 22	04 47 35
		Decl. (1950.) (° ' ")	-59 30 10	-59 30 10
Notes:		Hel. velocity (km/s)		
F7, C+		a(25) (")	26.6	45.7
		B	17.39	14.90
		(B-R)	0.04	0.88

90



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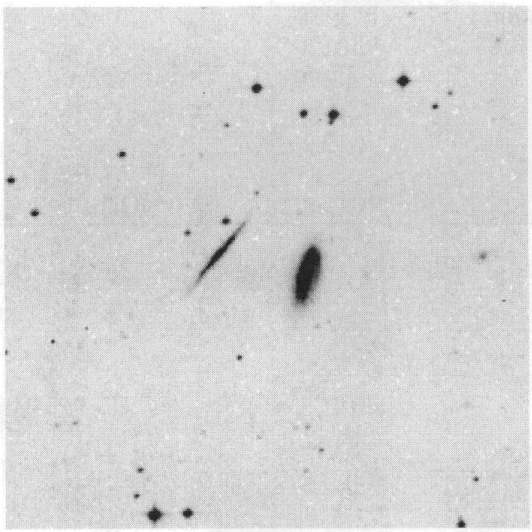

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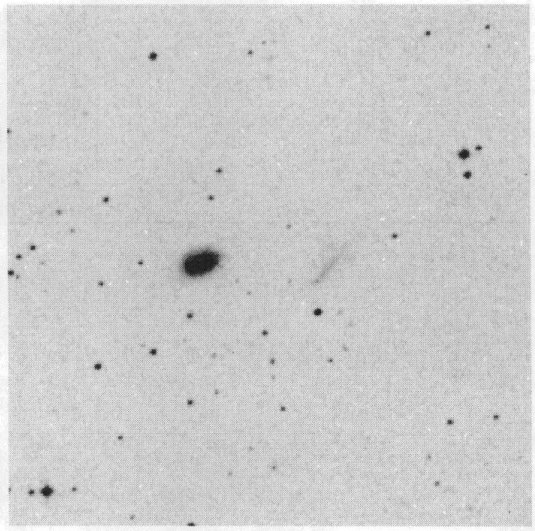

Pair 93 Data		**Galaxy Data**		
Projected separation (")	501	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	1580060	1580070
Type		Type	0.0	3.0
Ntot	1.592	R.A. (1950.) (h m s)	04 47 34	04 48 30
		Decl. (1950.) (° ' ")	-53 59 52	-53 59 49
Notes:		Hel. velocity (km/s)		15100
F14, C-		a(25) (")	59.6	77.6
		B	15.34	14.64
		(B-R)	1.19	1.14

Pair 94 Data		**Galaxy Data**		
Projected separation (")	100	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	1190130	1190140
Type		Type	4.0	7.0
Ntot	1.592	R.A. (1950.) (h m s)	04 49 49	04 50 02
		Decl. (1950.) (° ' ")	-61 25 40	-61 26 16
Notes:		Hel. velocity (km/s)	5903	
F7, C-, CCD		a(25) (")	75.9	62.4
		B	14.14	15.15
		(B-R)	0.89	0.56
		Lfir/MH2	2.35	
		logCO/LB	-1.02	

Pair 99 Data		**Galaxy Data**		
Projected separation (")	32	Pair member	**a**	**b**
Velocity separation (km/s)	86	ESO number	5520490	5520500
Type	DIS 1	Type	3.0	4.0
Ntot	3.820	R.A. (1950.) (h m s)	04 59 34	04 59 35
		Decl. (1950.) (° ' ")	-18 13 48	-18 14 16
Notes:		Hel. velocity (km/s)	3978	3892
F7, C+, CCD		a(25) (")	81.3	84.1
		B	13.70	14.24
		(B-R)	1.05	1.02
		Lfir/MH2	32.2	
		logCO/LB	-1.85	
		Other name	NGC 1738	NGC 1739

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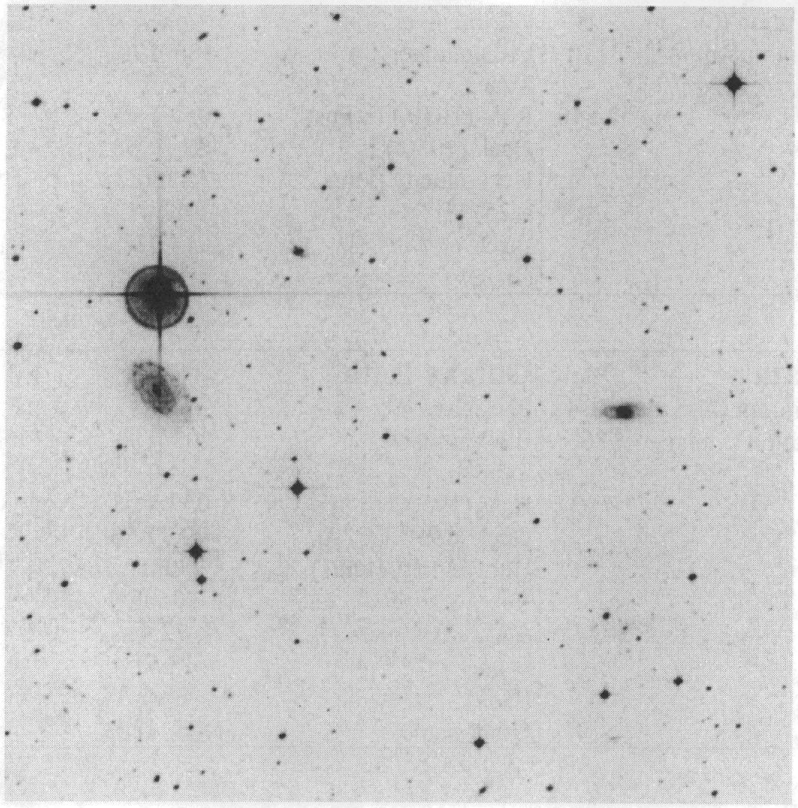

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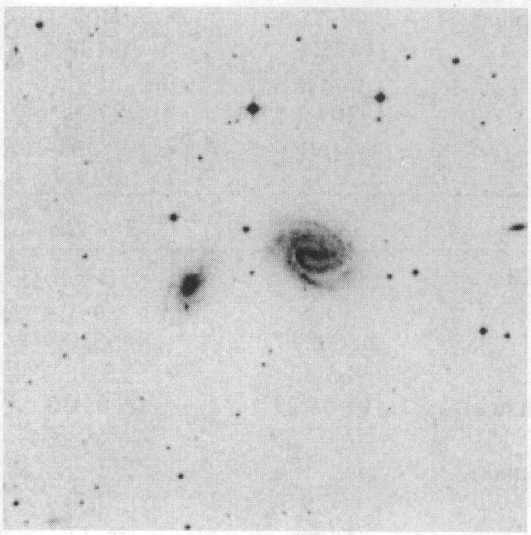

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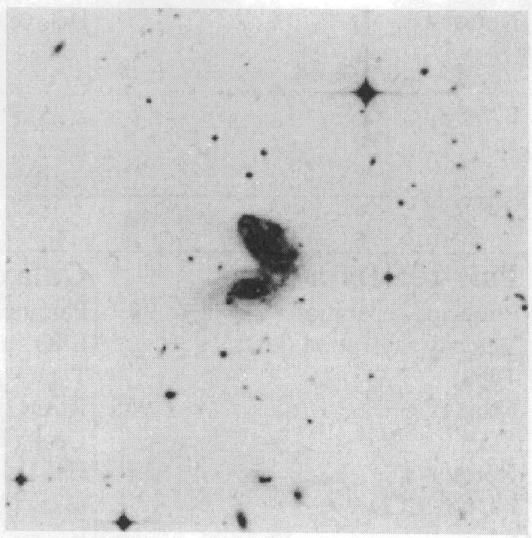


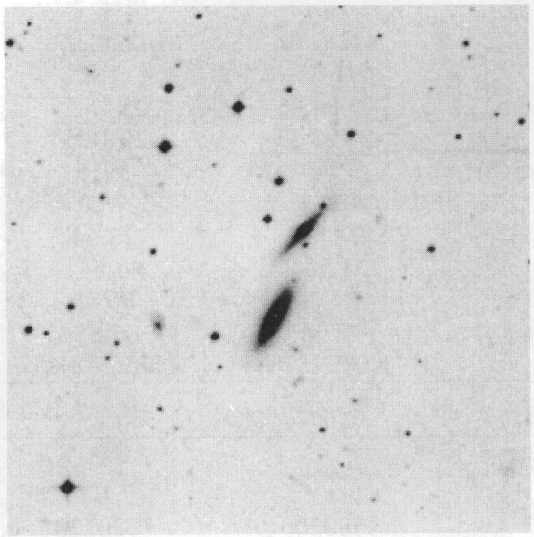
Pair 101 Data		**Galaxy Data**		
Projected separation (")	98	Pair member	**a**	**b**
Velocity separation (km/s)	130	ESO number	4860170	4860190
Type		Type	-2.5	-3.5
Ntot	2.546	R.A. (1950.) (h m s)	05 01 05	05 01 10
		Decl. (1950.) (° ' ")	-22 52 58	-22 54 07
Notes:		Hel. velocity (km/s)	4760	4630
F7, C-, CCD		a(25) (")	62.4	88.1
		B	14.73	13.62
		(B-R)	1.37	1.42

Pair 103 Data		**Galaxy Data**		
Projected separation (")	134	Pair member	**a**	**b**
Velocity separation (km/s)	266	ESO number	2030180	2030190
Type		Type	4.0	1.0
Ntot	0.637	R.A. (1950.) (h m s)	05 04 08	05 04 17
		Decl. (1950.) (° ' ")	-49 37 58	-49 39 46
Notes:		Hel. velocity (km/s)	4085	4351
			4060F	
F7, C-		a(25) (")	72.4	46.2
		B	13.51	14.07
		(B-R)	0.97	1.21
		Other name	NGC 1803	

Pair 104 Data		**Galaxy Data**		
Projected separation (")	126	Pair member	**a**	**b**
Velocity separation (km/s)	276	ESO number	5530020	5530030
Type		Type	-3.0	5.0
Ntot	2.228	R.A. (1950.) (h m s)	05 04 19	05 04 23
		Decl. (1950.) (° ' ")	-17 39 10	-17 37 19
Notes:		Hel. velocity (km/s)	4775	4499
			4770F	4510F
			4859dC	
F7, C+		a(25) (")	107.2	87.1
		B	13.45	14.14
		(B-R)	1.62	1.26

Pair 105 Data		**Galaxy Data**		
Projected separation (")	94	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	4860290	4860300
Type		Type	-3.5	8.4
Ntot	0.955	R.A. (1950.) (h m s)	05 05 29	05 05 30
		Decl. (1950.) (° ' ")	-23 07 55	-23 09 28
Notes:		Hel. velocity (km/s)		
F7, C+, CCD		a(25) (")	56.9	73.3
		B	14.59	16.77
		(B-R)	1.63	1.32

101



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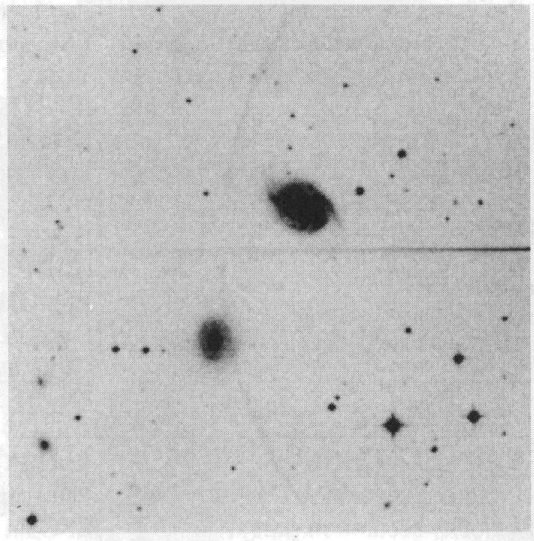

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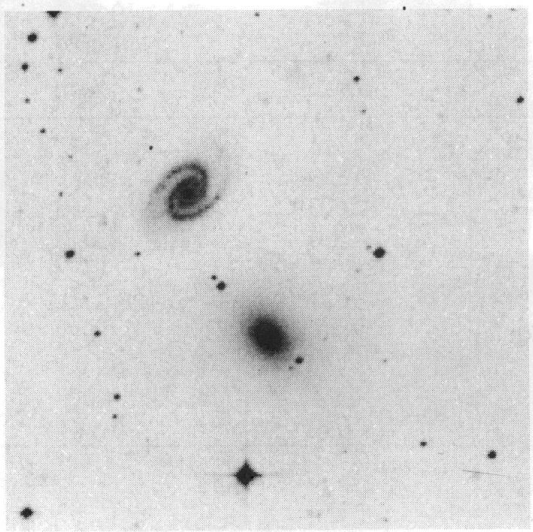

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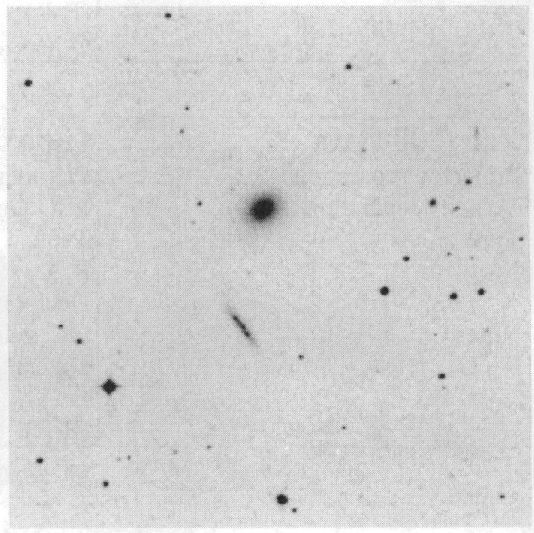
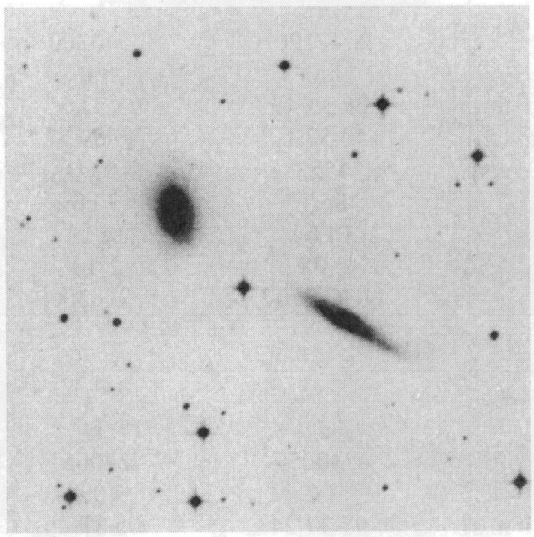


Pair 106 Data		**Galaxy Data**		
Projected separation (")	157	Pair member	**a**	**b**
Velocity separation (km/s)	34	ESO number	4220370	4220390
Type		Type	1.0	1.0
Ntot	1.592	R.A. (1950.) (h m s)	05 06 46	05 06 55
		Decl. (1950.) (° ' ")	-29 20 23	-29 18 54
Notes:		Hel. velocity (km/s)	3949	3915
F7, C-, CCD		a(25) (")	102.3	75.0
		B	14.46	13.64
		(B-R)	1.50	1.54
		Lfir/MH2		90.88
		logCO/LB		-2.85
		Other name	NGC 1811	NGC 1812

Pair 107 Data		**Galaxy Data**		
Projected separation (")	769	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	1580200	1580220
Type		Type	3.0	6.7
Ntot	0.318	R.A. (1950.) (h m s)	05 09 52	05 11 24
		Decl. (1950.) (° ' ")	-57 24 35	-57 27 25
Notes:		Hel. velocity (km/s)		1402dC
F20, C-		a(25) (")	65.3	123.0
		B	15.43	13.58
		(B-R)	1.04	0.86
		Other name		NGC 1853

Pair 108 Data		**Galaxy Data**		
Projected separation (")	4	Pair member	**a**	**b**
Velocity separation (km/s)	36	ESO number	4860392	4860391
Type		Type	3.0	1.0
Ntot		R.A. (1950.) (h m s)	05 13 19	05 13 19
		Decl. (1950.) (° ' ")	-26 31 19	-26 31 22
Notes:		Hel. velocity (km/s)	3840dC	3804dC
F7, C+		a(25) (")		55.0
		B	14.41	14.07
		(B-R)	0.69	0.54

106



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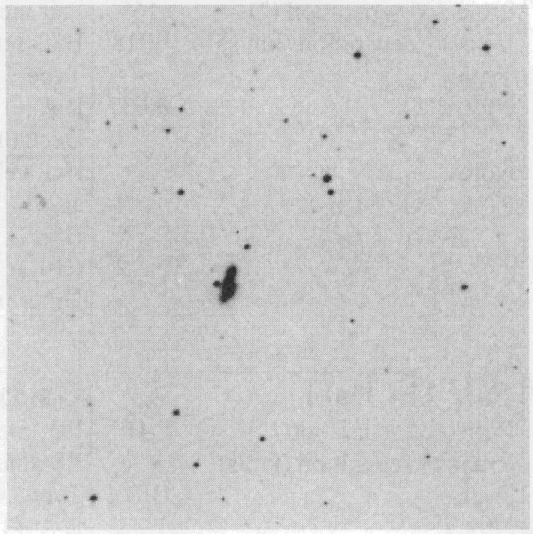

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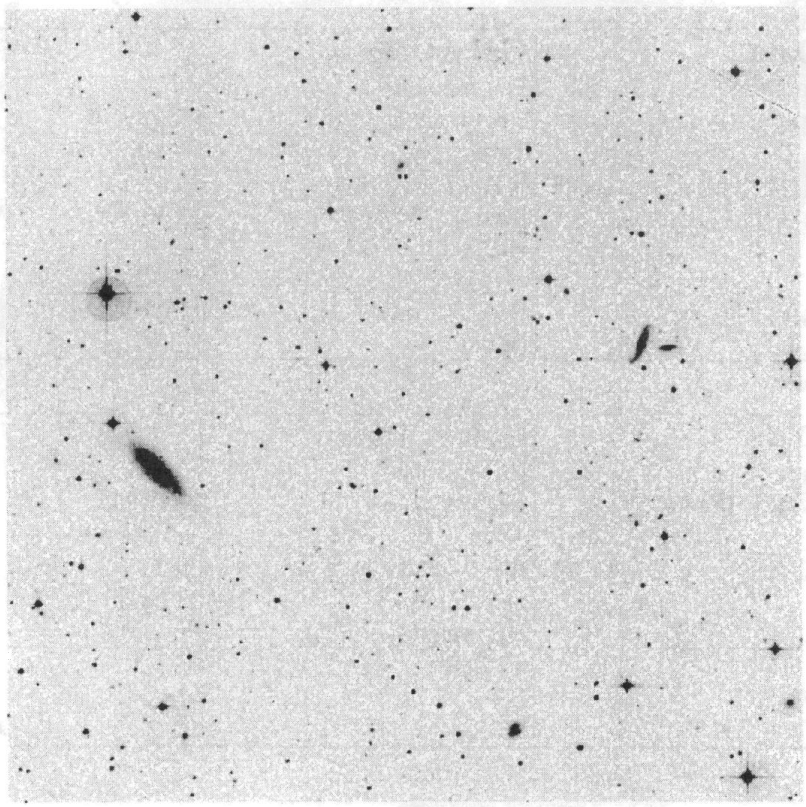


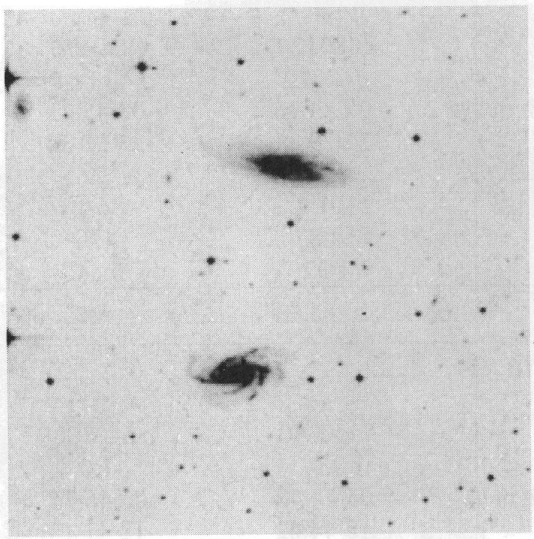
Pair 113 Data		**Galaxy Data**		
Projected separation (")	169	Pair member	**a**	**b**
Velocity separation (km/s)	5818	ESO number	2040190	2040200
Type		Type	6.0	5.0
Ntot	0.637	R.A. (1950.) (h m s)	05 33 47	05 33 52
		Decl. (1950.) (° ' ")	-50 57 10	-50 59 52
Notes:		Hel. velocity (km/s)	4523	10341
F7, C+, OP		a(25) (")	86.1	70.8
		B	14.84	14.64
		(B-R)	0.88	1.10
		Other name	NGC 2007	NGC 2008

Pair 114 Data		**Galaxy Data**		
Projected separation (")	41	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	4240050	4240051
Type	DIS 1	Type	3.0	10.0
Ntot	1.273	R.A. (1950.) (h m s)	05 37 24	05 37 25
		Decl. (1950.) (° ' ")	-29 23 59	-29 24 39
Notes:		Hel. velocity (km/s)		
F7, C+		a(25) (")	75.9	120.2
		B	15.05	14.91
		(B-R)	0.99	0.96

Pair 115 Data		**Galaxy Data**		
Projected separation (")	84	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	4870361	4870360
Type		Type	-2.0	-2.5
Ntot	2.228	R.A. (1950.) (h m s)	05 40 12	05 40 18
		Decl. (1950.) (° ' ")	-25 33 50	-25 33 54
Notes:		Hel. velocity (km/s)		9030
F7, C+		a(25) (")	37.2	64.6
		B	15.62	14.46
		(B-R)	0.98	1.41

Pair 116 Data		**Galaxy Data**		
Projected separation (")	26	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	3060221	3060220
Type	DIS 2	Type	8.6	7.6
Ntot	0.000	R.A. (1950.) (h m s)	05 40 14	05 40 17
		Decl. (1950.) (° ' ")	-38 28 40	-38 28 37
Notes:		Hel. velocity (km/s)		
F7, C+		a(25) (")	93.3	48.4
		B	14.64	16.09
		(B-R)	1.22	0.82

113



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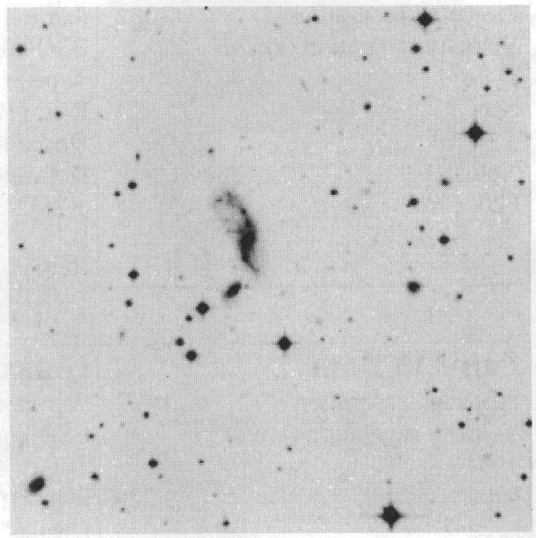

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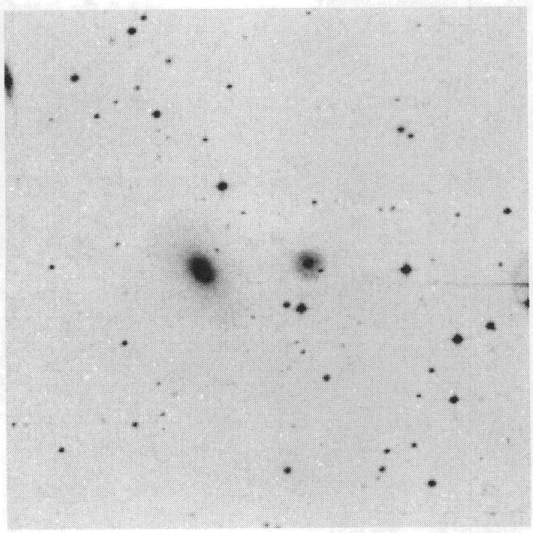

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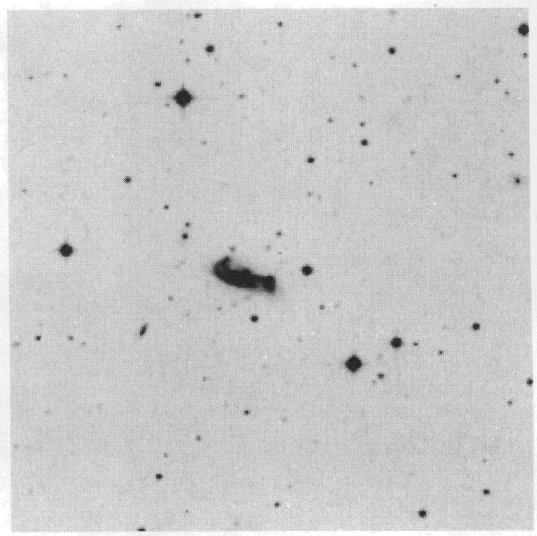
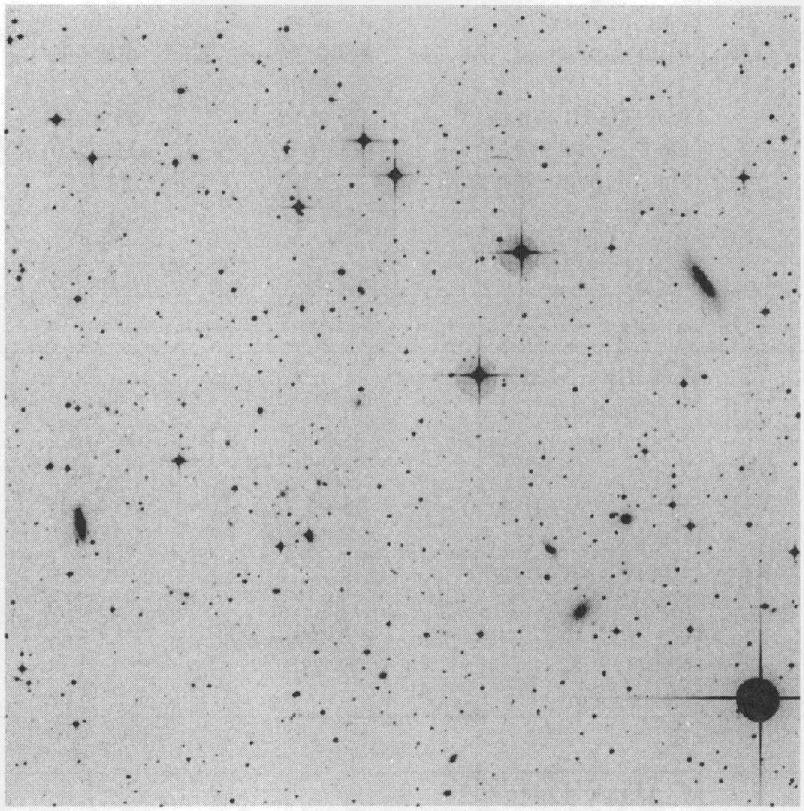


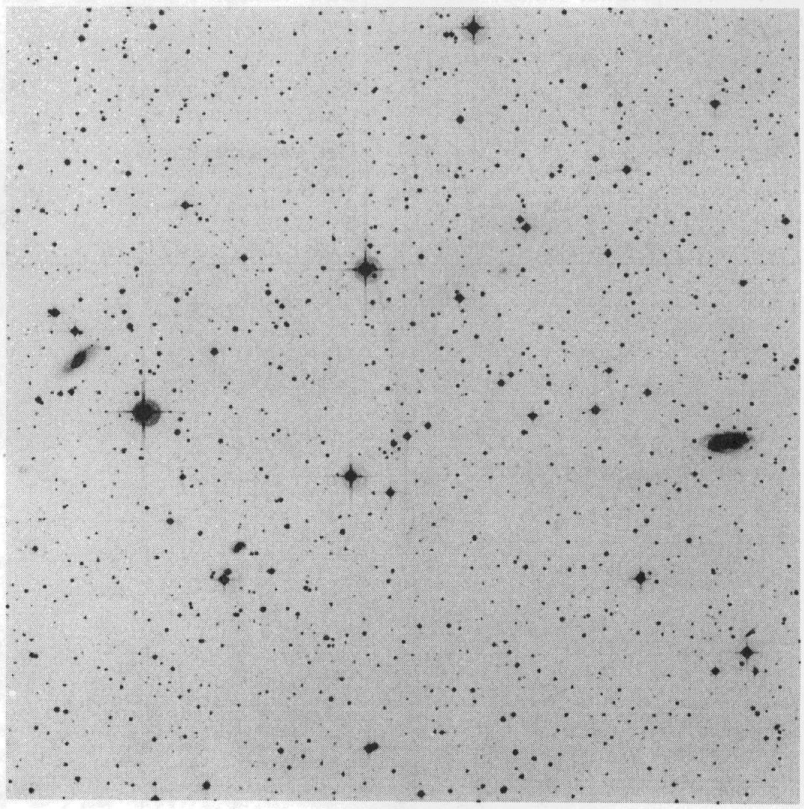
Pair 117 Data		**Galaxy Data**		
Projected separation (")	1002	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	4880120	4880170
Type		Type	-2.0	3.0
Ntot	2.228	R.A. (1950.) (h m s)	05 44 16	05 45 23
		Decl. (1950.) (° ' ")	-23 29 31	-23 35 34
Notes:		Hel. velocity (km/s)		
F20, C-		a(25) (")	101.2	86.1
		B	14.87	14.83
		(B-R)	1.32	0.84

Pair 118 Data		**Galaxy Data**		
Projected separation (")	1477	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	5540340	5540380
Type		Type	3.0	-1.0
Ntot	2.228	R.A. (1950.) (h m s)	05 44 42	05 46 24
		Decl. (1950.) (° ' ")	-18 44 42	-18 41 13
Notes:		Hel. velocity (km/s)		
F30, C-		a(25) (")	124.5	112.2
		B	13.41	13.63
		(B-R)	1.31	1.32
		Other name	IC 2143	

117



118

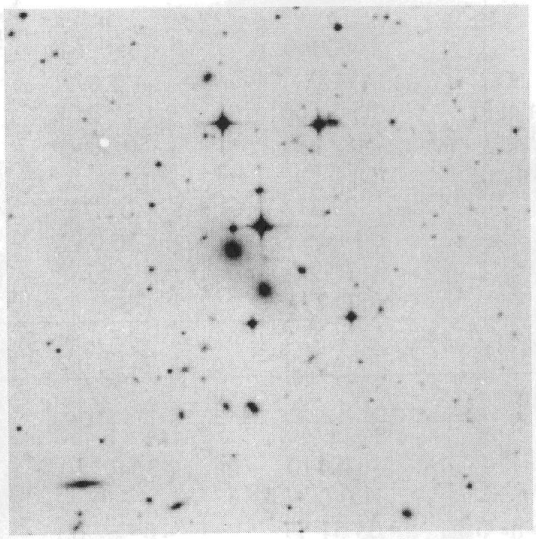


Pair 119 Data		**Galaxy Data**		
Projected separation (")	38	Pair member	**a**	**b**
Velocity separation (km/s)	116	ESO number	4880150	4880190
Type	ATM	Type	-3.0	-5.0
Ntot		R.A. (1950.) (h m s)	05 45 23	05 45 23
		Decl. (1950.) (° ' ")	-25 16 22	-25 15 46
Notes:		Hel. velocity (km/s)	12652	12768
F7, C-		a(25) (")	44.2	56.9
		B	14.77	14.83
		(B-R)	1.29	1.57

Pair 120 Data		**Galaxy Data**		
Projected separation (")	510	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	160090	160100
Type	DIS 1	Type	8.0	0.8
Ntot	0.318	R.A. (1950.) (h m s)	05 45 23	05 46 25
		Decl. (1950.) (° ' ")	-82 00 10	-82 08 24
Notes:		Hel. velocity (km/s)		
F14, C-, CCD		a(25) (")	58.2	82.2
		B	15.63	13.93
		(B-R)	1.23	1.35
		Other name		NGC 2144

Pair 121 Data		**Galaxy Data**		
Projected separation (")	22	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	2530260	2530261
Type	DIS 2 LIN br	Type	3.6	2.3
Ntot		R.A. (1950.) (h m s)	05 45 48	05 45 49
		Decl. (1950.) (° ' ")	-45 29 49	-45 30 10
Notes:		Hel. velocity (km/s)		
F7, C+		a(25) (")	43.2	61.0
		B	15.23	14.90
		(B-R)	1.04	1.67

119



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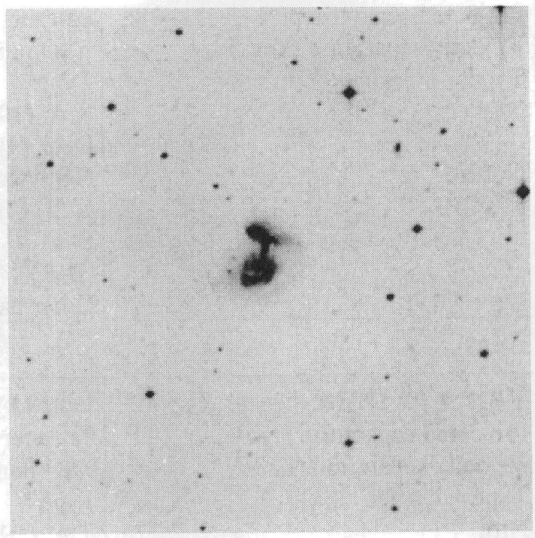
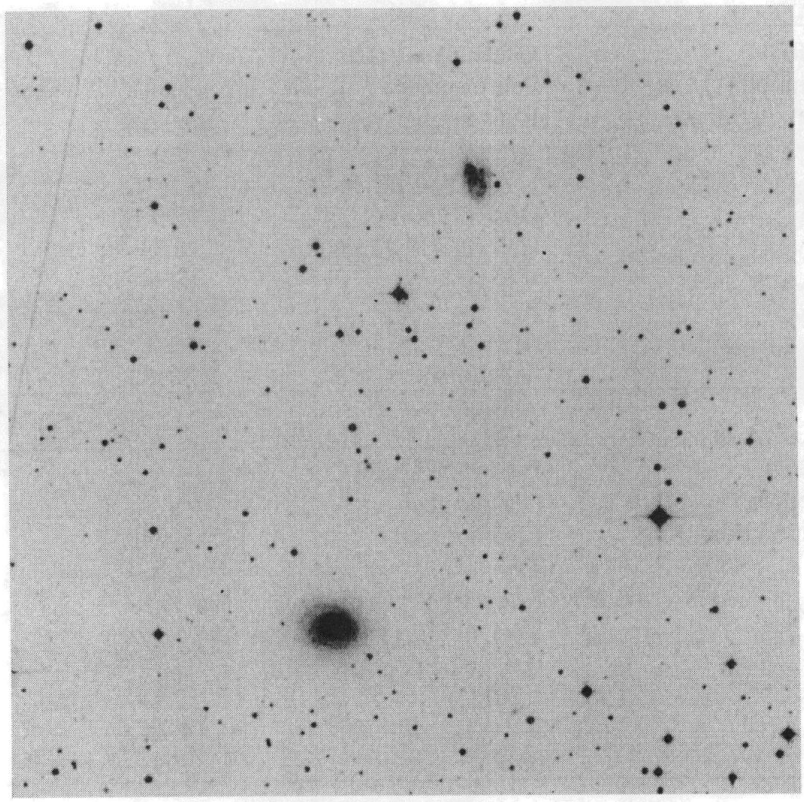


120



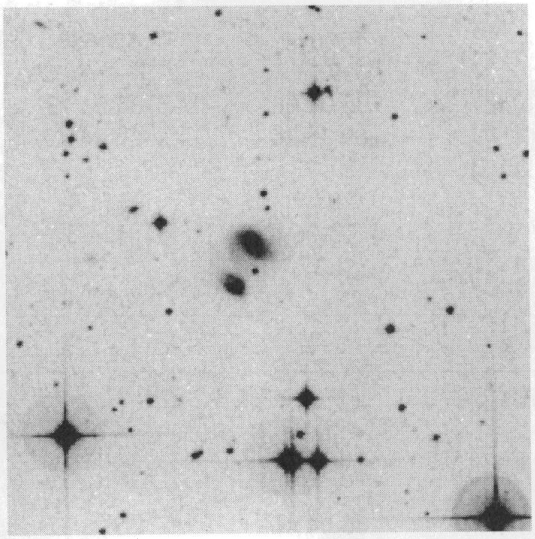
Pair 122 Data		**Galaxy Data**		
Projected separation (")	38	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	2050060	2050061
Type		Type	-1.0	0.6
Ntot		R.A. (1950.) (h m s)	05 50 06	05 50 08
		Decl. (1950.) (° ' ")	-50 35 41	-50 36 17
Notes:		Hel. velocity (km/s)		
F7, C+		a(25) (")	73.3	32.7
		B	14.15	16.05
		(B-R)	1.59	1.61
		Other name	NGC 2115	

Pair 123 Data		**Galaxy Data**		
Projected separation (")	111	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	3640110	3640120
Type		Type	0.0	3.0
Ntot	2.228	R.A. (1950.) (h m s)	05 51 59	05 52 00
		Decl. (1950.) (° ' ")	-32 46 55	-32 45 07
Notes:		Hel. velocity (km/s)		
F7, C+		a(25) (")	63.1	85.1
		B	14.83	14.07
		(B-R)	1.41	1.09

Pair 124 Data		**Galaxy Data**		
Projected separation (")	14	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	3640220	3640221
Type	LIN ta	Type	2.0	5.6
Ntot		R.A. (1950.) (h m s)	05 58 16	05 58 17
		Decl. (1950.) (° ' ")	-33 55 12	-33 55 04
Notes:		Hel. velocity (km/s)	2866	
F7, C+		a(25) (")	64.6	63.8
		B	14.16	14.27
		(B-R)	0.80	0.83
		Other name	IC 2153	

Pair 125 Data		**Galaxy Data**		
Projected separation (")	229	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	5550240	5550250
Type		Type	-2.5	1.0
Ntot	0.955	R.A. (1950.) (h m s)	05 59 42	05 59 45
		Decl. (1950.) (° ' ")	-17 56 24	-17 52 37
Notes:		Hel. velocity (km/s)		
F7, C-		a(25) (")	57.5	58.2
		B	14.75	15.51
		(B-R)	2.01	1.68

122



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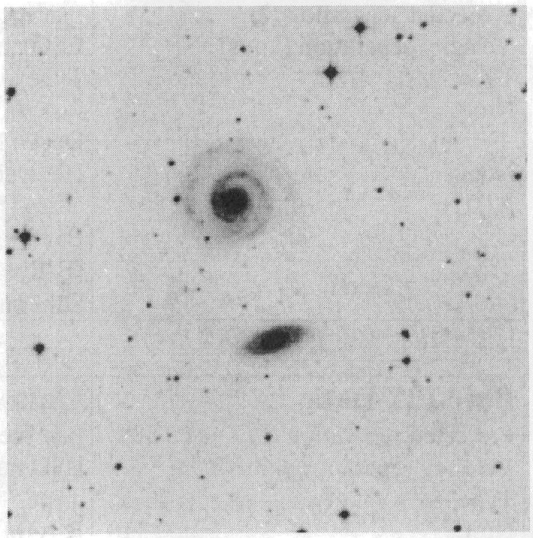
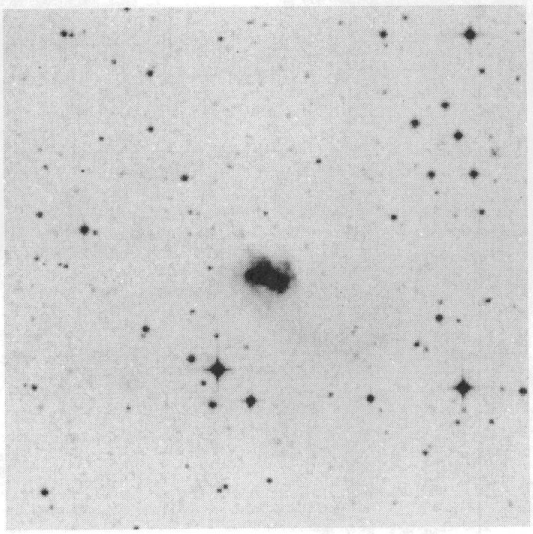
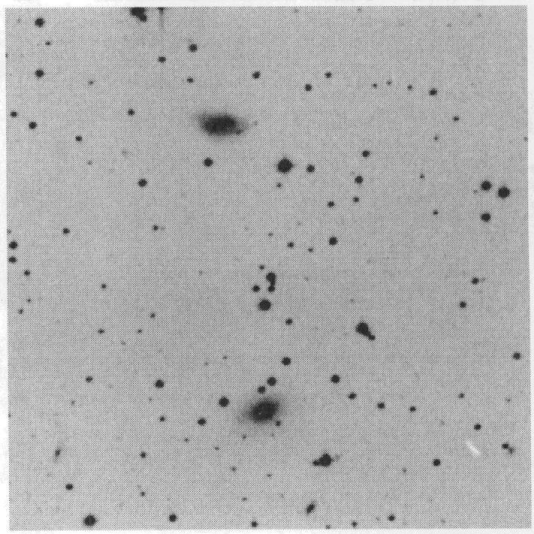


124



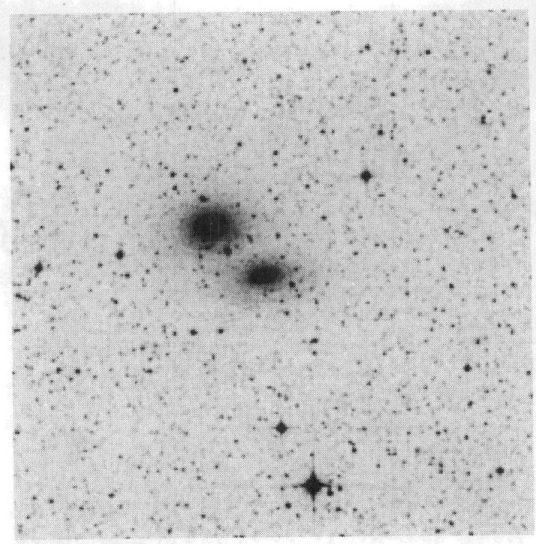
125



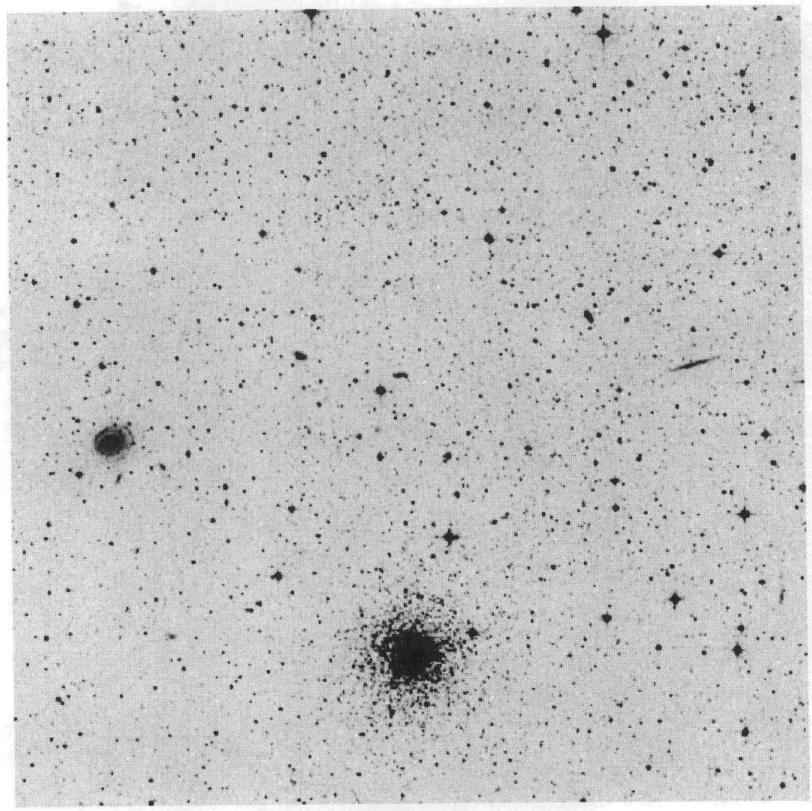
Pair 126 Data		**Galaxy Data**		
Projected separation (")	57	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	570681	570680
Type		Type	9.5	-5.0
Ntot		R.A. (1950.) (h m s)	06 04 06	06 04 13
		Decl. (1950.) (° ' ")	-69 35 20	-69 34 40
Notes:		Hel. velocity (km/s)		
F7, C+		a(25) (")	208.9	151.4
		B	13.06	13.28
		(B-R)	1.37	1.57
		Other name		NGC 2187

Pair 127 Data		**Galaxy Data**		
Projected separation (")	888	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	340020	340050
Type		Type	6.0	2.0
Ntot	0.318	R.A. (1950.) (h m s)	06 04 46	06 08 32
		Decl. (1950.) (° ' ")	-75 17 49	-75 21 25
Notes:		Hel. velocity (km/s)		10790
F20, C-		a(25) (")	98.9	66.8
		B	16.60	14.56
		(B-R)	1.39	1.64
		Other name		IC 2164

126



127

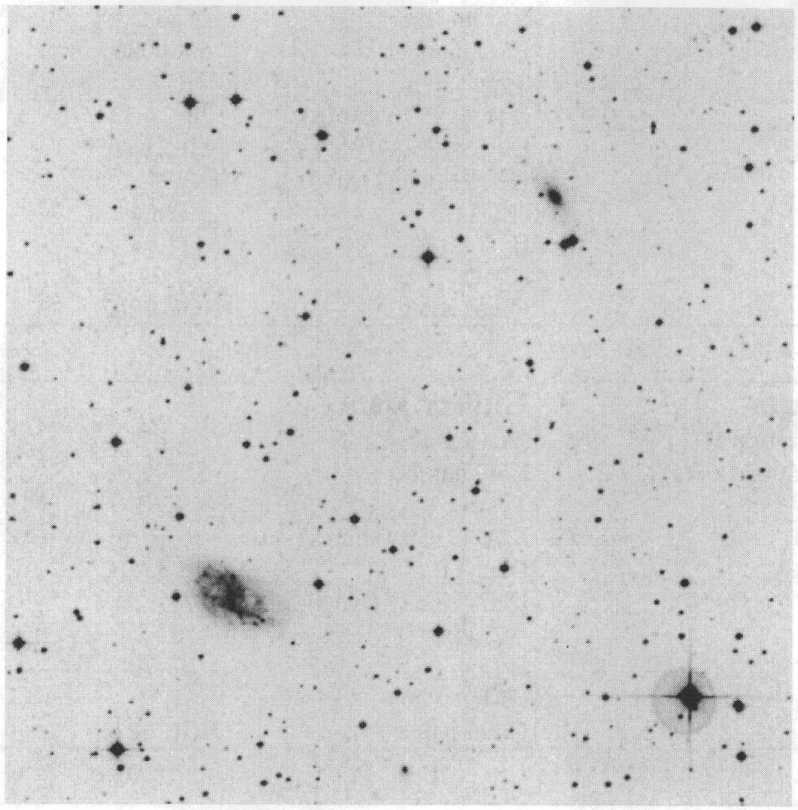


Pair 128 Data		**Galaxy Data**		
Projected separation (")	546	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	4890050	4890060
Type		Type	-2.0	7.3
Ntot	1.592	R.A. (1950.) (h m s)	06 05 15	06 05 40
		Decl. (1950.) (° ' ")	-23 21 43	-23 28 48
Notes:		Hel. velocity (km/s)		2220F
F14, C-		a(25) (")	53.1	114.8
		B	14.93	13.43
		(B-R)	1.43	1.02

Pair 130 Data		**Galaxy Data**		
Projected separation (")	221	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	2540390	2540400
Type		Type	5.0	2.0
Ntot	2.546	R.A. (1950.) (h m s)	06 11 47	06 12 01
		Decl. (1950.) (° ' ")	-43 38 52	-43 41 23
Notes:		Hel. velocity (km/s)		
F7, C+		a(25) (")	55.0	58.2
		B	14.89	14.25
		(B-R)	1.10	1.27
		Other name	NGC 2200	NGC 2201

Pair 131 Data		**Galaxy Data**		
Projected separation (")	111	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	5560050	5560060
Type		Type	4.0	6.0
Ntot	0.637	R.A. (1950.) (h m s)	06 12 57	06 13 00
		Decl. (1950.) (° ' ")	-19 23 59	-19 25 37
Notes:		Hel. velocity (km/s)		
F7, C+, CCD		a(25) (")	86.1	50.7
		B	14.57	14.77
		(B-R)	1.29	1.13

128



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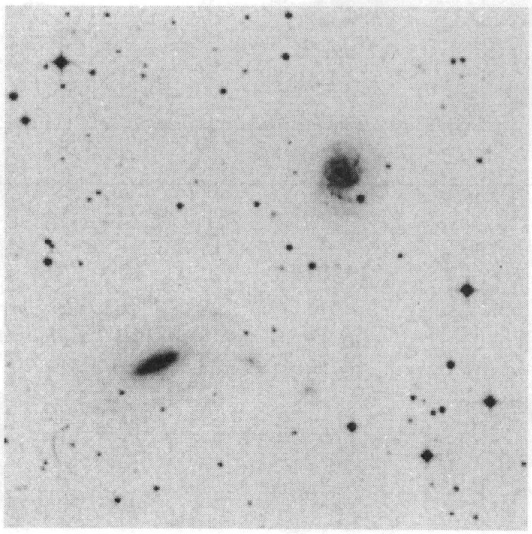
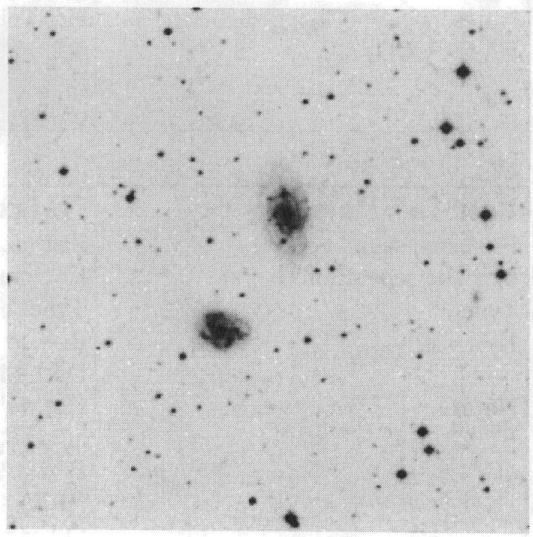


131



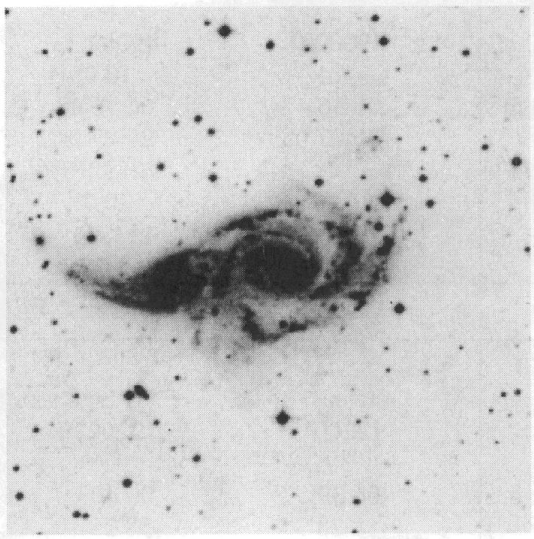
Pair 132 Data		**Galaxy Data**		
Projected separation (")	85	Pair member	**a**	**b**
Velocity separation (km/s)	57	ESO number	5560080	5560090
Type	DIS 1	Type	5.0	4.0
Ntot	0.955	R.A. (1950.) (h m s)	06 14 13	06 14 19
		Decl. (1950.) (° ' ")	-21 21 10	-21 21 25
Notes:		Hel. velocity (km/s)	2741	2798
F7, C+		a(25) (")	288.4	179.9
		B	11.48	12.55
		(B-R)	1.27	1.27
		Other name	NGC 2207	IC 2163

Pair 133 Data		**Galaxy Data**		
Projected separation (")	99	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	5560130	5560140
Type		Type	-2.0	-1.0
Ntot	0.637	R.A. (1950.) (h m s)	06 16 18	06 16 23
		Decl. (1950.) (° ' ")	-18 31 01	-18 29 52
Notes:		Hel. velocity (km/s)		2020
F7, C+, CCD		a(25) (")	82.2	83.2
		B	13.70	14.49
		(B-R)	1.51	
		Other name	NGC 2211	NGC 2212

Pair 136 Data		**Galaxy Data**		
Projected separation (")	84	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	3650280	3650290
Type		Type	5.0	-3.5
Ntot	1.273	R.A. (1950.) (h m s)	06 31 47	06 31 53
		Decl. (1950.) (° ' ")	-34 13 19	-34 13 58
Notes:		Hel. velocity (km/s)		
F7, C-, CCD		a(25) (")	81.3	59.6
		B	14.48	14.79
		(B-R)	1.05	1.63

Pair 137 Data		**Galaxy Data**		
Projected separation (")	187	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	3080160	3080170
Type		Type	5.0	3.4
Ntot	0.637	R.A. (1950.) (h m s)	06 33 59	06 34 15
		Decl. (1950.) (° ' ")	-39 13 01	-39 13 11
Notes:		Hel. velocity (km/s)		
F7, C+		a(25) (")	76.7	47.3
		B	14.18	16.71
		(B-R)	1.24	1.19
		Other name		

132



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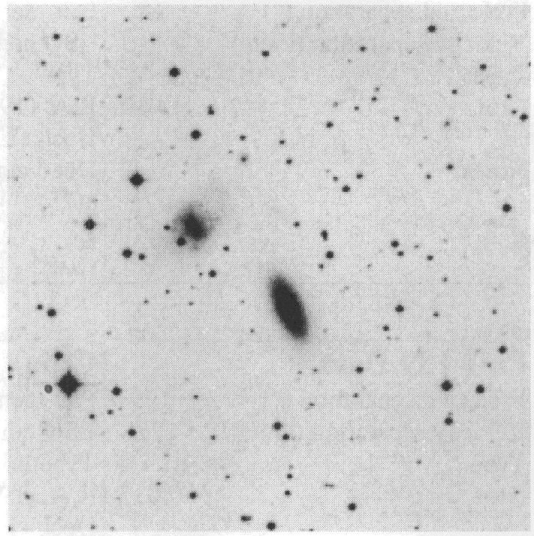

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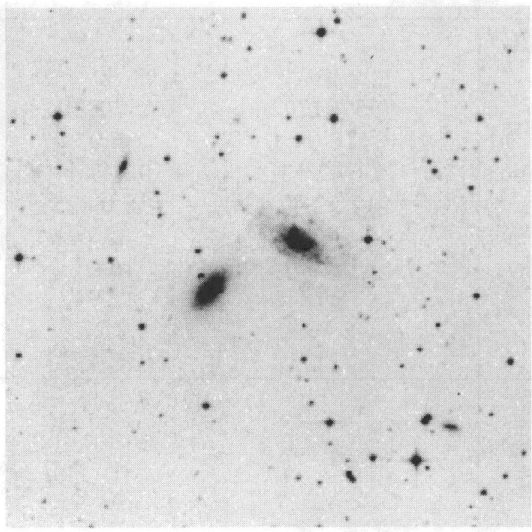

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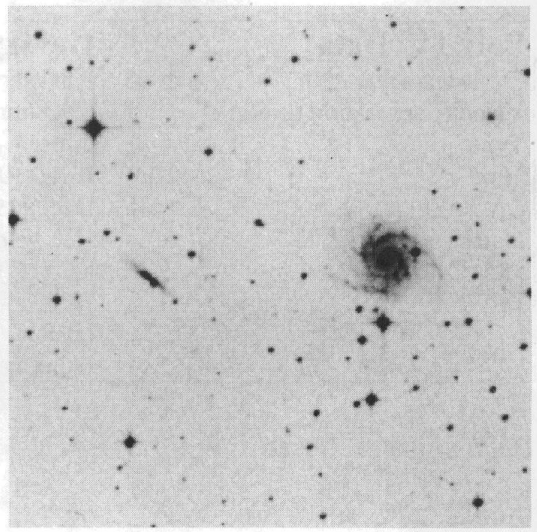

Pair 138 Data		**Galaxy Data**		
Projected separation (")	18	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	4900201	4900200
Type		Type	7.4	10.0
Ntot	1.910	R.A. (1950.) (h m s)	06 36 47	06 36 48
		Decl. (1950.) (° ' ")	-25 07 08	-25 07 01
Notes:		Hel. velocity (km/s)		2792F
		a(25) (")	43.7	70.0
		B	17.69	14.82
		(B-R)	0.69	0.65

Pair 139 Data		**Galaxy Data**		
Projected separation (")	199	Pair member	**a**	**b**
Velocity separation (km/s)	75	ESO number	1220010	1220020
Type	LIN ta	Type	3.0	1.6
Ntot	0.637	R.A. (1950.) (h m s)	06 39 57	06 40 00
		Decl. (1950.) (° ' ")	-58 28 37	-58 25 19
Notes:		Hel. velocity (km/s)	2669	2744
			2620F	2740F
F7, C-		a(25) (")	120.2	42.7
		B	13.14	14.88
		(B-R)	1.67	1.37

Pair 140 Data		**Galaxy Data**		
Projected separation (")	1593	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	5570120	5570130
Type		Type	10.0	6.0
Ntot	0.318	R.A. (1950.) (h m s)	06 42 13	06 43 41
		Decl. (1950.) (° ' ")	-17 52 47	-18 09 25
Notes:		Hel. velocity (km/s)	772	
F35, C-		a(25) (")	96.6	164.1
		B	15.18	12.94
		(B-R)	2.40	2.22
		Other name	IC 2171	NGC 2283

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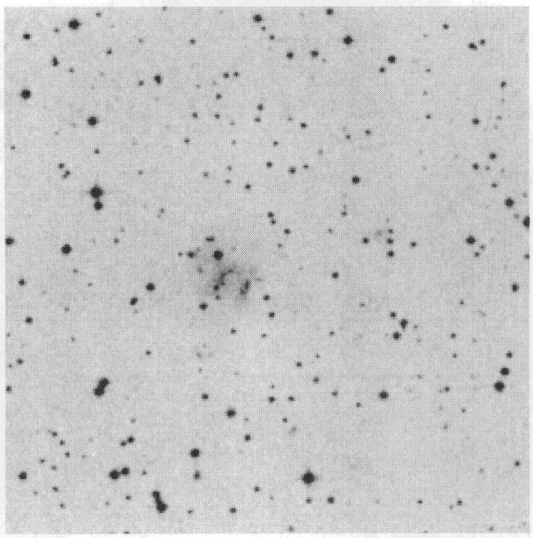

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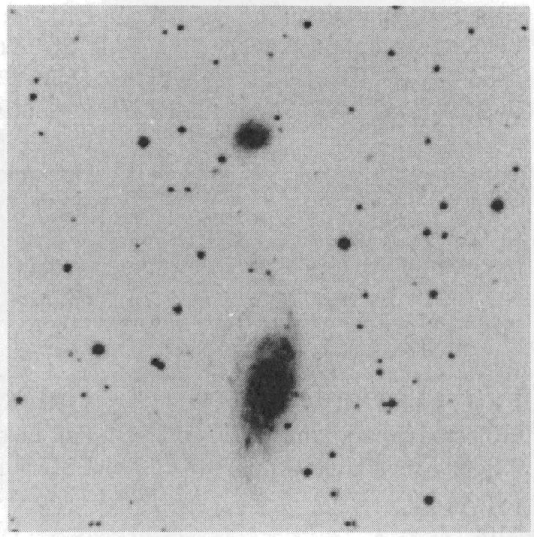

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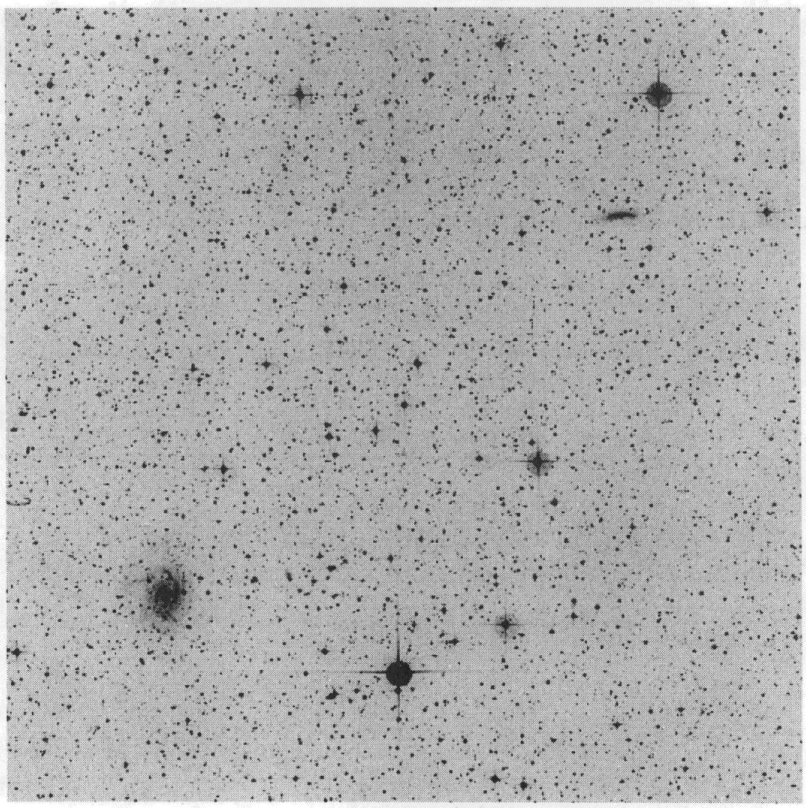
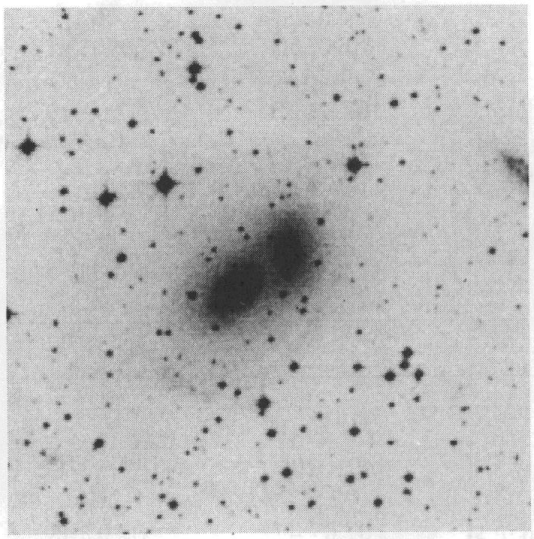


Pair 142 Data		**Galaxy Data**		
Projected separation (")	49	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	4900480	4900490
Type	ATM	Type	-2.0	-1.0
Ntot	3.183	R.A. (1950.) (h m s)	06 45 38	06 45 42
		Decl. (1950.) (° ' ")	-26 41 24	-26 41 49
Notes:		Hel. velocity (km/s)	1994	
F7, C-		a(25) (")	248.3	254.1
		B	11.82	11.70
		(B-R)	1.40	
		Other name	NGC 2292	NGC 2293

Pair 143 Data		**Galaxy Data**		
Projected separation (")	234	Pair member	**a**	**b**
Velocity separation (km/s)	1067	ESO number	870440	870450
Type		Type	-5.0	3.0
Ntot	3.501	R.A. (1950.) (h m s)	06 48 18	06 48 32
		Decl. (1950.) (° ' ")	-64 12 54	-64 16 30
Notes:		Hel. velocity (km/s)	3522	4589
F7, C-, CCD		a(25) (")	134.9	110.9
		B	12.82	13.38
		(B-R)	1.84	1.62
		Lfir/MH2		2.81
		logCO/LB		-1.52
		Other name	NGC 2305	NGC 2307

Pair 144 Data		**Galaxy Data**		
Projected separation (")	359	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	3090080	3090100
Type		Type	1.0	3.0
Ntot	0.955	R.A. (1950.) (h m s)	06 52 53	06 53 23
		Decl. (1950.) (° ' ")	-38 01 19	-38 00 25
Notes:		Hel. velocity (km/s)		
F14, C-		a(25) (")	58.2	53.1
		B	14.64	15.55
		(B-R)	1.60	1.58

142



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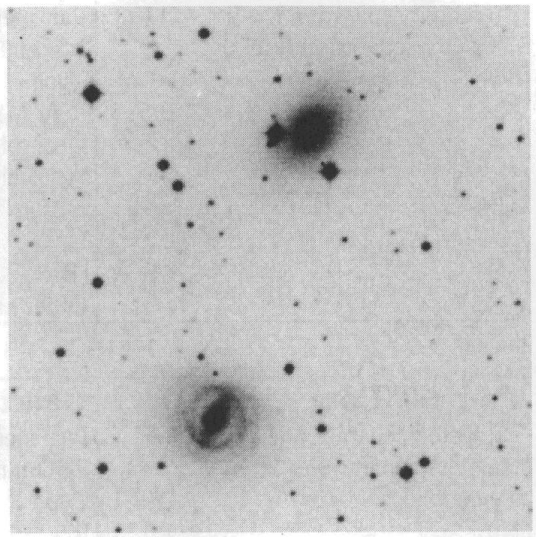

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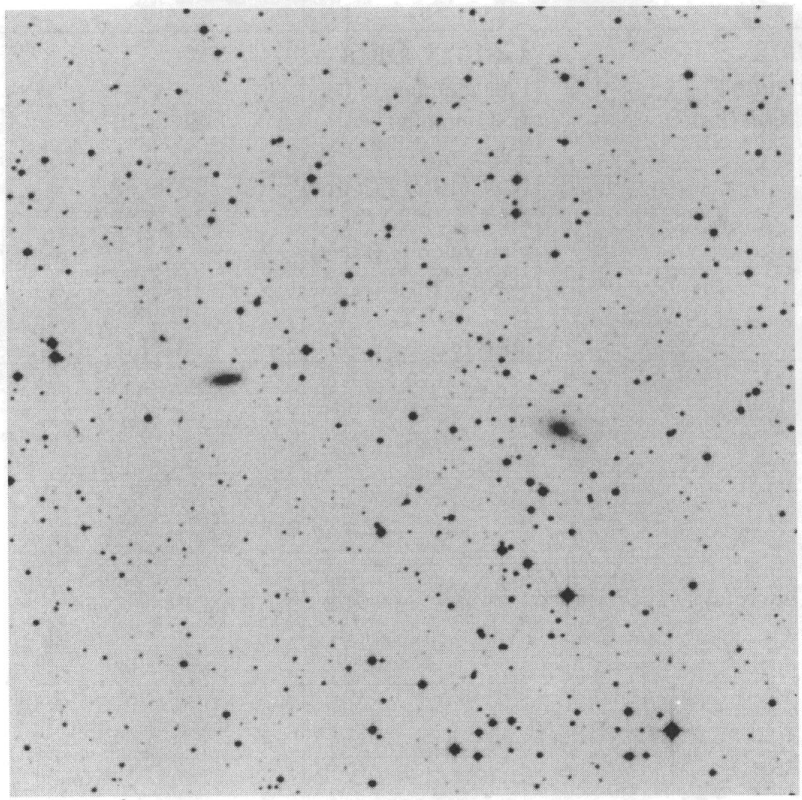
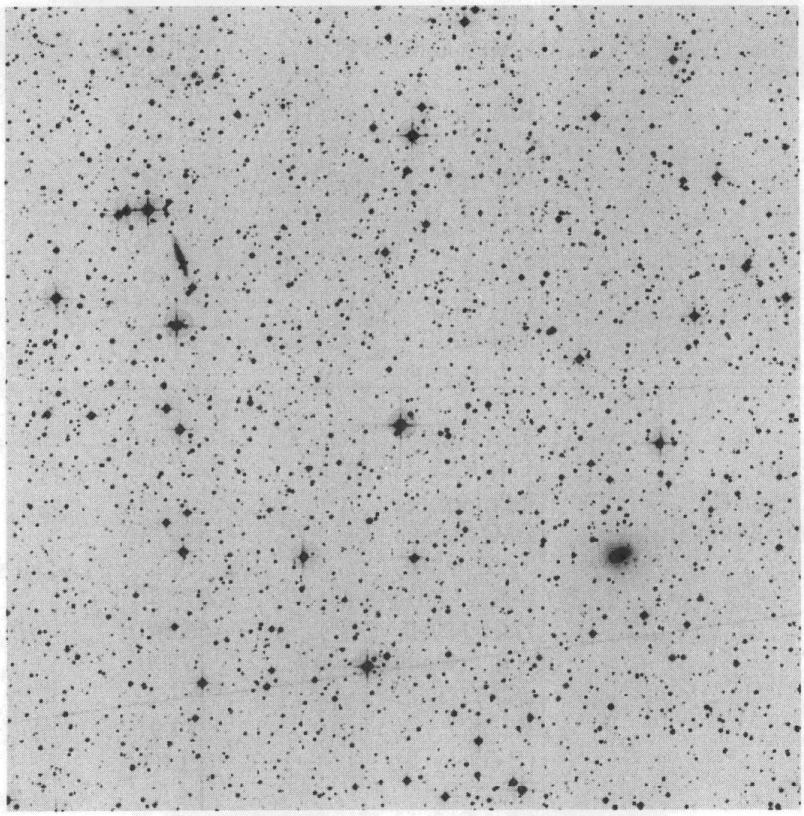


Pair 148 Data		**Galaxy Data**		
Projected separation (")	1198	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	3090160	3090170
Type		Type	-3.5	3.0
Ntot	0.637	R.A. (1950.) (h m s)	07 01 00	07 02 29
		Decl. (1950.) (° ' ")	-41 59 41	-41 48 17
Notes:		Hel. velocity (km/s)	1159	
F30, C-		a(25) (")	94.4	104.7
		B	13.04	14.64
		(B-R)	0.79	1.12
		Other name	NGC 2328	

Pair 149 Data		**Galaxy Data**		
Projected separation (")	31	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	4910200	4910210
Type	DIS 1	Type	2.5	1.7
Ntot	1.273	R.A. (1950.) (h m s)	07 07 47	07 07 48
		Decl. (1950.) (° ' ")	-27 29 16	-27 29 34
Notes:		Hel. velocity (km/s)		
F7, C+		a(25) (")	81.3	105.9
		B	13.82	13.64
		(B-R)	1.38	1.26

Pair 150 Data		**Galaxy Data**		
Projected separation (")	178	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	4920020	4920030
Type		Type	3.0	1.5
Ntot	1.273	R.A. (1950.) (h m s)	07 09 38	07 09 42
		Decl. (1950.) (° ' ")	-26 37 12	-26 34 22
Notes:		Hel. velocity (km/s)		
F7, C+		a(25) (")	123.0	55.0
		B	12.98	15.25
		(B-R)	1.21	

148



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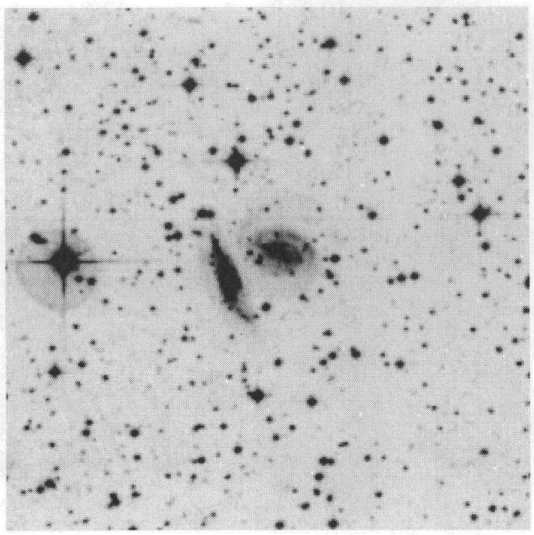

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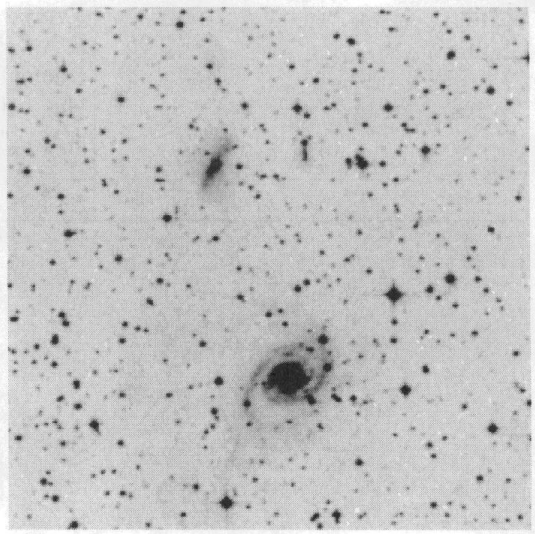
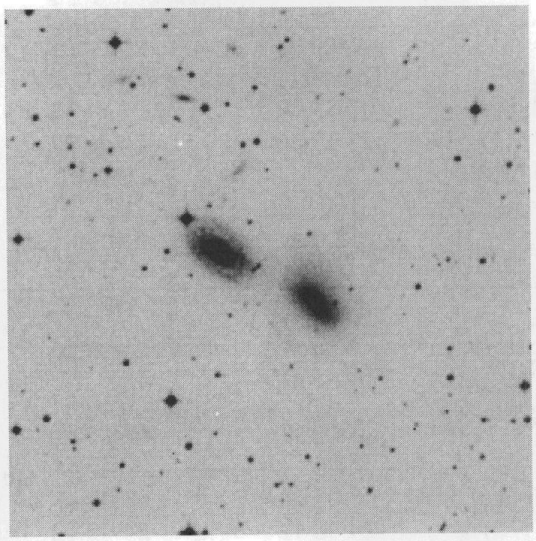


Pair 153 Data		Galaxy Data		
Projected separation (")	87	Pair member	**a**	**b**
Velocity separation (km/s)	73	ESO number	1230110	1230120
Type		Type	-2.3	3.5
Ntot	2.228	R.A. (1950.) (h m s)	07 27 30	07 27 42
		Decl. (1950.) (° ' ")	-62 15 28	-62 14 49
Notes:		Hel. velocity (km/s)	3243	3170
F7, C-, CCD		a(25) (")	82.2	80.4
		B	13.74	13.82
		(B-R)	1.46	1.33
		Lfir/MH2		5.83
		logCO/LB		-1.14
		Other name		IC 2200

Pair 155 Data		Galaxy Data		
Projected separation (")	160	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	880230	880240
Type		Type	4.5	6.0
Ntot	2.228	R.A. (1950.) (h m s)	07 35 10	07 35 23
		Decl. (1950.) (° ' ")	-66 14 31	-66 16 48
Notes:		Hel. velocity (km/s)	7790	
F7, C-, CCD		a(25) (")	59.6	78.5
		B	14.97	17.12
		(B-R)	1.04	0.92
		Lfir/MH2	4.32	
		logCO/LB	-1.28	

Pair 156 Data		Galaxy Data		
Projected separation (")	73	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	3110060	3110070
Type		Type	10.0	7.0
Ntot	0.955	R.A. (1950.) (h m s)	07 43 13	07 43 16
		Decl. (1950.) (° ' ")	-41 40 37	-41 39 28
Notes:		Hel. velocity (km/s)		
F7, C-		a(25) (")	59.6	93.3
		B	15.57	14.22
		(B-R)	0.76	0.60

153



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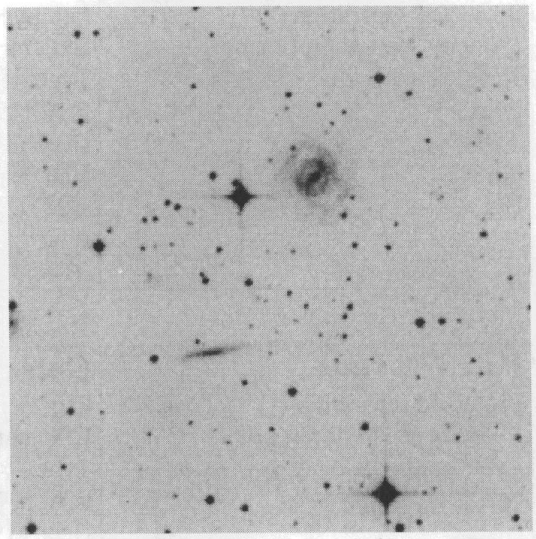

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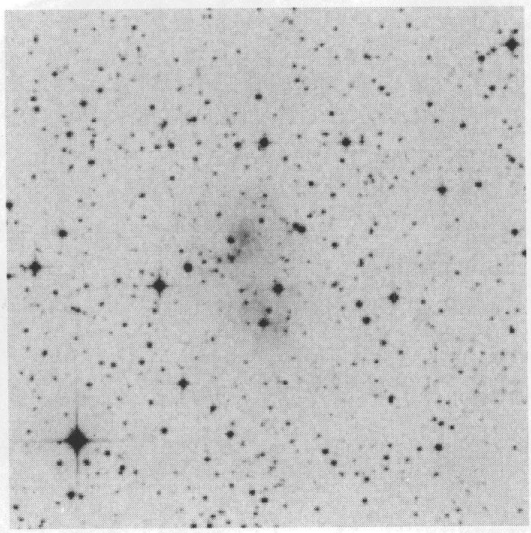

Pair 157 Data		**Galaxy Data**		
Projected separation (")	2191	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	4940010	4940070
Type		Type	10.0	4.0
Ntot	0.637	R.A. (1950.) (h m s)	07 53 00	07 54 47
		Decl. (1950.) (° ' ")	-25 13 40	-24 46 22
Notes:		Hel. velocity (km/s)		1560F
F45, C-		a(25) (")	160.3	158.5
		B	12.68	14.09
		(B-R)	0.05	

Pair 158 Data		**Galaxy Data**		
Projected separation (")	258	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	4940220	4940230
Type		Type	1.0	4.7
Ntot	0.637	R.A. (1950.) (h m s)	08 03 24	08 03 43
		Decl. (1950.) (° ' ")	-24 40 12	-24 40 12
Notes:		Hel. velocity (km/s)		
F7, C+		a(25) (")	142.9	73.3
		B	14.02	15.55
		(B-R)	1.71	1.48

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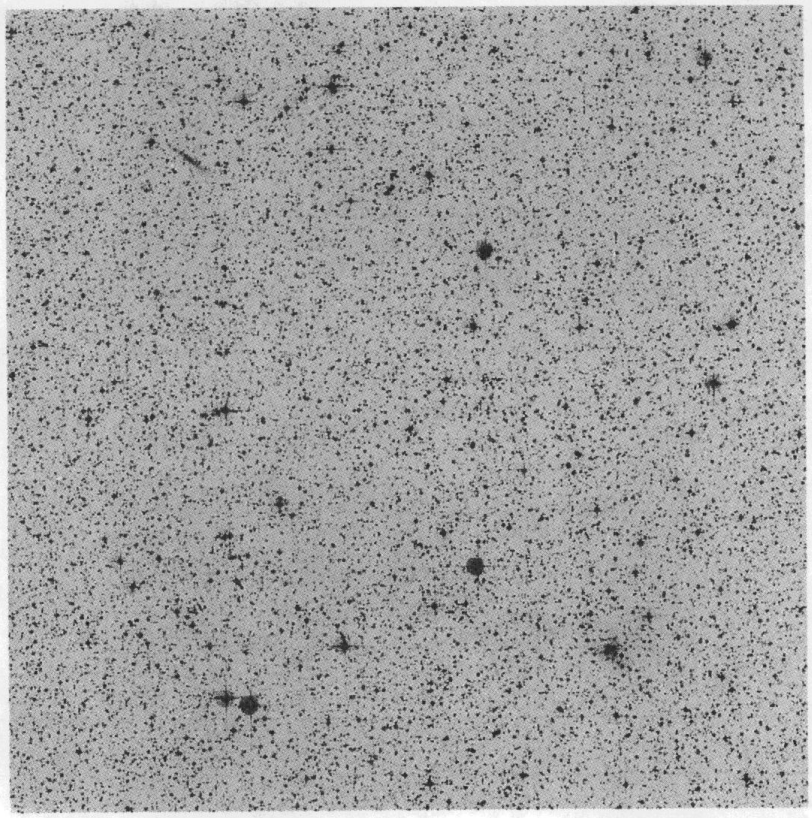

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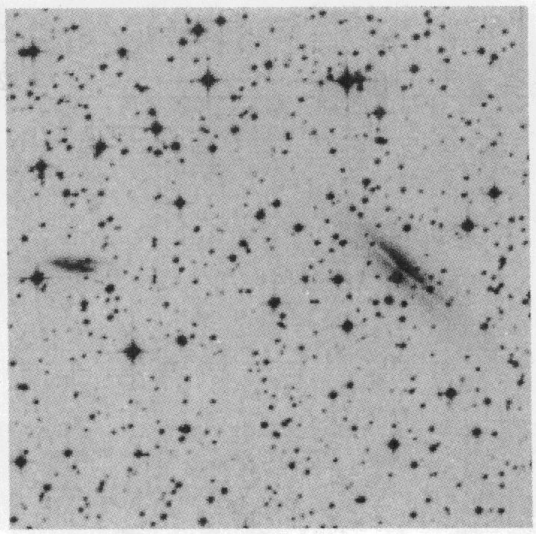
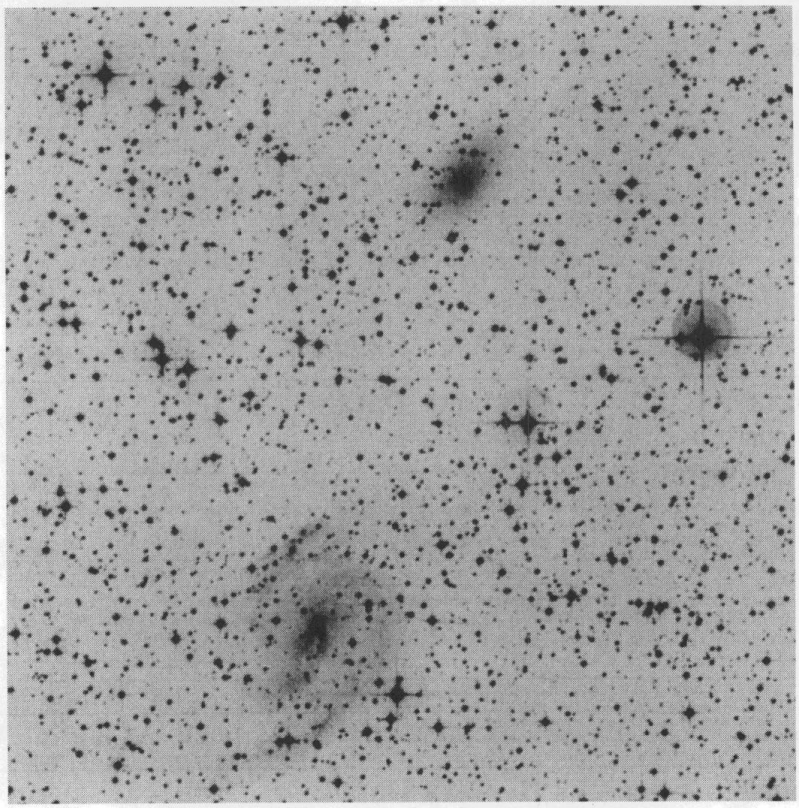


Pair 159 Data		**Galaxy Data**		
Projected separation (")	498	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	4940250	4940260
Type		Type	0.2	3.0
Ntot	0.318	R.A. (1950.) (h m s)	08 03 54	08 04 06
		Decl. (1950.) (° ' ")	-27 15 07	-27 22 58
Notes:		Hel. velocity (km/s)		967F
F14, C+		a(25) (")	117.5	239.9
		B	13.45	12.47
		(B-R)		1.63

Pair 161 Data		**Galaxy Data**		
Projected separation (")	106	Pair member	**a**	**b**
Velocity separation (km/s)	53	ESO number	1240180	1240190
Type		Type	4.3	0.9
Ntot	0.000	R.A. (1950.) (h m s)	08 30 35	08 30 49
		Decl. (1950.) (° ' ")	-59 36 54	-59 36 43
Notes:		Hel. velocity (km/s)	6464	6411
				6400F
F7, C+, CCD		a(25) (")	97.7	48.4
		B	14.45	14.88
		(B-R)	1.45	1.36

Pair 162 Data		**Galaxy Data**		
Projected separation (")	38	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	5640100	5640110
Type	LIN ta	Type	7.0	1.0
Ntot	0.637	R.A. (1950.) (h m s)	09 00 29	09 00 29
		Decl. (1950.) (° ' ")	-20 31 01	-20 31 37
Notes:		Hel. velocity (km/s)		2596dC
F7, C+, CCD		a(25) (")	55.0	73.3
		B	14.77	13.65
		(B-R)	2.72	1.15

159



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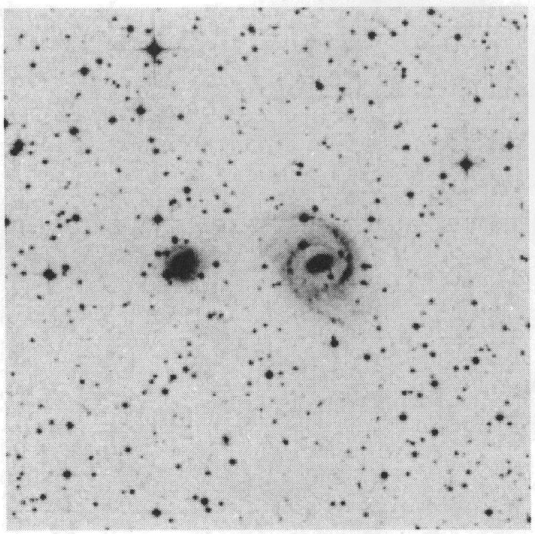

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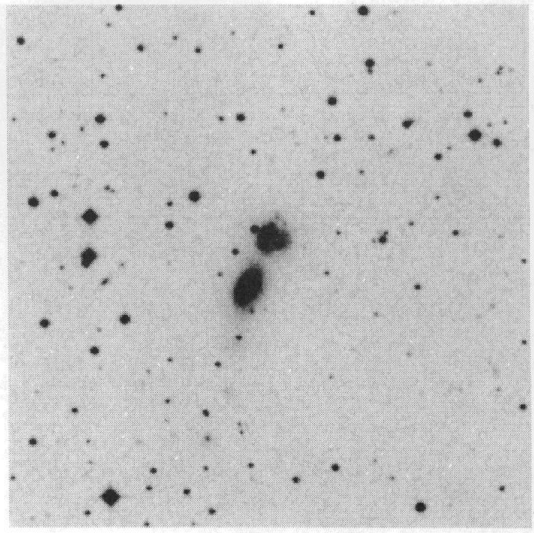

Pair 163 Data		**Galaxy Data**		
Projected separation (")	584	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	5640200	5640210
Type		Type	7.0	-5.0
Ntot	1.592	R.A. (1950.) (h m s)	09 03 12	09 03 15
		Decl. (1950.) (° ' ")	-18 50 34	-19 00 17
Notes:		Hel. velocity (km/s)	1939	
F14, C-		a(25) (")	134.9	103.5
		B	13.99	13.68
		(B-R)	0.67	1.66
		Other name	NGC 2758	IC 2437

Pair 164 Data		**Galaxy Data**		
Projected separation (")	39	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	600260	600270
Type	DIS 1	Type	-2.0	10.0
Ntot		R.A. (1950.) (h m s)	09 03 50	09 03 57
		Decl. (1950.) (° ' ")	-71 51 25	-71 50 59
Notes:		Hel. velocity (km/s)		
F7, C+		a(25) (")	64.6	66.1
		B	14.48	14.75
		(B-R)	1.15	1.48

Pair 166 Data		**Galaxy Data**		
Projected separation (")	264	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	4970390	4970400
Type		Type	0.6	6.6
Ntot	1.273	R.A. (1950.) (h m s)	09 17 35	09 17 43
		Decl. (1950.) (° ' ")	-24 01 04	-24 05 06
Notes:		Hel. velocity (km/s)		
F7, C+		a(25) (")	47.3	56.2
		B	14.74	16.44
		(B-R)	-0.16	1.17

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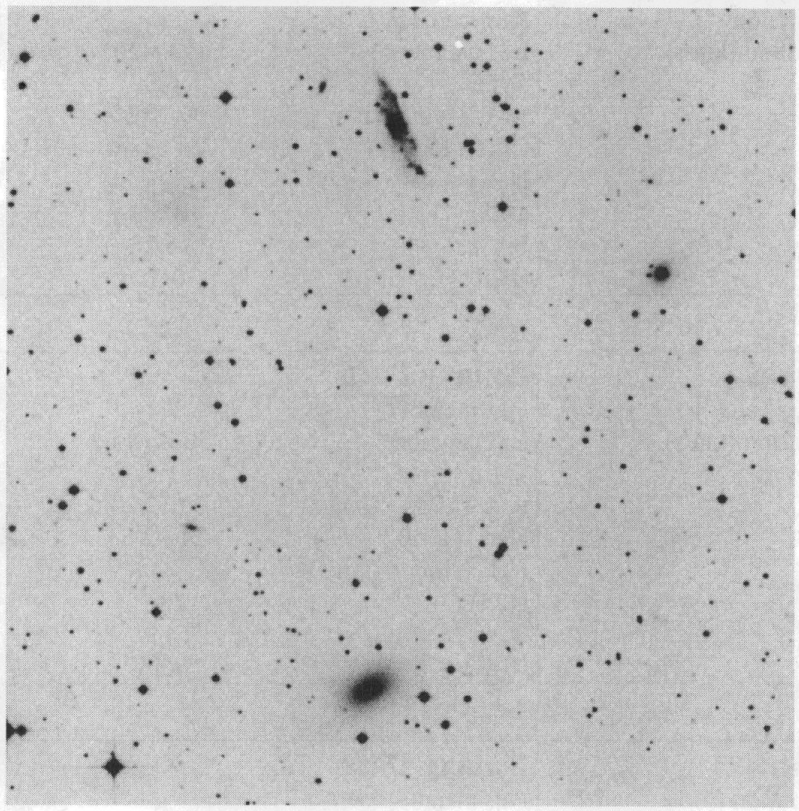
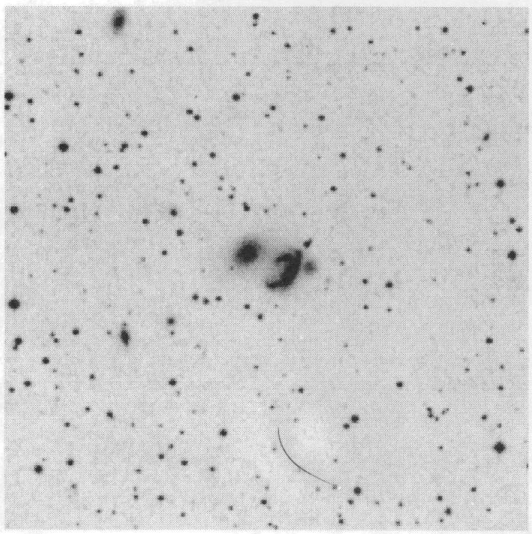


164



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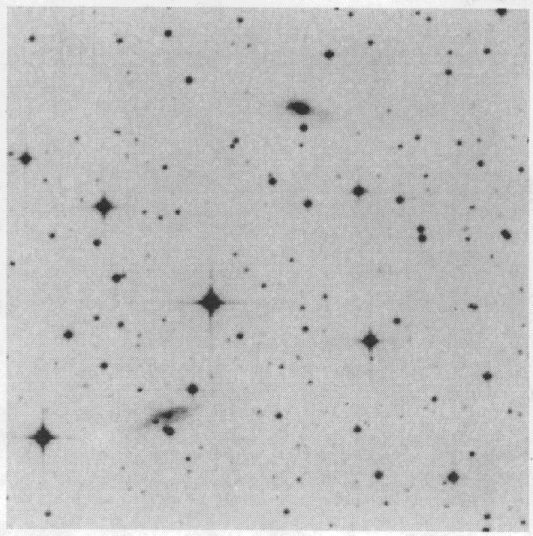

Pair 167 Data		**Galaxy Data**		
Projected separation (")	394	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	4970420	4980030
Type		Type	6.0	3.0
Ntot	0.637	R.A. (1950.) (h m s)	09 20 59	09 21 23
		Decl. (1950.) (° ' ")	-26 43 40	-26 39 53
Notes:		Hel. velocity (km/s)		2312dC
F14, C+		a(25) (")	105.9	96.6
		B	15.28	14.17
		(B-R)	0.55	

Pair 169 Data		**Galaxy Data**		
Projected separation (")	54	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	5650180	5650190
Type		Type	1.5	-5.0
Ntot	2.546	R.A. (1950.) (h m s)	09 32 23	09 32 25
		Decl. (1950.) (° ' ")	-21 42 53	-21 42 17
Notes:		Hel. velocity (km/s)		4659dC
F7, C-		a(25) (")	33.5	70.8
		B	14.94	13.65
		(B-R)	1.15	2.18

Pair 170 Data		**Galaxy Data**		
Projected separation (")	225	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	4340280	4340290
Type		Type	-3.0	8.6
Ntot	2.546	R.A. (1950.) (h m s)	09 42 00	09 42 10
		Decl. (1950.) (° ' ")	-28 37 04	-28 33 54
Notes:		Hel. velocity (km/s)		
F7, C-		a(25) (")	90.2	61.7
		B	13.65	16.51
		(B-R)	1.50	1.34

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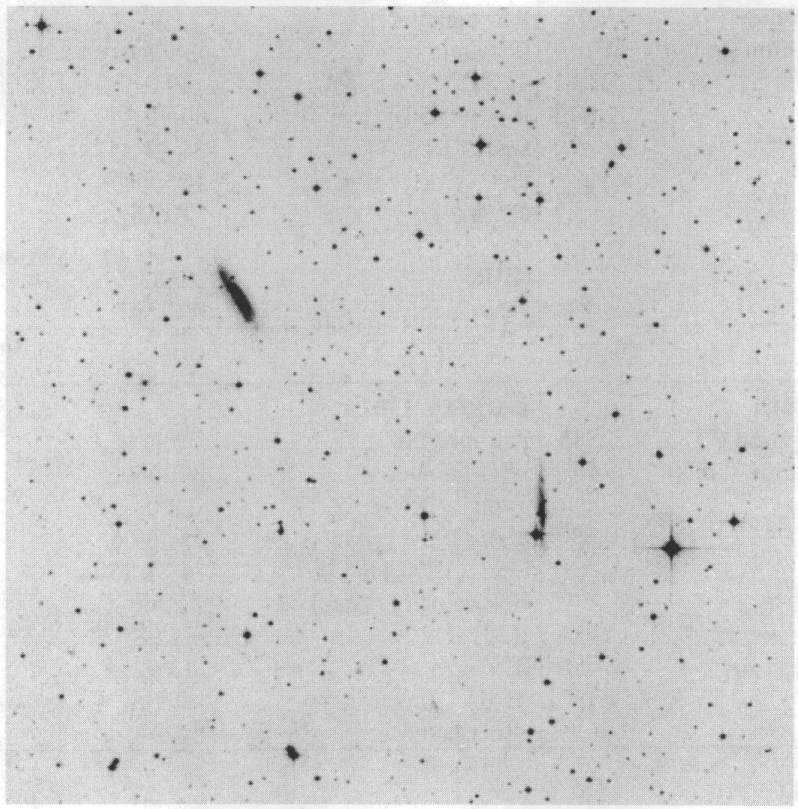

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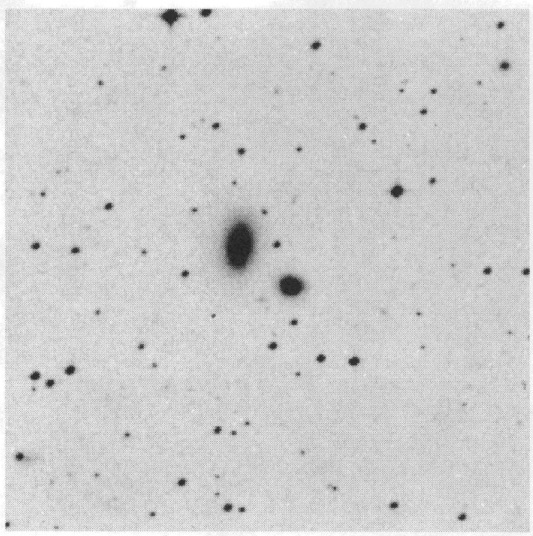

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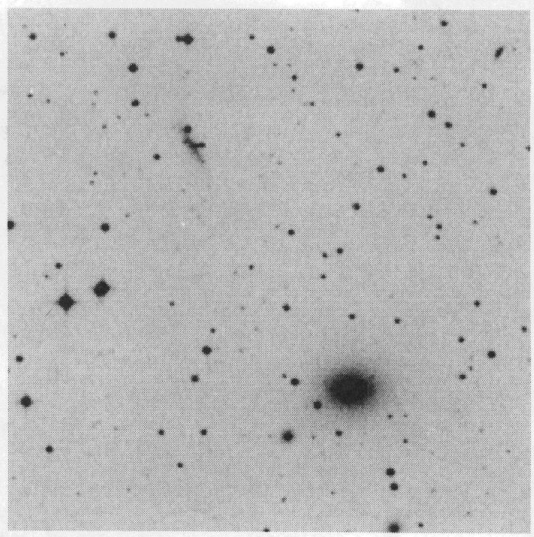
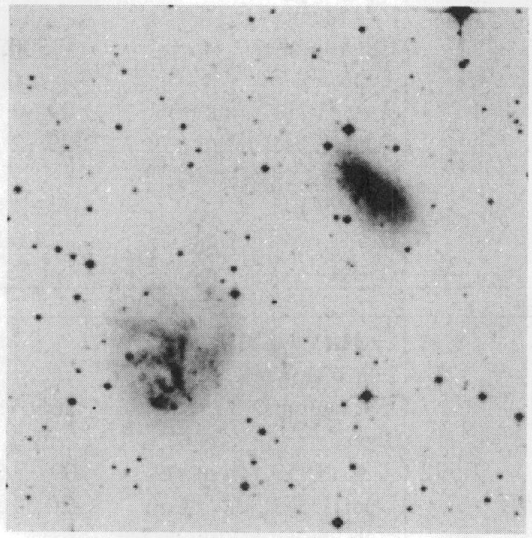


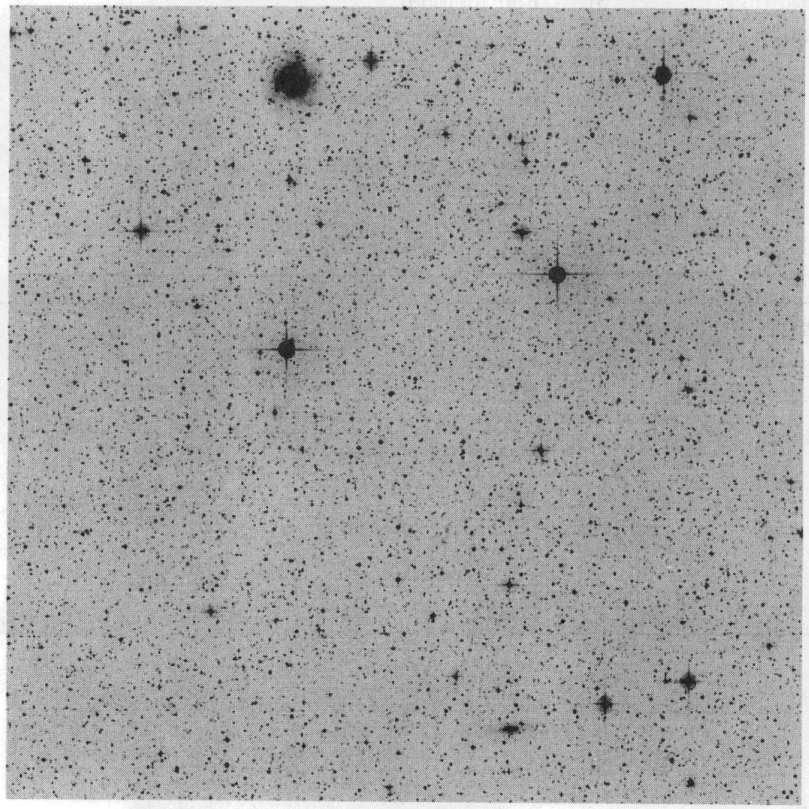
Pair 171 Data		**Galaxy Data**		
Projected separation (")	208	Pair member	**a**	**b**
Velocity separation (km/s)	6	ESO number	4340310	4340330
Type	DIS 1	Type	9.5	9.5
Ntot	2.546	R.A. (1950.) (h m s)	09 42 24	09 42 36
		Decl. (1950.) (° ' ")	-31 33 35	-31 35 41
Notes:		Hel. velocity (km/s)	1250dC	1256
F7, C+		a(25) (")	109.6	120.2
		B	13.33	13.19
		(B-R)	0.83	0.88
		Other name	IC 2507	

Pair 172 Data		**Galaxy Data**		
Projected separation (")	2585	Pair member	**a**	**b**
Velocity separation (km/s)	40	ESO number	370050	370070
Type		Type	3.0	4.0
Ntot	0.637	R.A. (1950.) (h m s)	09 46 06	09 49 37
		Decl. (1950.) (° ' ")	-74 21 46	-73 41 13
Notes:		Hel. velocity (km/s)	1234F	1274
F50, C-		a(25) (")	162.2	226.5
		B	13.92	11.56
		(B-R)	0.90	0.90
		Other name		NGC 3059

171



172



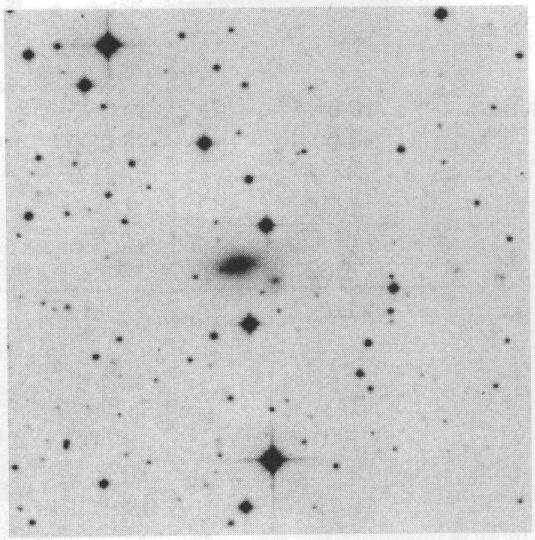
Pair 173 Data		Galaxy Data		
Projected separation (")	30	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	4350031	4350030
Type		Type	-1.0	-1.0
Ntot	1.273	R.A. (1950.) (h m s)	09 50 03	09 50 06
		Decl. (1950.) (° ' ")	-29 12 17	-29 12 07
Notes:		Hel. velocity (km/s)		11475dC
F7, C+		a(25) (")	131.8	62.4
		B	14.60	15.03
		(B-R)	1.55	1.56

Pair 174 Data		Galaxy Data		
Projected separation (")	177	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	5660390	5660400
Type		Type	3.0	-1.0
Ntot	1.592	R.A. (1950.) (h m s)	09 57 06	09 57 18
		Decl. (1950.) (° ' ")	-20 31 58	-20 32 52
Notes:		Hel. velocity (km/s)		
F7, C-		a(25) (")	60.3	55.0
		B	15.27	14.32
		(B-R)	0.95	1.19

Pair 175 Data		Galaxy Data		
Projected separation (")	36	Pair member	**a**	**b**
Velocity separation (km/s)	1	ESO number	2630030	2630031
Type	LIN ta	Type	1.6	7.0
Ntot		R.A. (1950.) (h m s)	10 03 49	10 03 52
		Decl. (1950.) (° ' ")	-43 58 58	-43 59 16
Notes:		Hel. velocity (km/s)	3350	3349dC
F7, C+, CCD		a(25) (")	104.7	117.5
		B	14.07	14.19
		(B-R)	1.37	1.27

Pair 176 Data		Galaxy Data		
Projected separation (")	65	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	2630060	2630070
Type		Type	-5.0	3.0
Ntot	2.228	R.A. (1950.) (h m s)	10 04 57	10 04 57
		Decl. (1950.) (° ' ")	-42 48 53	-42 49 58
Notes:		Hel. velocity (km/s)	7700dC	
F7, C+		a(25) (")	59.6	97.7
		B	15.08	14.91
		(B-R)	1.34	1.74

173



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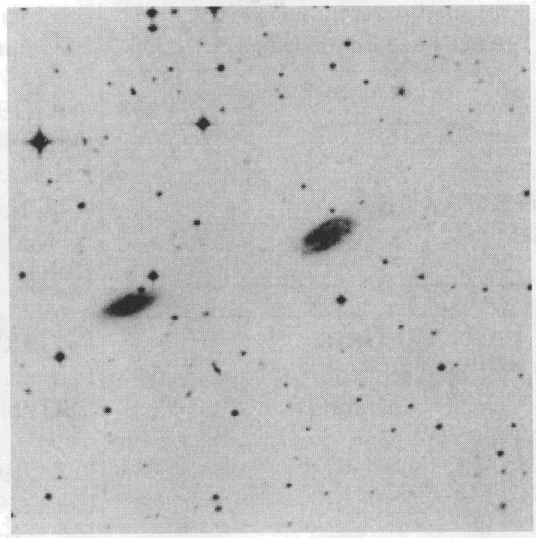

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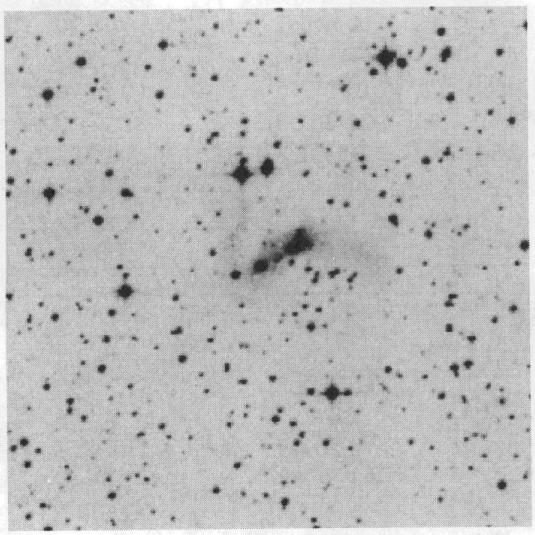

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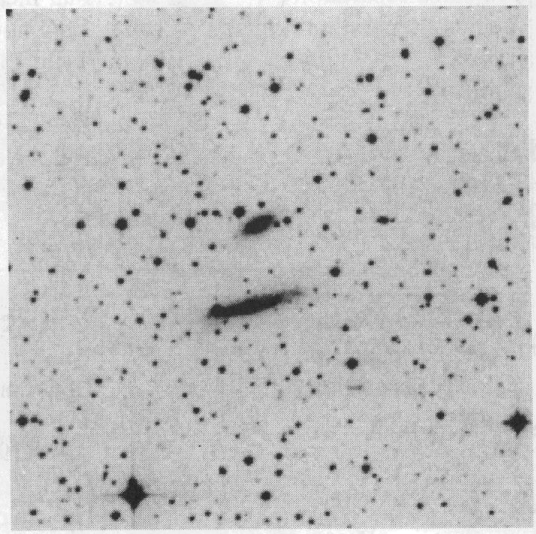


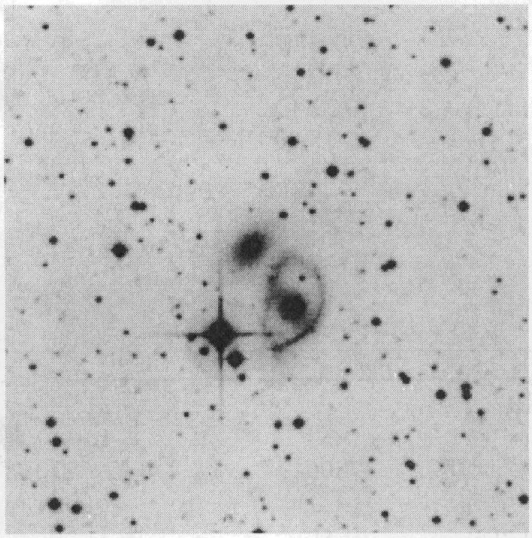
Pair 177 Data		Galaxy Data		
Projected separation (")	59	Pair member	a	b
Velocity separation (km/s)	333	ESO number	3160320	3160330
Type	DIS 1	Type	1.0	-5.0
Ntot	4.138	R.A. (1950.) (h m s)	10 06 57	10 06 59
		Decl. (1950.) (° ' ")	-38 09 46	-38 08 52
Notes:		Hel. velocity (km/s)	4845	4512
F7, C+, CCD		a(25) (")	125.9	110.9
		B	13.47	13.52
		(B-R)	1.60	

Pair 180 Data		Galaxy Data		
Projected separation (")	54	Pair member	a	b
Velocity separation (km/s)		ESO number	5670491	5670490
Type	LIN ta	Type	7.0	-2.0
Ntot	0.955	R.A. (1950.) (h m s)	10 17 25	10 17 25
		Decl. (1950.) (° ' ")	-19 41 16	-19 42 10
Notes:		Hel. velocity (km/s)		
F7, C+		a(25) (")	31.6	44.2
		B	16.44	14.82
		(B-R)	1.11	1.60

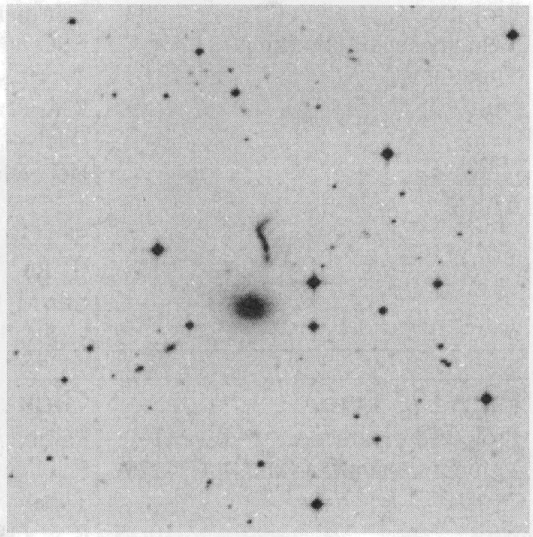
Pair 181 Data		Galaxy Data		
Projected separation (")	98	Pair member	a	b
Velocity separation (km/s)	106	ESO number	5670520	5670530
Type	LIN ta	Type	-2.0	-0.5
Ntot	2.546	R.A. (1950.) (h m s)	10 17 45	10 17 46
		Decl. (1950.) (° ' ")	-21 26 34	-21 28 11
Notes:		Hel. velocity (km/s)	3533F	3427F
F7, C-, CCD		a(25) (")	66.1	67.6
		B	13.98	15.04
		(B-R)	1.05	1.34

Pair 182 Data		Galaxy Data		
Projected separation (")	217	Pair member	a	b
Velocity separation (km/s)		ESO number	3170180	3170200
Type	DIS 1	Type	10.0	5.3
Ntot	0.955	R.A. (1950.) (h m s)	10 20 48	10 20 59
		Decl. (1950.) (° ' ")	-41 55 58	-41 59 02
Notes:		Hel. velocity (km/s)		2500
F7, C-, CCD		a(25) (")	48.4	89.1
		B	16.37	13.17
		(B-R)	0.57	0.46
		Lfir/MH2		218.95
		logCO/LB		-3.08

177



180



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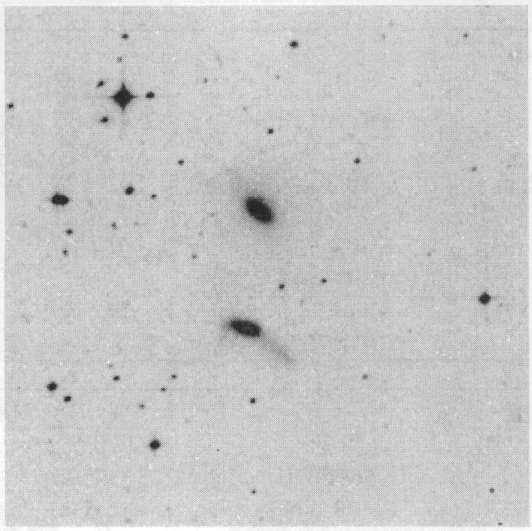

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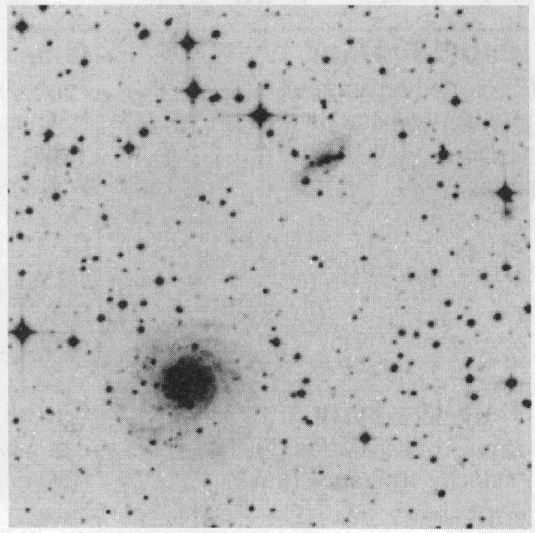

Pair 183 Data		**Galaxy Data**		
Projected separation (")	283	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	5000340	5000360
Type		Type	1.0	3.0
Ntot	1.592	R.A. (1950.) (h m s)	10 22 10	10 22 28
		Decl. (1950.) (° ' ")	-23 18 00	-23 15 43
Notes:		Hel. velocity (km/s)	3950	
F7, C-		a(25) (")	67.6	56.9
		B	14.45	16.67
		(B-R)	1.56	0.70
		Lfir/MH2	21.3	
		logCO/LB	-0.77	

Pair 187 Data		**Galaxy Data**		
Projected separation (")	160	Pair member	**a**	**b**
Velocity separation (km/s)	129	ESO number	3750640	3750650
Type		Type	1.0	-1.0
Ntot	10.17	R.A. (1950.) (h m s)	10 31 45	10 31 50
		Decl. (1950.) (° ' ")	-35 01 29	-35 03 53
Notes:		Hel. velocity (km/s)	2573	2702
F7, C-, CCD		a(25) (")	72.4	127.4
		B	14.66	13.68
		(B-R)	1.29	1.33
		Other name		NGC 3289

Pair 189 Data		**Galaxy Data**		
Projected separation (")	51	Pair member	**a**	**b**
Velocity separation (km/s)	1135	ESO number	4370110	4370130
Type		Type	-2.0	0.0
Ntot	16.50	R.A. (1950.) (h m s)	10 34 29	10 34 32
		Decl. (1950.) (° ' ")	-27 39 36	-27 39 28
Notes:		Hel. velocity (km/s)	4745F	3610
F7, C-, OP		a(25) (")	67.6	61.7
		B	14.33	14.54
		(B-R)	1.70	1.52

Pair 191 Data		**Galaxy Data**		
Projected separation (")	225	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	5690060	5690070
Type		Type	3.0	6.5
Ntot	1.273	R.A. (1950.) (h m s)	10 45 37	10 45 40
		Decl. (1950.) (° ' ")	-20 35 06	-20 31 22
Notes:		Hel. velocity (km/s)	3920	
F7, C-		a(25) (")	166.0	79.4
		B	12.72	16.26
		(B-R)	1.38	0.96
		Other name	NGC 3450	

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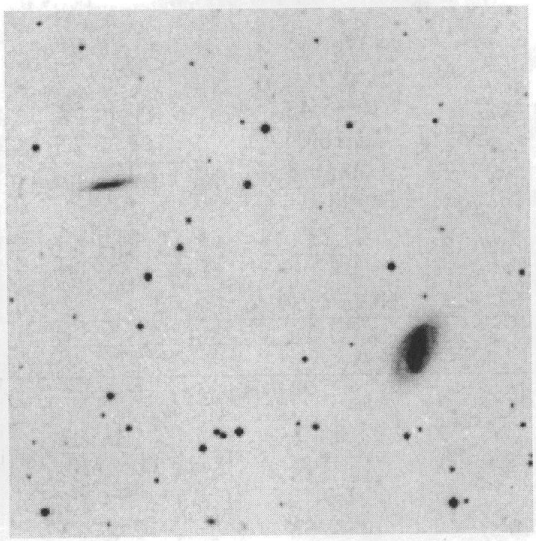

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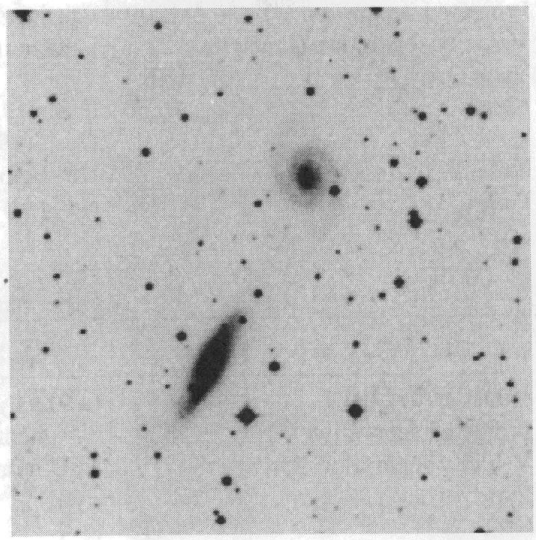

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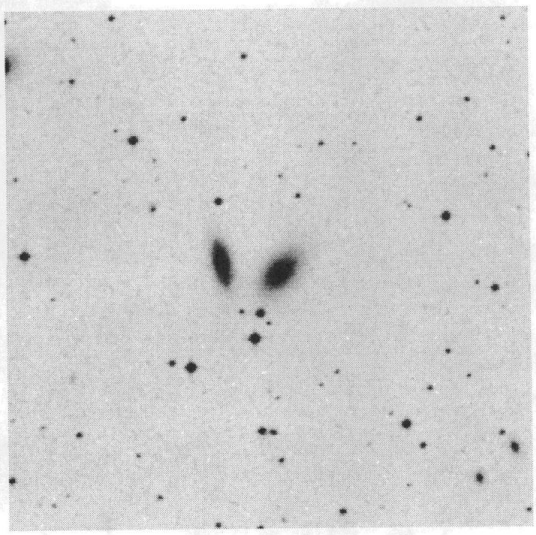

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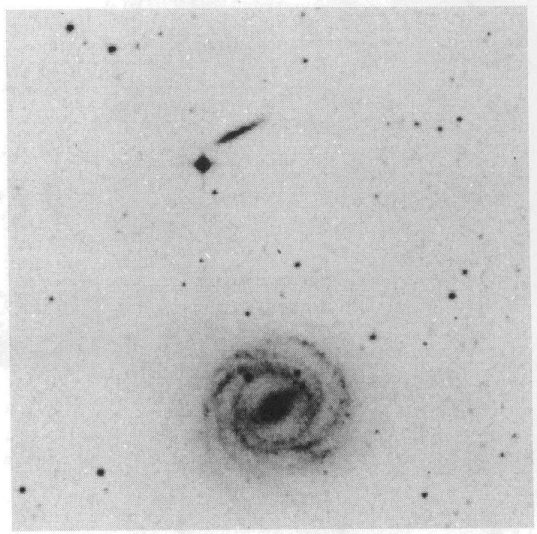
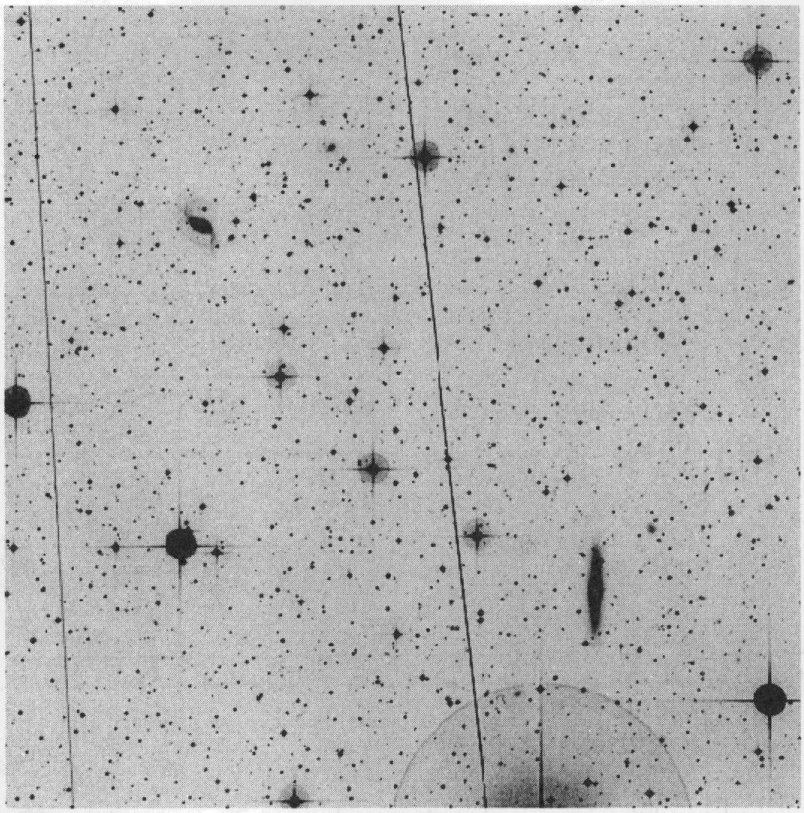


Pair 192 Data		**Galaxy Data**		
Projected separation (")	1209	Pair member	**a**	**b**
Velocity separation (km/s)	290	ESO number	4370620	4370650
Type	DIS 1	Type	3.0	5.0
Ntot	16.50	R.A. (1950.) (h m s)	10 45 42	10 46 52
		Decl. (1950.) (° ' ")	-31 16 04	-31 02 23
Notes:		Hel. velocity (km/s)	2850	3140
F30, C-		a(25) (")	184.1	91.2
		B	13.24	14.24
		(B-R)	1.81	
		Other name	NGC 3390	

Pair 193 Data		**Galaxy Data**		
Projected separation (")	829	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	3180140	3180150
Type		Type	1.0	5.6
Ntot	0.318	R.A. (1950.) (h m s)	10 46 50	10 47 05
		Decl. (1950.) (° ' ")	-41 17 16	-41 03 43
Notes:		Hel. velocity (km/s)		
F20, C-		a(25) (")	84.1	78.5
		B	14.90	16.51
		(B-R)	1.59	1.45

192



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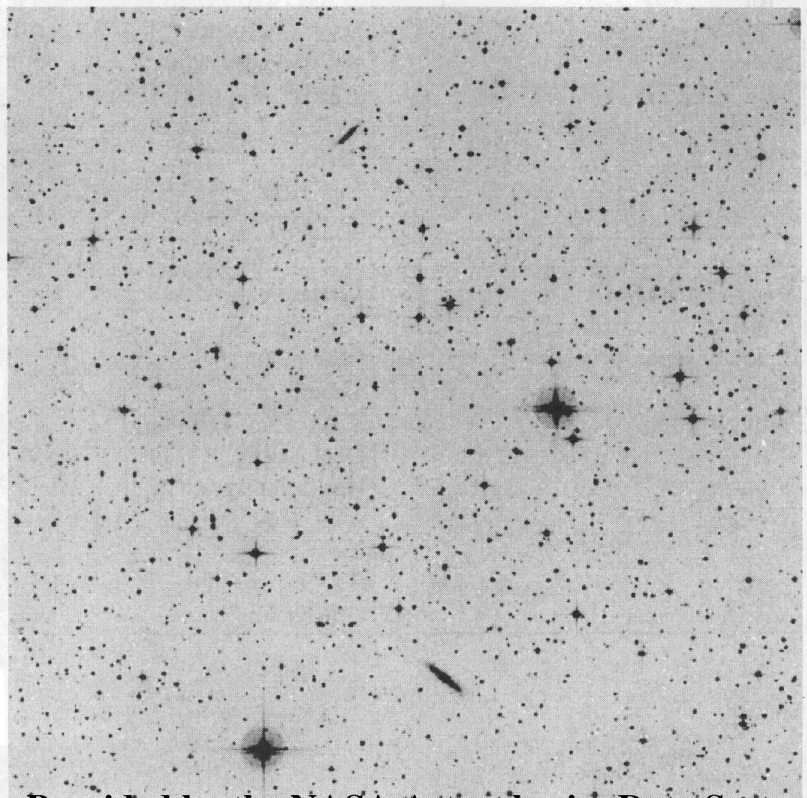


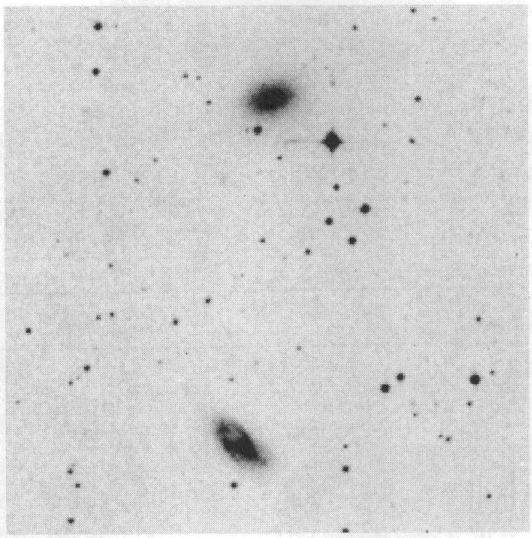
Pair 194 Data		Galaxy Data		
Projected separation (")	271	Pair member	**a**	**b**
Velocity separation (km/s)	249	ESO number	5020050	5020060
Type	DIS 1	Type	-5.0	2.0
Ntot	1.592	R.A. (1950.) (h m s)	10 55 11	10 55 13
		Decl. (1950.) (° ' ")	-25 09 36	-25 14 05
Notes:		Hel. velocity (km/s)	3790	4039dC
F7, C-		a(25) (")	69.2	77.6
		B	13.85	14.52
		(B-R)	1.49	1.31

Pair 195 Data		Galaxy Data		
Projected separation (")	18	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	5690300	5690301
Type	DIS 2	Type	6.3	9.4
Ntot	1.592	R.A. (1950.) (h m s)	10 55 57	10 55 57
		Decl. (1950.) (° ' ")	-18 53 06	-18 53 24
Notes:		Hel. velocity (km/s)		
F7, C+		a(25) (")	43.2	81.3
		B	15.50	14.99
		(B-R)	0.82	0.72

Pair 197 Data		Galaxy Data		
Projected separation (")	40	Pair member	**a**	**b**
Velocity separation (km/s)	0	ESO number	4380200	4380210
Type	DIS 1	Type	3.0	9.4
	LIN ta			
Ntot	1.273	R.A. (1950.) (h m s)	11 16 27	11 16 30
		Decl. (1950.) (° ' ")	-29 09 07	-29 08 52
Notes:		Hel. velocity (km/s)	9081	9081dC
F7, C+, CCD		a(25) (")	65.3	43.7
		B	14.80	15.94
		(B-R)	1.50	1.63
		Lfir/MH2	7.22	
		logCO/LB	-1.01	

Pair 198 Data		Galaxy Data		
Projected separation (")	273	Pair member	**a**	**b**
Velocity separation (km/s)	210	ESO number	3200060	3200080
Type		Type	2.0	1.0
Ntot	3.820	R.A. (1950.) (h m s)	11 33 05	11 33 24
		Decl. (1950.) (° ' ")	-37 40 55	-37 43 11
Notes:		Hel. velocity (km/s)	2790	2580
F7, C+		a(25) (")	156.7	223.9
		B	12.91	13.22
		(B-R)	1.49	1.68
		Other name	NGC 3742	NGC 3749

194



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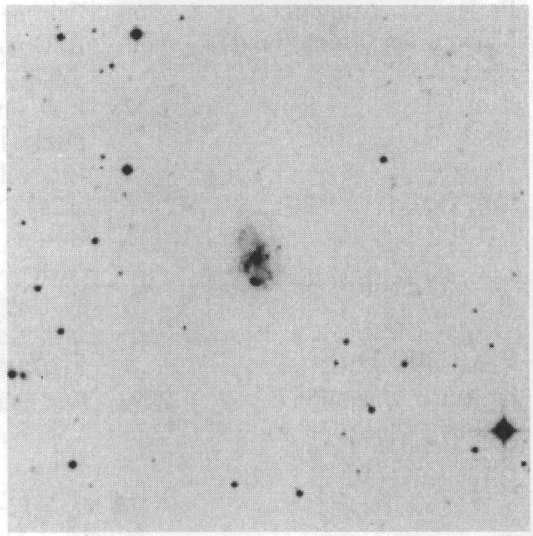

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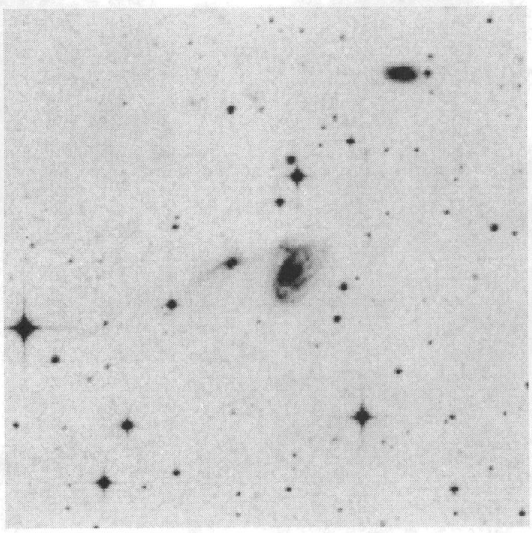

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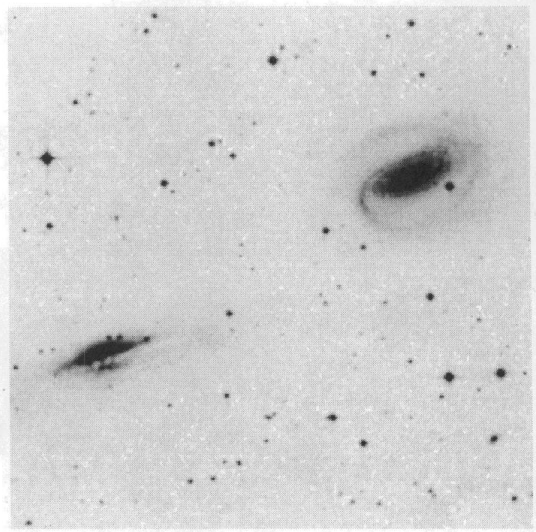

Pair 199 Data		**Galaxy Data**		
Projected separation (")	369	Pair member	**a**	**b**
Velocity separation (km/s)	69	ESO number	2160370	2160390
Type		Type	3.7	8.0
Ntot	2.228	R.A. (1950.) (h m s)	11 42 24	11 42 59
		Decl. (1950.) (° ' ")	-50 16 01	-50 18 53
Notes:		Hel. velocity (km/s)	4997F	5066F
F14, C-		a(25) (")	77.6	78.5
		B	14.48	15.20
		(B-R)	1.32	1.41

Pair 200 Data		**Galaxy Data**		
Projected separation (")	2093	Pair member	**a**	**b**
Velocity separation (km/s)	256	ESO number	3790090	3200350
Type		Type	-2.0	5.0
Ntot	0.318	R.A. (1950.) (h m s)	11 52 42	11 54 13
		Decl. (1950.) (° ' ")	-37 25 01	-37 54 46
Notes:		Hel. velocity (km/s)	3023	2767F
F40, C-		a(25) (")	127.4	127.4
		B	13.28	13.57
		(B-R)	1.54	1.13
		Other name	IC 2977	

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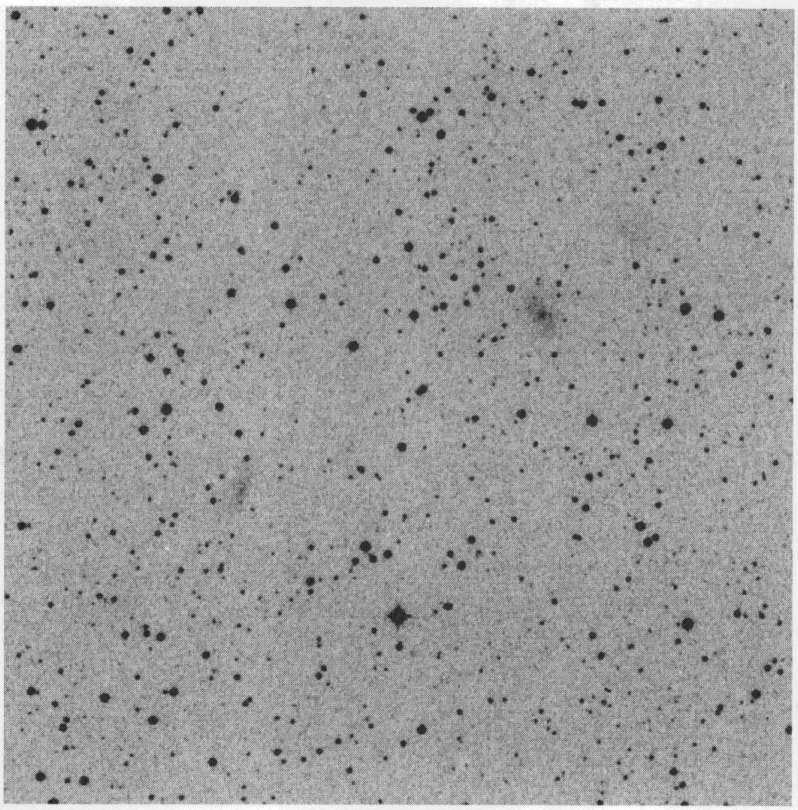
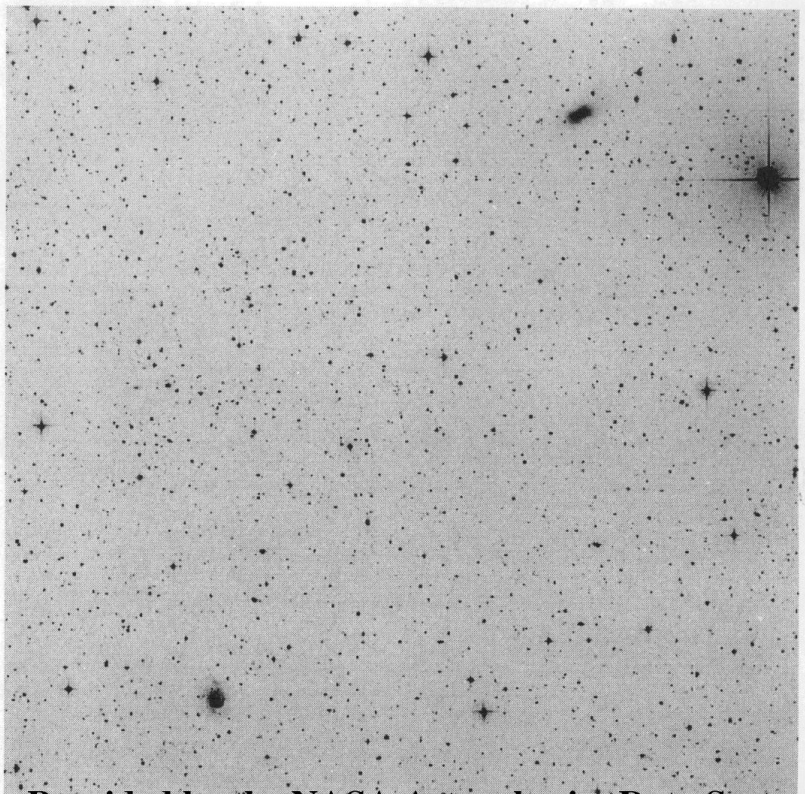


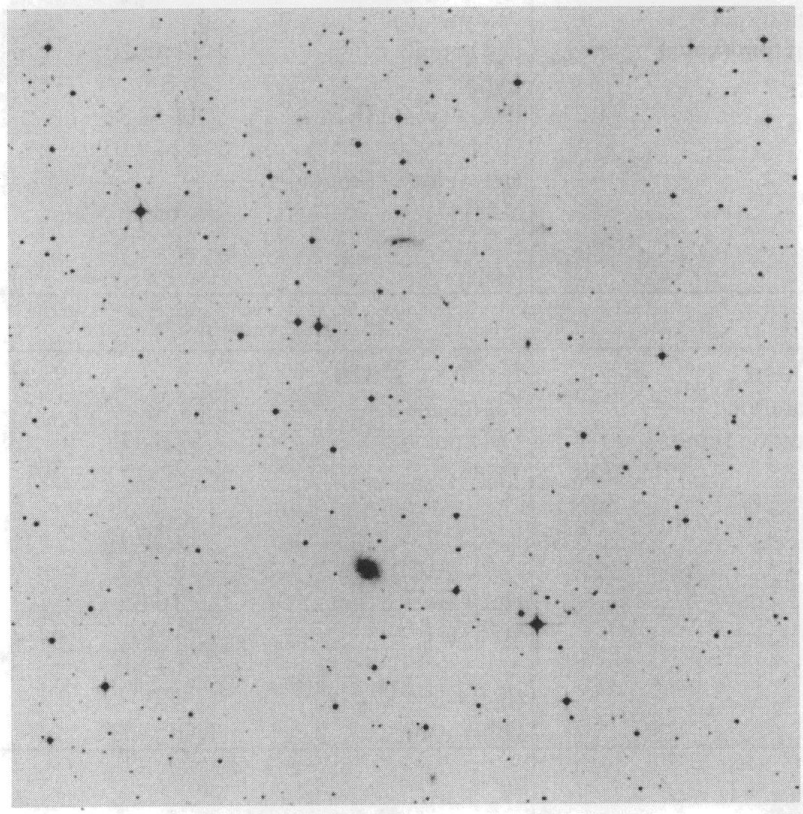
200



Pair 202 Data		**Galaxy Data**		
Projected separation (")	344	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	3790180	3790190
Type		Type	8.6	1.0
Ntot	0.637	R.A. (1950.) (h m s)	11 56 54	11 56 58
		Decl. (1950.) (° ' ")	-36 20 41	-36 26 23
Notes:		Hel. velocity (km/s)		3883dC
F14, C-		a(25) (")	44.7	45.2
		B	17.41	14.83
		(B-R)		1.21

Pair 204 Data		**Galaxy Data**		
Projected separation (")	88	Pair member	**a**	**b**
Velocity separation (km/s)	518	ESO number	3790200	3790210
Type	DIS 1	Type	1.0	3.0
	LIN ta			
Ntot	1.273	R.A. (1950.) (h m s)	11 58 24	11 58 28
		Decl. (1950.) (° ' ")	-34 54 53	-34 56 13
Notes:		Hel. velocity (km/s)	10218dC	9700
F7, C+, CCD		a(25) (")	48.4	97.7
.		B	15.50	14.90
		(B-R)	1.16	1.12
		Lfir/MH2		9.29
		logCO/LB		-1.31

202



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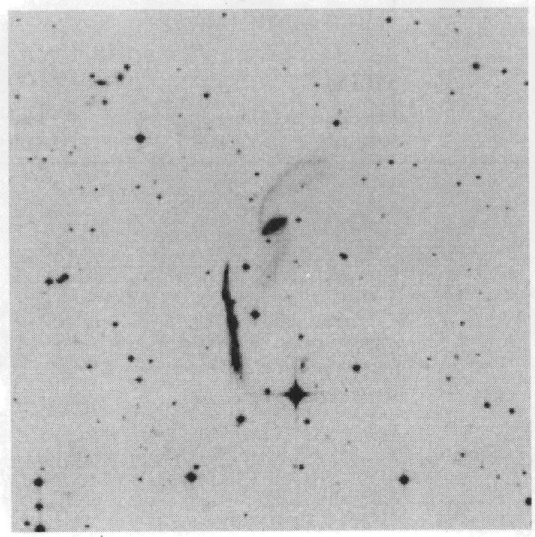
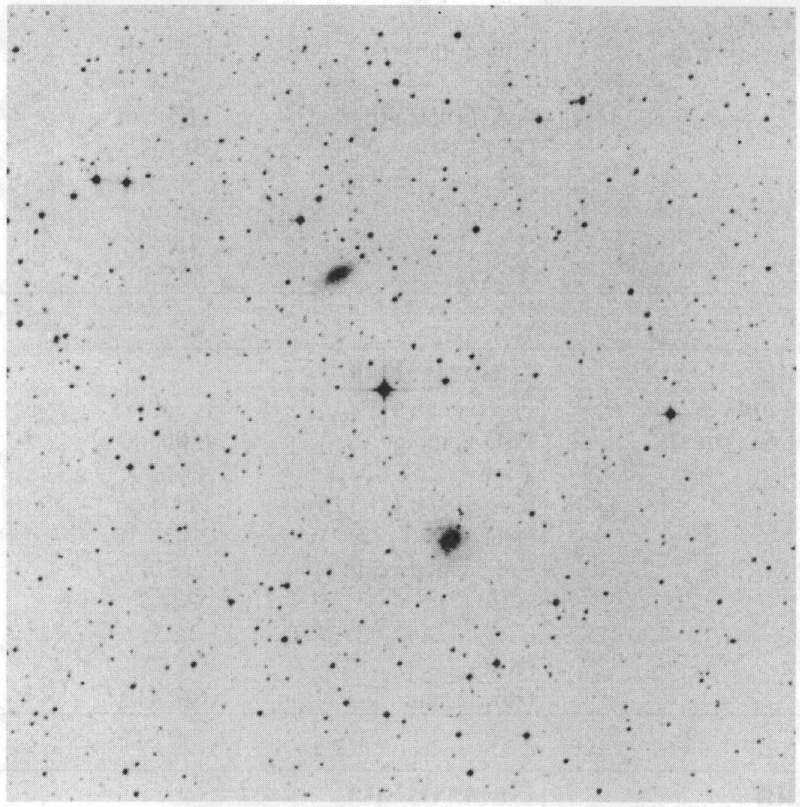


Pair 205 Data		**Galaxy Data**		
Projected separation (")	307	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	3210020	3210030
Type		Type	3.0	3.0
Ntot	1.273	R.A. (1950.) (h m s)	11 58 35	11 58 47
		Decl. (1950.) (° ' ")	-42 28 01	-42 23 24
Notes:		Hel. velocity (km/s)		
F14, C-		a(25) (")	63.1	56.9
		B	14.18	15.05
		(B-R)	1.41	1.56

Pair 206 Data		**Galaxy Data**		
Projected separation (")	73	Pair member	**a**	**b**
Velocity separation (km/s)	1	ESO number	5720470	5720480
Type	DIS 2 LIN ta	Type	9.0	9.0
Ntot	2.546	R.A. (1950.) (h m s)	11 59 18	11 59 19
		Decl. (1950.) (° ' ")	-18 35 13	-18 36 25
Notes:		Hel. velocity (km/s)	1642	1641
F7, C-		a(25) (")	323.6	316.2
		B	10.94	11.05
		(B-R)	1.20	1.30
		Other name	NGC 4038	NGC 4039

Pair 208 Data		**Galaxy Data**		
Projected separation (")	31	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	4400391	4400390
Type	DIS 2	Type	9.6	10.0
Ntot	1.910	R.A. (1950.) (h m s)	11 59 21	11 59 24
		Decl. (1950.) (° ' ")	-29 57 25	-29 57 28
Notes:		Hel. velocity (km/s)		2029dC 2050F
F7, C+		a(25) (")	109.6	49.0
		B	14.94	15.76
		(B-R)	0.85	0.79

205



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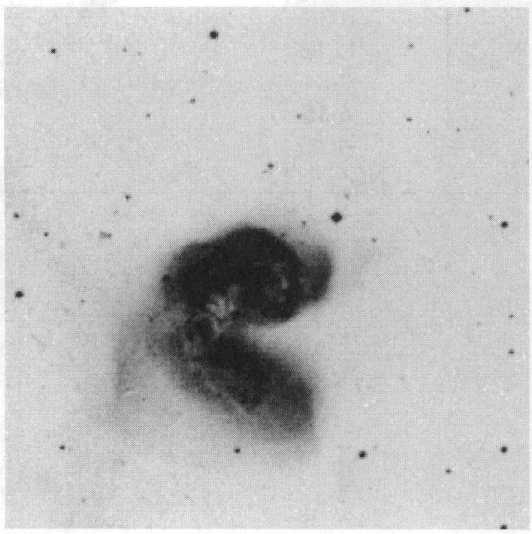

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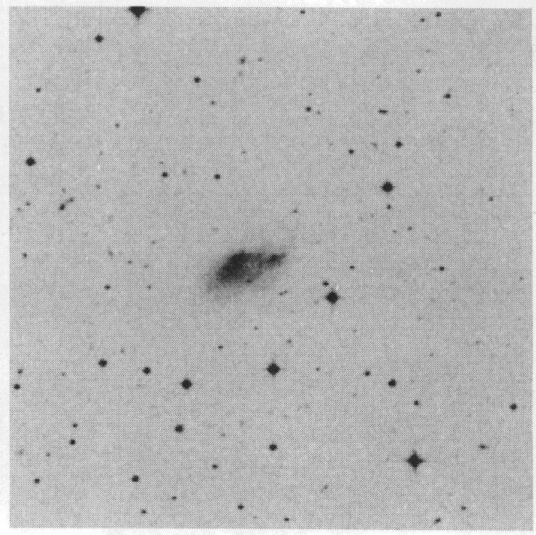
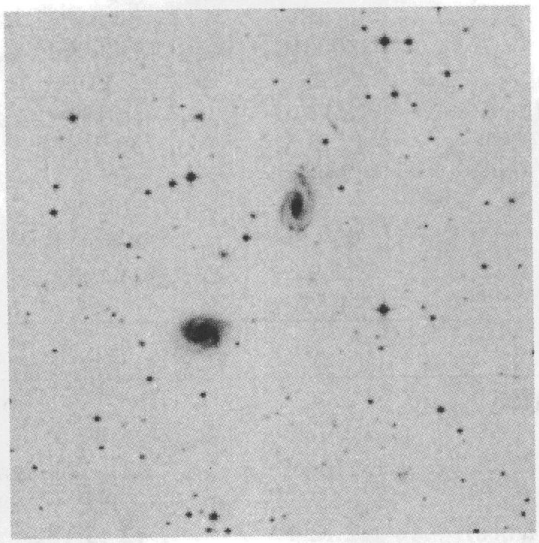


Pair 209 Data		Galaxy Data		
Projected separation (")	131	Pair member	a	b
Velocity separation (km/s)		ESO number	4400420	4400430
Type	DIS 2	Type	2.0	6.0
Ntot	3.501	R.A. (1950.) (h m s)	11 59 37	11 59 43
		Decl. (1950.) (° ' ")	-29 12 28	-29 14 13
Notes:		Hel. velocity (km/s)		
F7, C-		a(25) (")	50.1	50.7
		B	15.43	14.98
		(B-R)	0.75	1.07

Pair 210 Data		Galaxy Data		
Projected separation (")	59	Pair member	a	b
Velocity separation (km/s)	362	ESO number	4400540	4400560
Type	LIN ta	Type	-4.0	-2.0
Ntot	4.138	R.A. (1950.) (h m s)	12 04 06	12 04 10
		Decl. (1950.) (° ' ")	-29 28 58	-29 29 23
Notes:		Hel. velocity (km/s)	1820	2182
F7, C+, CCD		a(25) (")	221.3	237.1
		B	11.35	11.61
		(B-R)	1.82	
		Other name	NGC 4105	NGC 4106

Pair 211 Data		Galaxy Data		
Projected separation (")	155	Pair member	a	b
Velocity separation (km/s)		ESO number	3210060	3210070
Type		Type	4.0	1.0
Ntot	0.138	R.A. (1950.) (h m s)	12 04 34	12 04 47
		Decl. (1950.) (° ' ")	-39 55 40	-39 56 23
Notes:		Hel. velocity (km/s)	2650	
F7, C+, CCD, CPRS94		a(25) (")	103.5	51.3
		B	12.83	14.29
		(B-R)	2.04	1.11
		Lfir/MH2	6.35	
		logCO/LB	-1.43	
		Other name	NGC 4112	

209



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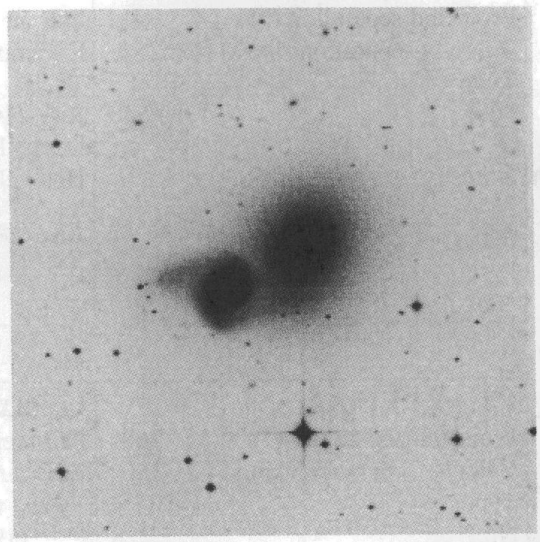

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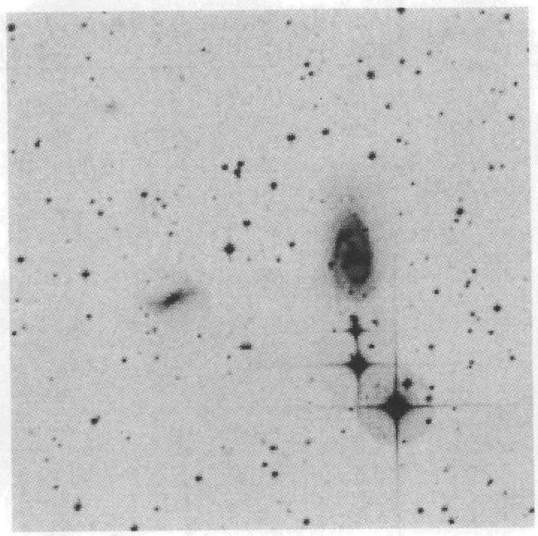
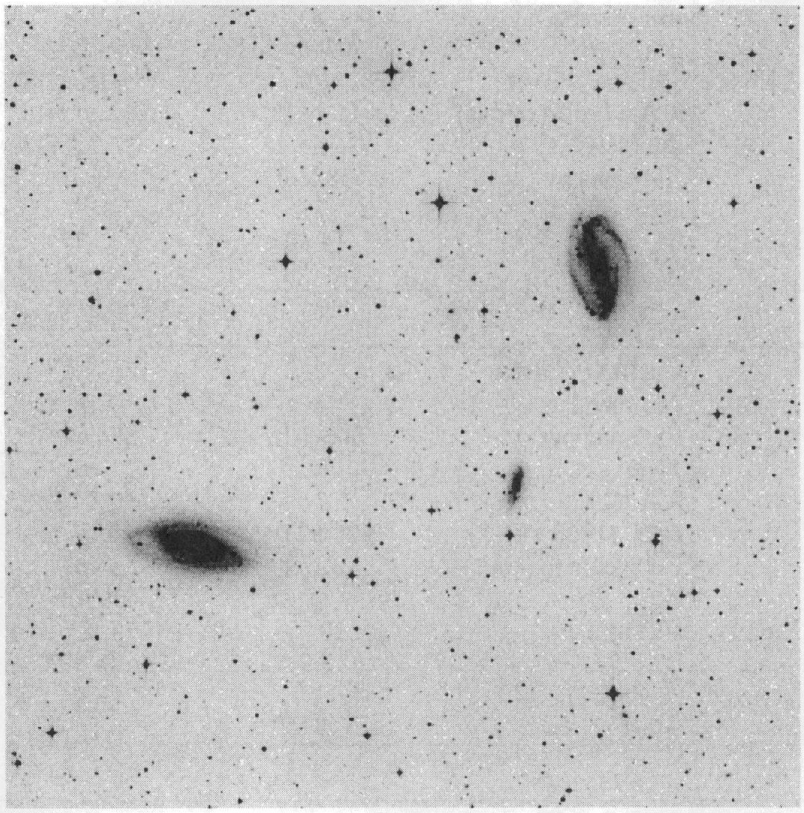


Pair 212 Data		**Galaxy Data**		
Projected separation (")	741	Pair member	**a**	**b**
Velocity separation (km/s)	251	ESO number	3800010	3800060
Type		Type	2.5	3.0
Ntot	2.546	R.A. (1950.) (h m s)	12 12 07	12 12 57
		Decl. (1950.) (° ' ")	-35 13 55	-35 21 07
Notes:		Hel. velocity (km/s)	2689	2940
				2900F
F20, C+		a(25) (")	173.8	216.3
		B	12.97	12.66
		(B-R)	1.52	1.64

Pair 213 Data		**Galaxy Data**		
Projected separation (")	368	Pair member	**a**	**b**
Velocity separation (km/s)	360	ESO number	3210160	3210180
Type	DIS 1	Type	5.7	9.7
Ntot	2.228	R.A. (1950.) (h m s)	12 12 49	12 13 17
		Decl. (1950.) (° ' ")	-37 51 54	-37 48 53
Notes:		Hel. velocity (km/s)	2780	3140
				3160F
F14, C-		a(25) (")	147.9	97.7
		B	13.83	14.16
		(B-R)	1.48	1.39
		Lfir/MH2	103.98	
		logCO/LB	-2.81	

212



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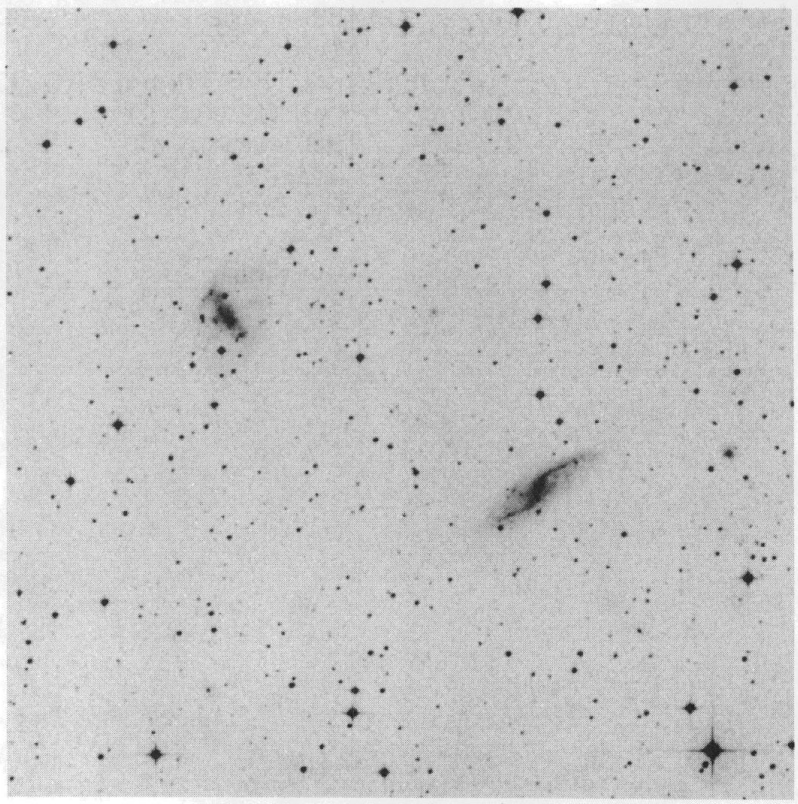
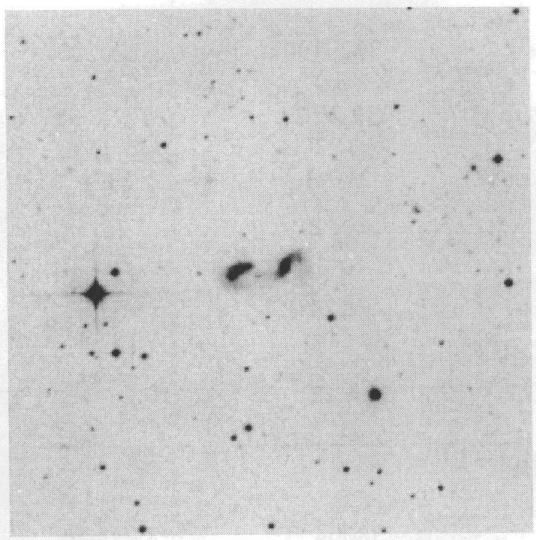


Pair 214 Data		**Galaxy Data**		
Projected separation (")	42	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	5050300	5050310
Type	LIN ta	Type	1.0	5.0
Ntot		R.A. (1950.) (h m s)	12 14 20	12 14 24
		Decl. (1950.) (° ' ")	-25 55 55	-25 55 58
Notes:		Hel. velocity (km/s)	11822dC	
F7, C+		a(25) (")	45.2	36.3
		B	14.88	15.13
		(B-R)	0.90	0.90

Pair 215 Data		**Galaxy Data**		
Projected separation (")	539	Pair member	**a**	**b**
Velocity separation (km/s)	685	ESO number	5060010	5060020
Type		Type	-3.5	4.3
Ntot	0.637	R.A. (1950.) (h m s)	12 16 59	12 17 34
		Decl. (1950.) (° ' ")	-25 52 04	-25 47 23
Notes:		Hel. velocity (km/s)	3275	3960
				3970F
F14, C+, CCD		a(25) (")	104.7	158.5
		B	13.28	14.60
		(B-R)	1.60	1.45
		Other name	IC 3152	

Pair 216 Data		**Galaxy Data**		
Projected separation (")	118	Pair member	**a**	**b**
Velocity separation (km/s)	73	ESO number	3220040	3220060
Type		Type	-0.5	-3.0
Ntot	15.50	R.A. (1950.) (h m s)	12 22 30	12 22 39
		Decl. (1950.) (° ' ")	-39 29 52	-39 28 58
Notes:		Hel. velocity (km/s)	3342	3415
F7, C+, CCD		a(25) (")		275.4
		B	12.97	11.59
		(B-R)	1.54	1.50
		Other name	IC 3290	NGC 4373

214



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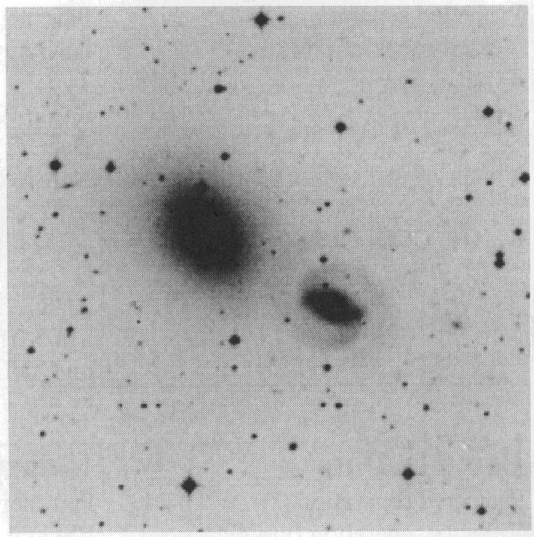

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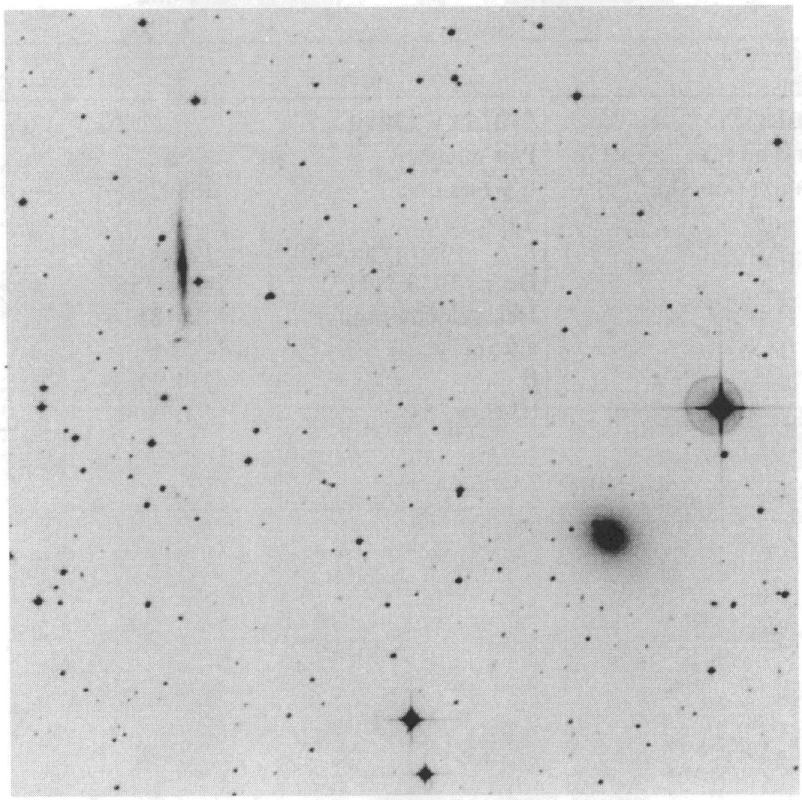
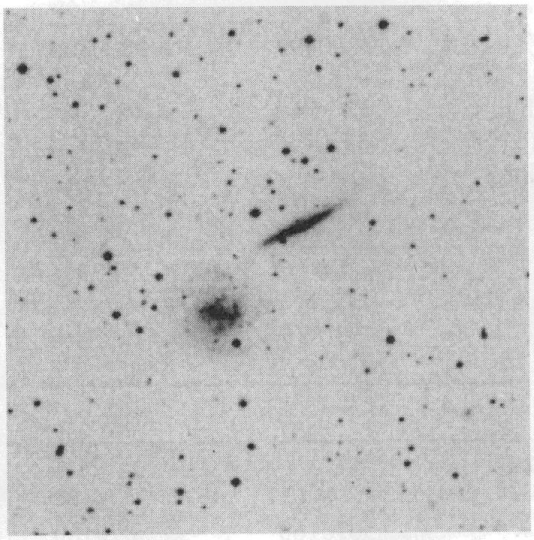


Pair 217 Data		**Galaxy Data**		
Projected separation (")	90	Pair member	**a**	**b**
Velocity separation (km/s)	185	ESO number	3220190	3220200
Type	DIS 1	Type	6.0	8.0
Ntot	15.50	R.A. (1950.) (h m s)	12 26 27	12 26 31
		Decl. (1950.) (° ' ")	-40 23 49	-40 25 01
Notes:		Hel. velocity (km/s)	3193	3378
				3260F
F7, C+, CCD, CPRS94		a(25) (")	98.9	71.6
		B	14.84	14.26
		(B-R)	1.24	1.14
		Lfir/MH2		167.8
		logCO/LB		-2.64

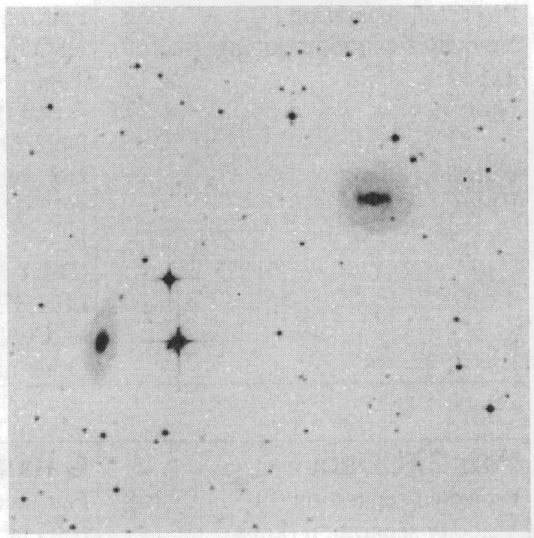
Pair 218 Data		**Galaxy Data**		
Projected separation (")	243	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	3800420	3800440
Type		Type	0.0	0.0
Ntot	1.273	R.A. (1950.) (h m s)	12 31 07	12 31 25
		Decl. (1950.) (° ' ")	-34 50 24	-34 52 04
Notes:		Hel. velocity (km/s)		
F7, C-		a(25) (")	72.4	57.5
		B	14.82	15.52
		(B-R)	1.65	1.62

Pair 219 Data		**Galaxy Data**		
Projected separation (")	176	Pair member	**a**	**b**
Velocity separation (km/s)	16	ESO number	2680230	2680240
Type		Type	-2.0	2.0
Ntot	3.501	R.A. (1950.) (h m s)	12 33 06	12 33 15
		Decl. (1950.) (° ' ")	-42 46 55	-42 44 31
Notes:		Hel. velocity (km/s)	10185	10169F
F7, C-		a(25) (")	51.9	50.1
		B	14.90	15.20
		(B-R)	1.48	1.41

217



218



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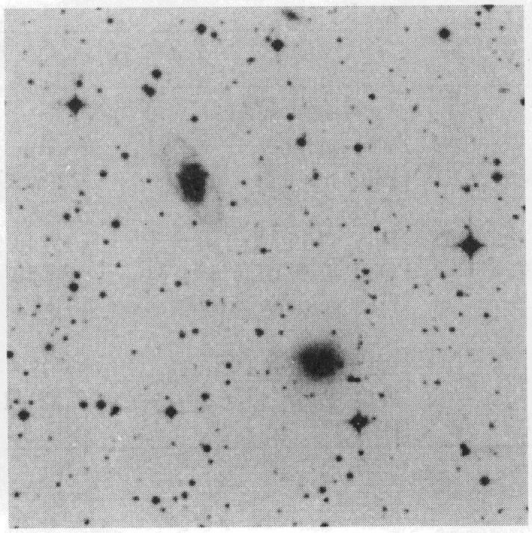
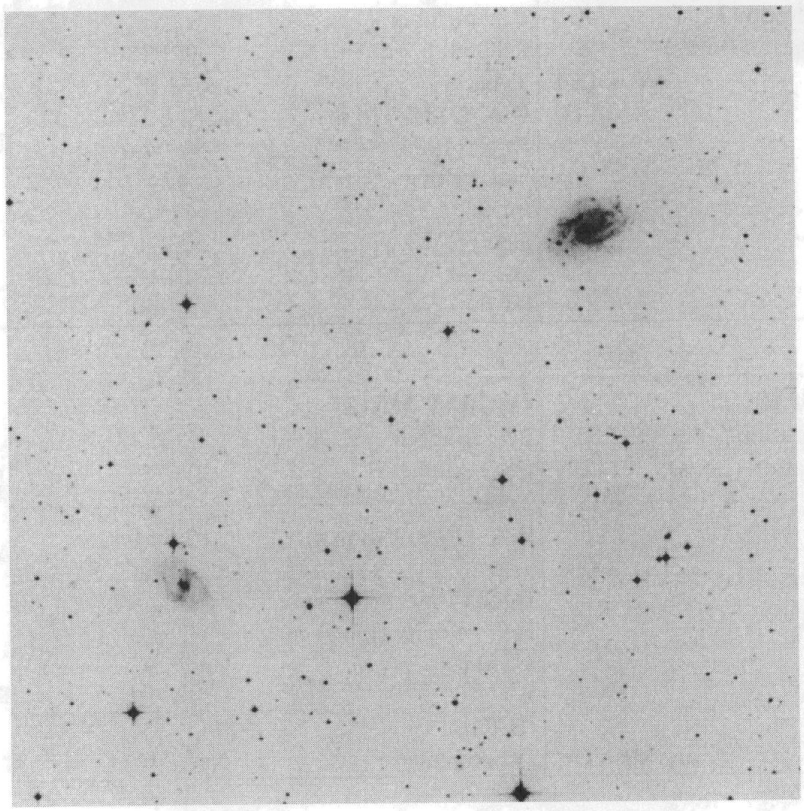


Pair 220 Data		**Galaxy Data**		
Projected separation (")	580	Pair member	**a**	**b**
Velocity separation (km/s)	169	ESO number	3800490	3800500
Type		Type	5.0	4.0
Ntot	1.273	R.A. (1950.) (h m s)	12 35 01	12 35 39
		Decl. (1950.) (° ' ")	-35 14 31	-35 20 31
Notes:		Hel. velocity (km/s)	3100	2931
F14, C-		a(25) (")	105.9	69.2
		B	13.69	15.26
		(B-R)	1.09	1.33
		Lfir/MH2	12.31	
		logCO/LB	-1.82	
		Other name	NGC 4574	

Pair 221 Data		**Galaxy Data**		
Projected separation (")	188	Pair member	**a**	**b**
Velocity separation (km/s)	149	ESO number	5070160	5070180
Type		Type	1.0	9.7
Ntot	1.273	R.A. (1950.) (h m s)	12 46 59	12 47 12
		Decl. (1950.) (° ' ")	-24 53 16	-24 52 12
Notes:		Hel. velocity (km/s)	7271F	7420F
F7, C-		a(25) (")	59.6	24.8
		B	14.88	17.13
		(B-R)	1.17	0.75

Pair 222 Data		**Galaxy Data**		
Projected separation (")	144	Pair member	**a**	**b**
Velocity separation (km/s)	285	ESO number	5070270	5070280
Type		Type	-2.0	1.0
Ntot	10.00	R.A. (1950.) (h m s)	12 48 57	12 49 05
		Decl. (1950.) (° ' ")	-25 50 41	-25 49 04
Notes:		Hel. velocity (km/s)	3223	3508
				3530F
F7, C-, CCD		a(25) (")	98.9	90.2
		B	13.51	13.64
		(B-R)	1.32	1.47

220



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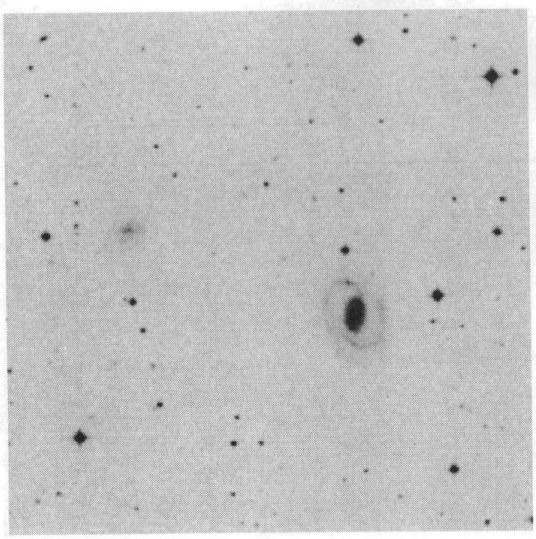

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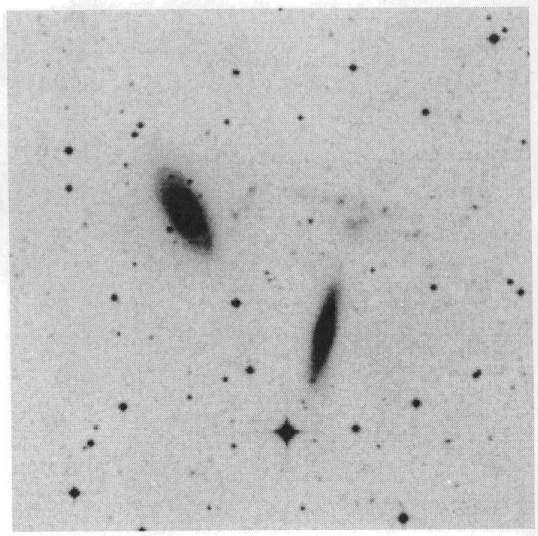
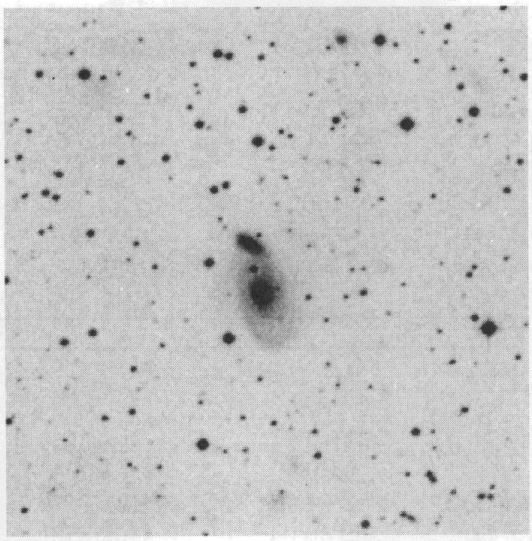


Pair 223 Data		**Galaxy Data**		
Projected separation (")	40	Pair member	**a**	**b**
Velocity separation (km/s)	6	ESO number	3230280	3230281
Type	DIS 1	Type	1.0	0.5
Ntot	15.50	R.A. (1950.) (h m s)	12 50 04	12 50 04
		Decl. (1950.) (° ' ")	-41 04 01	-41 03 21
Notes:		Hel. velocity (km/s)	4744	4750dC
			4750F	
F7, C-		a(25) (")	62.4	131.8
		B	14.10	13.93
		(B-R)	1.63	1.50

Pair 226 Data		**Galaxy Data**		
Projected separation (")	55	Pair member	**a**	**b**
Velocity separation (km/s)	422	ESO number	3230470	3230480
Type	DIS 1	Type	-1.0	-2.0
Ntot	15.50	R.A. (1950.) (h m s)	12 54 04	12 54 05
	0			
		Decl. (1950.) (° ' ")	-41 31 37	-41 32 31
Notes:		Hel. velocity (km/s)	3105	3527
F7, C+		a(25) (")	75.9	66.8
		B	14.05	14.16
		(B-R)		1.83
		Other name	NGC 4811	NGC 4812

Pair 227 Data		**Galaxy Data**		
Projected separation (")	703	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	3810320	3810370
Type		Type	0.0	6.0
Ntot	0.637	R.A. (1950.) (h m s)	12 55 47	12 56 17
		Decl. (1950.) (° ' ")	-37 17 16	-37 27 28
Notes:		Hel. velocity (km/s)		
F14, C-		a(25) (")	69.2	55.6
		B	14.62	15.68
		(B-R)	1.46	1.06

223



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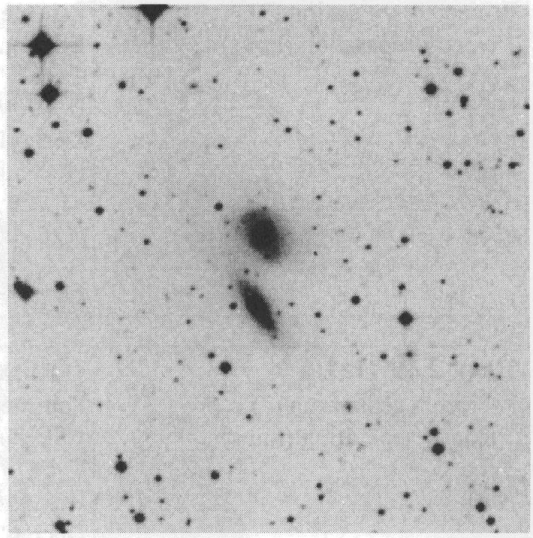

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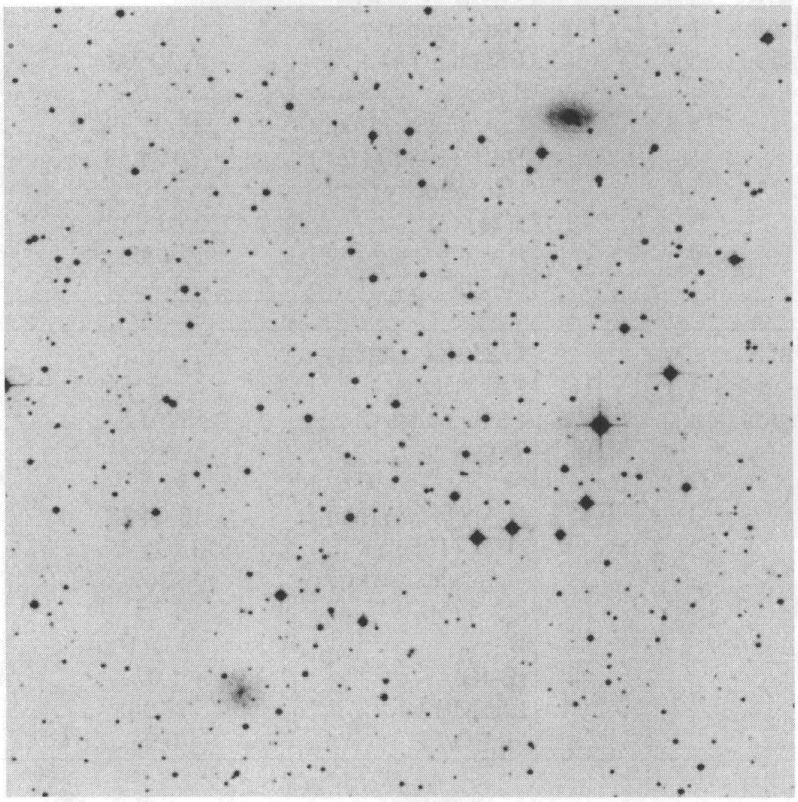


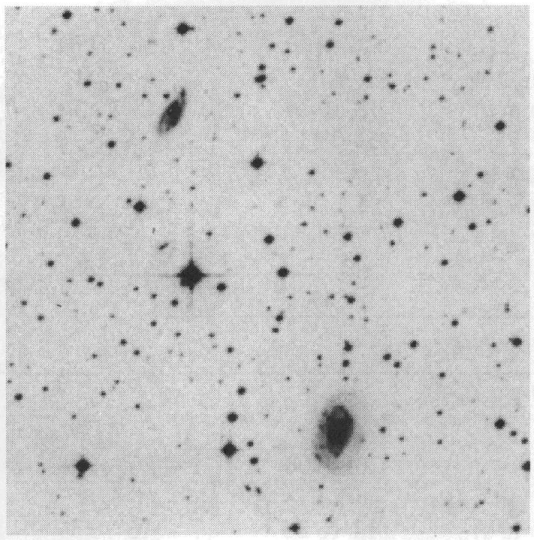
Pair 228 Data		**Galaxy Data**		
Projected separation (")	288	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	2690250	2690260
Type	DIS 1	Type	2.0	2.0
Ntot	1.910	R.A. (1950.) (h m s)	12 56 41	12 56 53
		Decl. (1950.) (° ' ")	-44 11 06	-44 06 54
Notes:		Hel. velocity (km/s)	7150	
			7140F	
F7, C-		a(25) (")	75.9	59.6
		B	14.31	15.45
		(B-R)		

Pair 229 Data		**Galaxy Data**		
Projected separation (")	89	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	2190180	2190190
Type		Type	1.0	1.0
Ntot	1.910	R.A. (1950.) (h m s)	12 57 12	12 57 17
		Decl. (1950.) (° ' ")	-50 40 04	-50 38 49
Notes:		Hel. velocity (km/s)		
F7, C+		a(25) (")	49.0	66.1
		B	14.74	15.26
		(B-R)	1.59	1.64

Pair 233 Data		**Galaxy Data**		
Projected separation (")	162	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	4430500	4430510
Type		Type	-2.0	3.0
Ntot	3.501	R.A. (1950.) (h m s)	13 01 39	13 01 40
		Decl. (1950.) (° ' ")	-28 25 58	-28 28 40
Notes:		Hel. velocity (km/s)		
F7, C+		a(25) (")	61.7	57.5
		B	14.49	15.61
		(B-R)	1.42	1.18

Pair 235 Data		**Galaxy Data**		
Projected separation (")	16	Pair member	**a**	**b**
Velocity separation (km/s)	228	ESO number	3820100	3820101
Type	DIS 2	Type	3.0	4.5
	LIN ta			
Ntot	0.637	R.A. (1950.) (h m s)	13 04 22	13 04 23
		Decl. (1950.) (° ' ")	-33 35 49	-33 36 00
Notes:		Hel. velocity (km/s)	9260	9032dC
F7, C+		a(25) (")	57.5	18.4
		B	14.71	16.99
		(B-R)	1.07	1.07
		Lfir/MH2	18.34	
		logCO/LB	-0.96	

228



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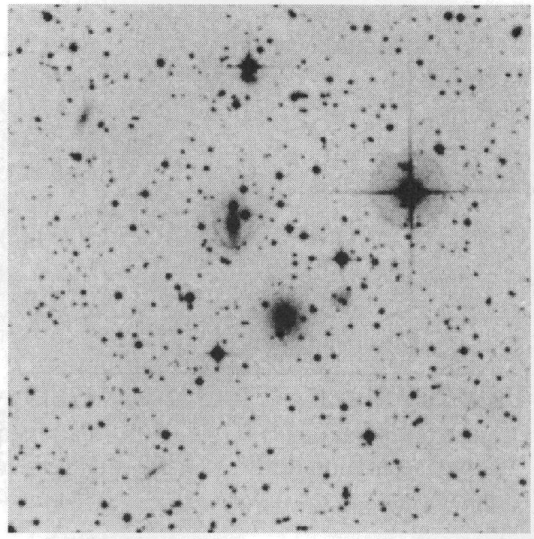

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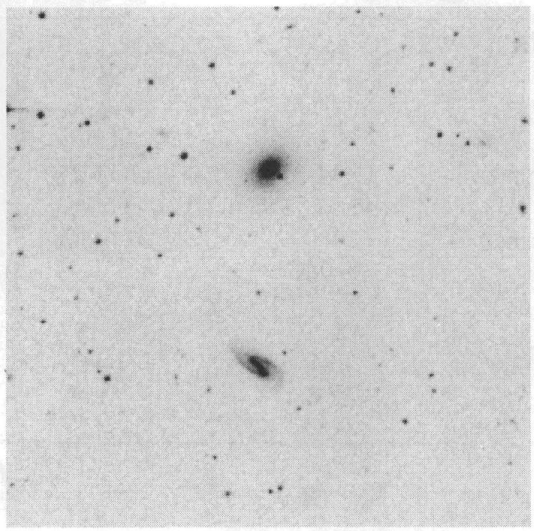

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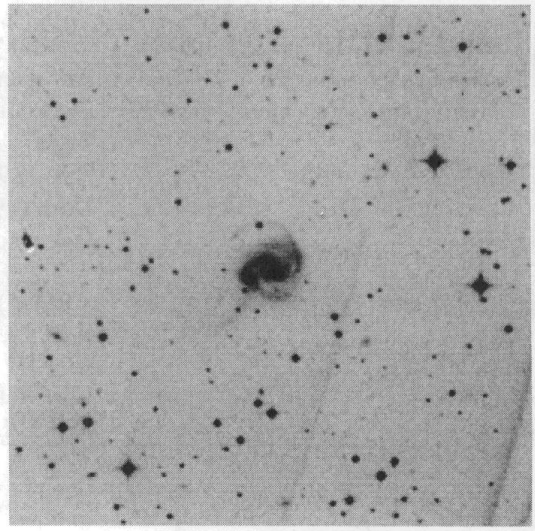
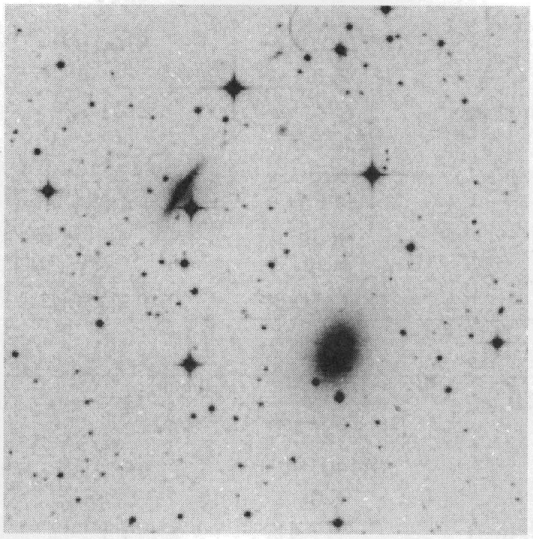


Pair 236 Data		**Galaxy Data**		
Projected separation (")	186	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	3820160	3820170
Type		Type	-3.0	0.0
Ntot	1.910	R.A. (1950.) (h m s)	13 10 23	13 10 34
		Decl. (1950.) (° ' ")	-36 27 28	-36 25 19
Notes:		Hel. velocity (km/s)	3251	
			3230F	
F7, C+		a(25) (")	75.0	81.3
		B	13.70	14.94
		(B-R)	1.47	

Pair 237 Data		**Galaxy Data**		
Projected separation (")	30	Pair member	**a**	**b**
Velocity separation (km/s)	0?	ESO number	2690700	2690701
Type		Type	-2.0	8.0
Ntot	4.775	R.A. (1950.) (h m s)	13 10 35	13 10 37
		Decl. (1950.) (° ' ")	-43 07 04	-43 06 57
Notes:		Hel. velocity (km/s)	22300	22300F
F7, C-		a(25) (")	43.7	84.1
		B	14.52	14.41
		(B-R)	1.33	1.29

Pair 238 Data		**Galaxy Data**		
Projected separation (")	64	Pair member	**a**	**b**
Velocity separation (km/s)	100	ESO number	2690740	2690741
Type		Type	5.0	4.6
Ntot		R.A. (1950.) (h m s)	13 11 25	13 11 29
		Decl. (1950.) (° ' ")	-45 51 17	-45 50 27
Notes:		Hel. velocity (km/s)	3009	3110dC
			3010dC	
F7, C-, CCD		a(25) (")	47.3	175.8
		B	15.79	13.19
		(B-R)	1.41	1.41
		Lfir/MH2	17.8	
		logCO/LB	-0.85	

236



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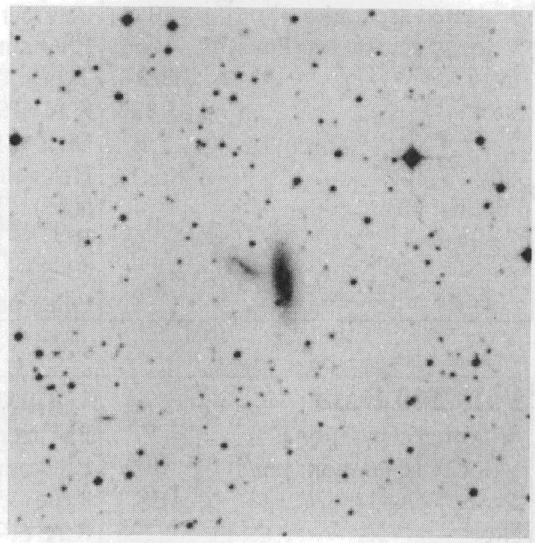

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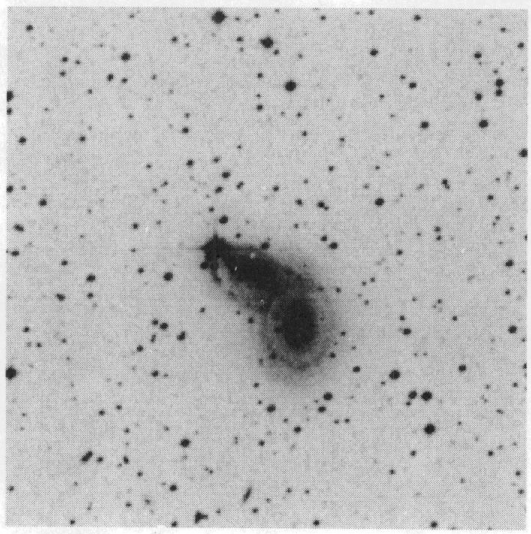
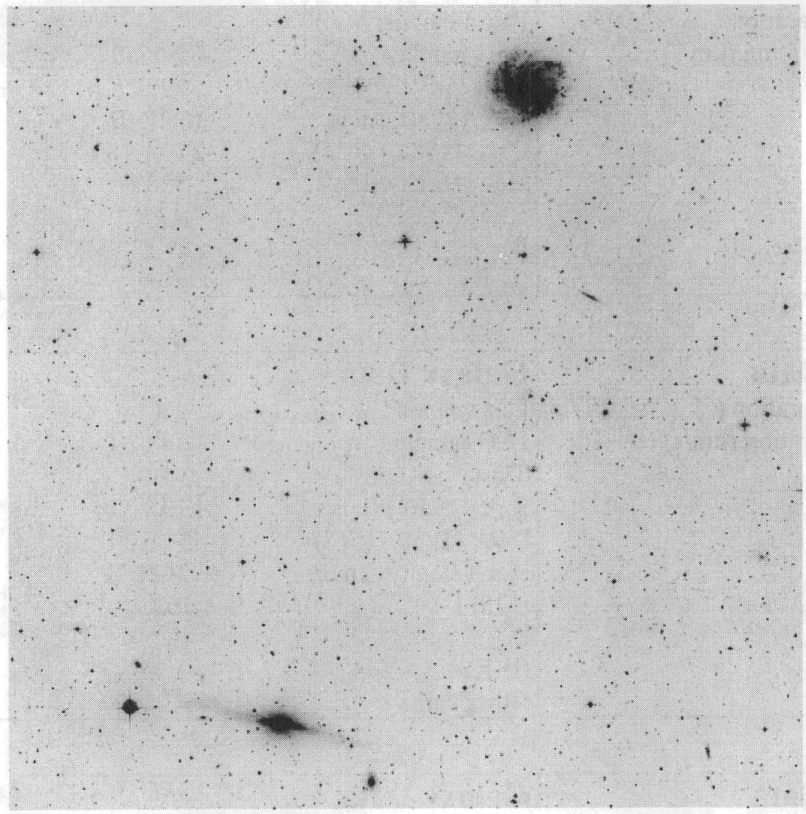


Pair 239 Data		**Galaxy Data**		
Projected separation (")	3055	Pair member	**a**	**b**
Velocity separation (km/s)	1066	ESO number	5760290	5760330
Type	DIS 1	Type	6.0	3.0
Ntot	3.820	R.A. (1950.) (h m s)	13 16 12	13 17 34
		Decl. (1950.) (° ' ")	-20 46 37	-21 33 54
Notes:		Hel. velocity (km/s)	673	1739
F60, C-, OP		a(25) (")	421.7	653.1
		B	10.26	11.15
		(B-R)	0.78	1.31
		Other name	NGC 5068	NGC 5084

Pair 240 Data		**Galaxy Data**		
Projected separation (")	53	Pair member	**a**	**b**
Velocity separation (km/s)	0?	ESO number	4440100	4440101
Type	DIS 1	Type	6.0	0.8
Ntot	2.228	R.A. (1950.) (h m s)	13 17 41	13 17 42
		Decl. (1950.) (° ' ")	-30 38 49	-30 38 02
Notes:		Hel. velocity (km/s)	9211	9211dC
F7, C+		a(25) (")	72.4	64.6
		B	15.43	14.33
		(B-R)	1.09	1.25

239



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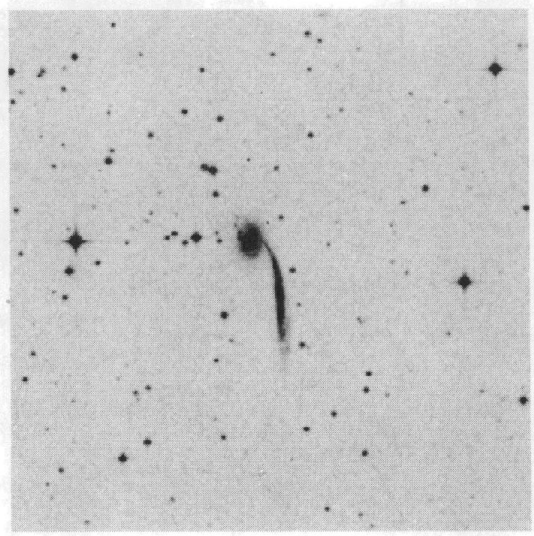
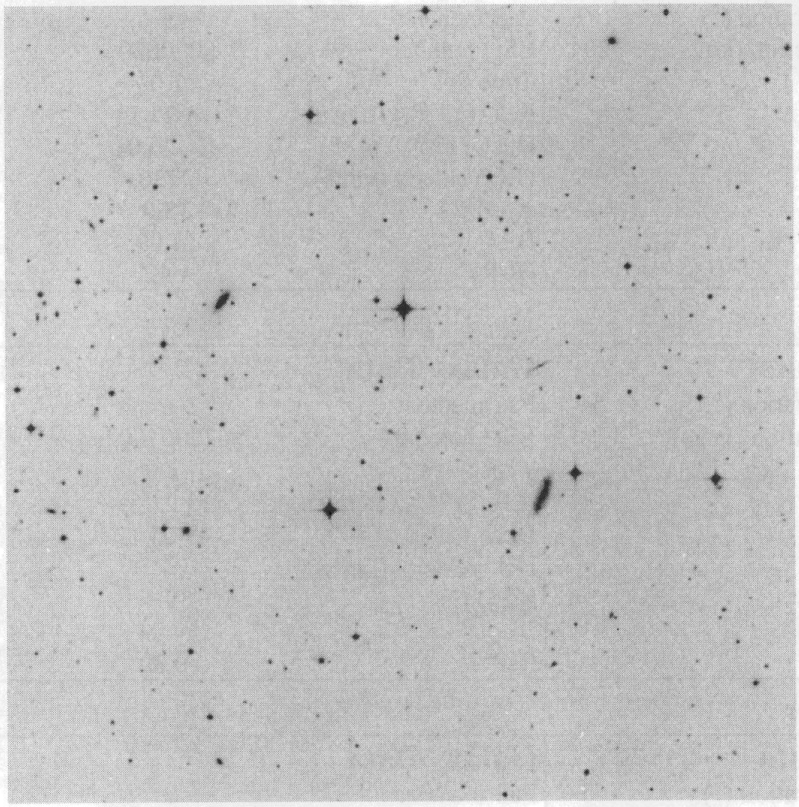


Pair 241 Data		**Galaxy Data**		
Projected separation (")	395	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	5080540	5080560
Type		Type	-2.0	-2.0
Ntot	4.775	R.A. (1950.) (h m s)	13 18 01	13 18 27
		Decl. (1950.) (° ' ")	-27 21 18	-27 17 49
Notes:		Hel. velocity (km/s)	8209	
F14, C+		a(25) (")	47.9	43.7
		B	15.73	14.78
		(B-R)	1.05	0.77

Pair 242 Data		**Galaxy Data**		
Projected separation (")	77	Pair member	**a**	**b**
Velocity separation (km/s)	108	ESO number	2700020	2700040
Type		Type	-5.0	3.0
Ntot	1.910	R.A. (1950.) (h m s)	13 18 17	13 18 23
		Decl. (1950.) (° ' ")	-43 26 34	-43 27 28
Notes:		Hel. velocity (km/s)	3421	3529
F7, C-		a(25) (")	162.2	120.2
		B	12.59	13.94
		(B-R)	1.75	1.51
		Other name	NGC 5090	NGC 5091

Pair 243 Data		**Galaxy Data**		
Projected separation (")	199	Pair member	**a**	**b**
Velocity separation (km/s)	850	ESO number	2700050	2700060
Type		Type	3.5	3.0
Ntot	0.955	R.A. (1950.) (h m s)	13 18 41	13 18 59
		Decl. (1950.) (° ' ")	-45 40 12	-45 40 29
Notes:		Hel. velocity (km/s)	4550	3700
F7, C+		a(25) (")	107.2	118.9
		B	14.30	13.99
		(B-R)	1.11	0.85

241



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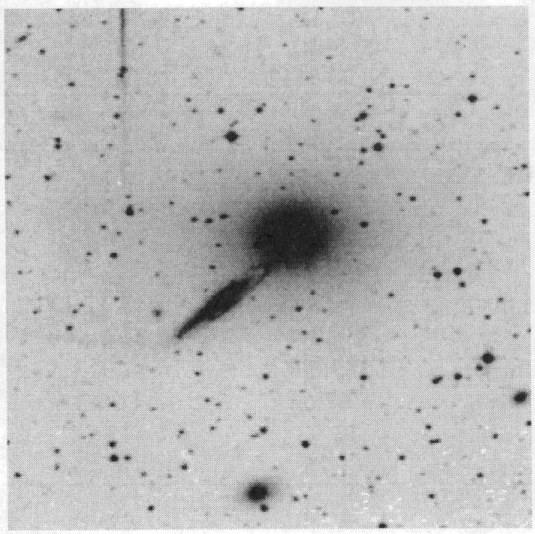

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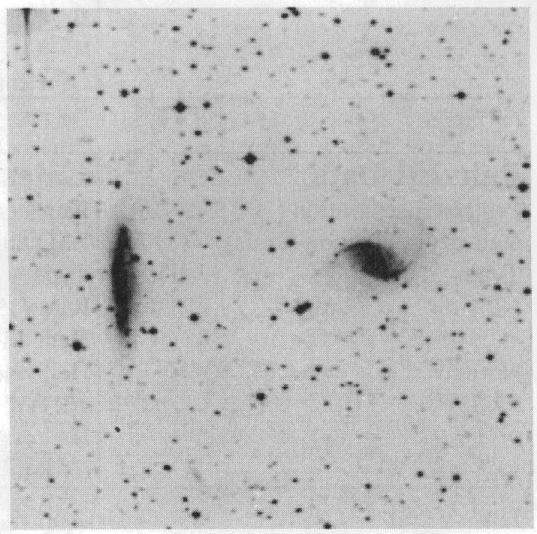

Pair 246 Data		**Galaxy Data**		
Projected separation (")	17	Pair member	**a**	**b**
Velocity separation (km/s)	204	ESO number	5090020	5090021
Type		Type	1.0	1.0
Ntot		R.A. (1950.) (h m s)	13 23 13	13 23 15
		Decl. (1950.) (° ' ")	-26 25 01	-26 24 57
Notes:		Hel. velocity (km/s)	9736	9940dC
F7, C+		a(25) (")	38.9	38.0
		B	14.99	15.08
		(B-R)	1.12	1.44

Pair 247 Data		**Galaxy Data**		
Projected separation (")	54	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	2200100	2200101
Type		Type	-2.0	8.2
Ntot		R.A. (1950.) (h m s)	13 23 59	13 24 03
		Decl. (1950.) (° ' ")	-49 04 12	-49 04 44
Notes:		Hel. velocity (km/s)		
F7, C+		a(25) (")	39.4	61.0
		B	14.94	15.07
		(B-R)	-0.80	-0.04

Pair 248 Data		**Galaxy Data**		
Projected separation (")	53	Pair member	**a**	**b**
Velocity separation (km/s)	59	ESO number	4440440	4440450
Type	DIS 1	Type	3.0	-5.0
Ntot	5.730	R.A. (1950.) (h m s)	13 25 02	13 25 06
		Decl. (1950.) (° ' ")	-29 21 35	-29 21 35
Notes:		Hel. velocity (km/s)	4376	4317
F7, C-, CCD		a(25) (")	182.0	100.0
		B	13.32	13.29
		(B-R)	1.42	1.51
		Other name	NGC 5152	NGC 5153

Pair 251 Data		**Galaxy Data**		
Projected separation (")	5	Pair member	**a**	**b**
Velocity separation (km/s)	175	ESO number	3830281	3830290
Type	DIS 2	Type	-1.4	-2.0
Ntot	20.67	R.A. (1950.) (h m s)	13 32 17	13 32 17
		Decl. (1950.) (° ' ")	-33 13 44	-33 13 40
Notes:		Hel. velocity (km/s)	3838dC	4013
F7, C+		a(25) (")	67.6	65.3
		B	13.93	13.94
		(B-R)	1.25	1.42

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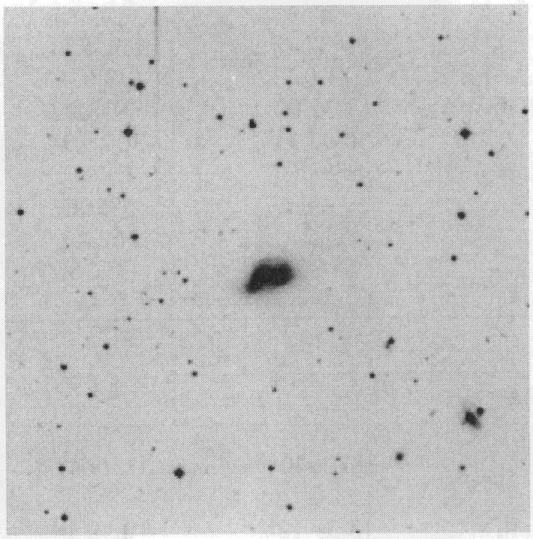

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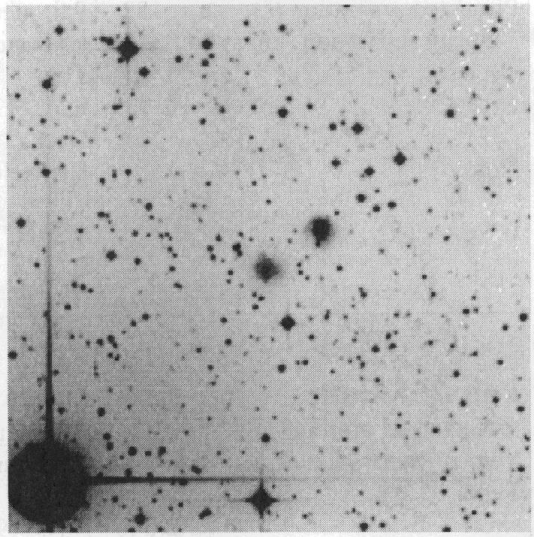

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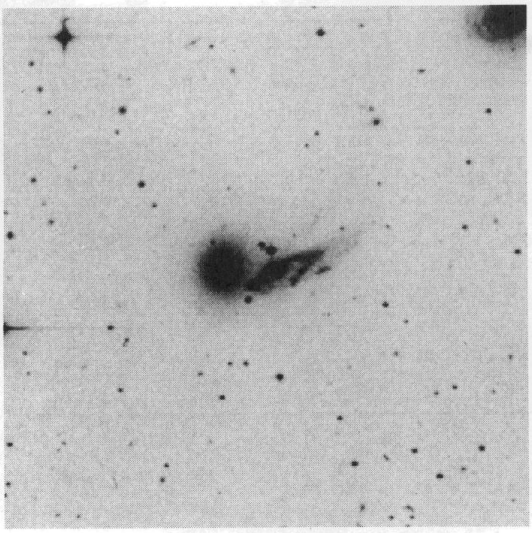

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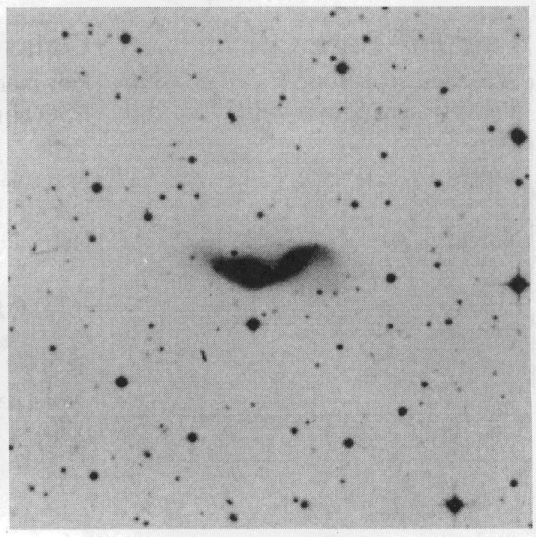

Pair 252 Data		**Galaxy Data**		
Projected separation (")	182	Pair member	**a**	**b**
Velocity separation (km/s)	349	ESO number	4440760	4440770
Type		Type	-1.0	8.0
Ntot	2.865	R.A. (1950.) (h m s)	13 33 00	13 33 02
		Decl. (1950.) (° ' ")	-30 07 37	-30 10 37
Notes:		Hel. velocity (km/s)	4196dC	3847
				3850F
F7, C-, CCD		a(25) (")	53.7	62.4
		B	14.35	15.26
		(B-R)	0.96	0.33

Pair 255 Data		**Galaxy Data**		
Projected separation (")	23	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	3830640	3830641
Type		Type	3.0	8.4
Ntot	2.546	R.A. (1950.) (h m s)	13 39 12	13 39 14
		Decl. (1950.) (° ' ")	-36 05 49	-36 05 38
Notes:		Hel. velocity (km/s)		
F7, C+		a(25) (")	30.5	84.1
		B	16.94	14.44
		(B-R)	1.99	1.04

Pair 257 Data		**Galaxy Data**		
Projected separation (")	496	Pair member	**a**	**b**
Velocity separation (km/s)	260	ESO number	5091000	5091010
Type		Type	3.0	-1.0
Ntot	0.637	R.A. (1950.) (h m s)	13 41 02	13 41 15
		Decl. (1950.) (° ' ")	-27 06 35	-26 58 48
Notes:		Hel. velocity (km/s)	6567	6827
			6550F	
F14, C+		a(25) (")	54.3	64.6
		B	15.13	14.25
		(B-R)	1.05	1.55
		Other name		IC 4320

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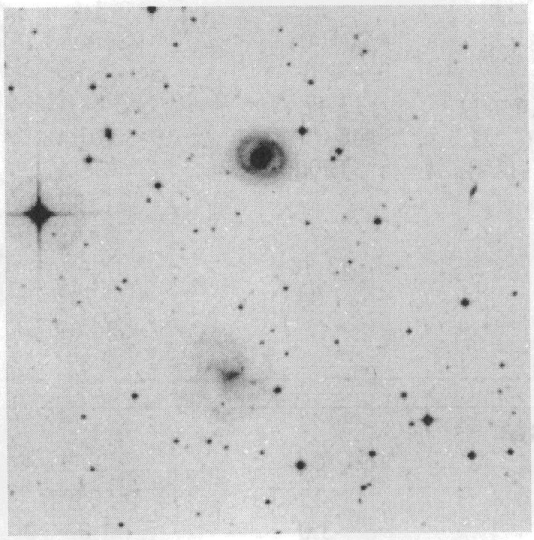

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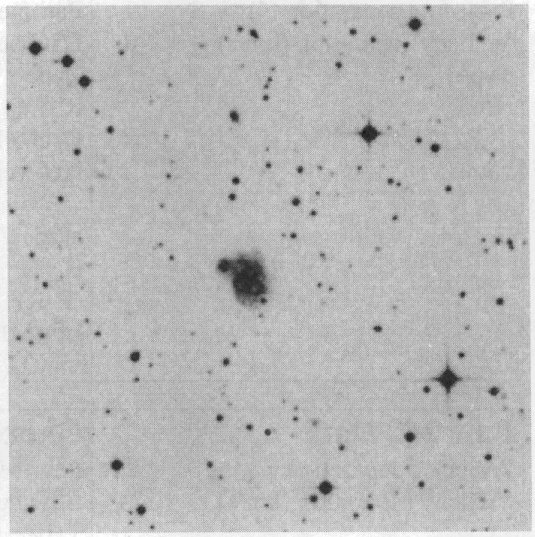

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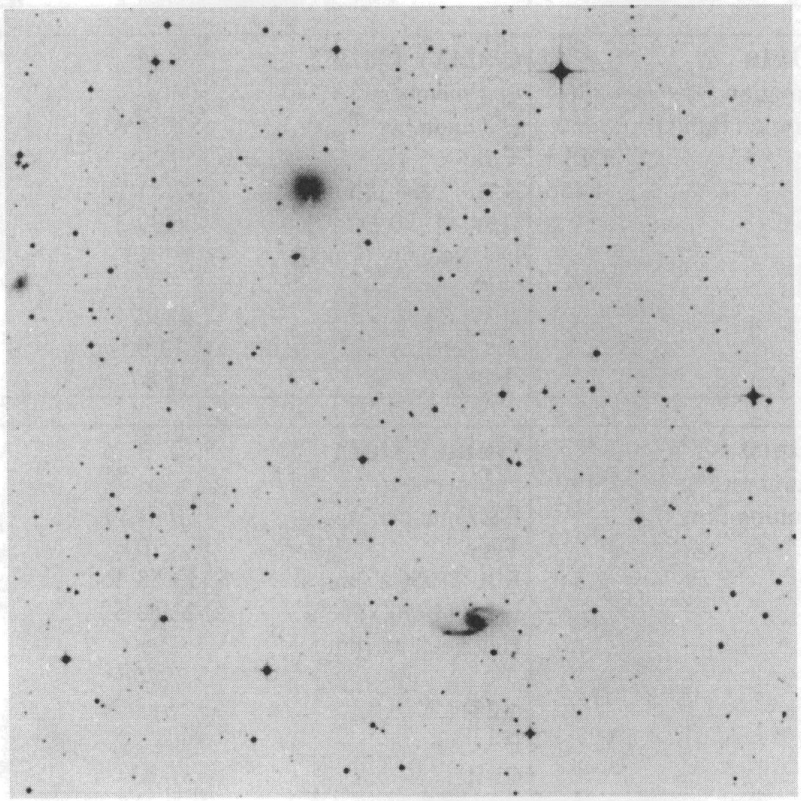

Pair 261 Data		**Galaxy Data**		
Projected separation (")	12	Pair member	**a**	**b**
Velocity separation (km/s)	70	ESO number	2210081	2210080
Type		Type	2.6	1.0
Ntot		R.A. (1950.) (h m s)	13 47 17	13 47 18
		Decl. (1950.) (° ' ")	-48 01 40	-48 01 48
Notes:		Hel. velocity (km/s)	3190dC	3260
				3150F
F7, C+		a(25) (")		67.6
		B	13.38	13.69
		(B-R)	1.04	0.72
		Lfir/MH2		626.09
		logCO/LB		-2.87

Pair 262 Data		**Galaxy Data**		
Projected separation (")	52	Pair member	**a**	**b**
Velocity separation (km/s)	124	ESO number	4450590	4450591
Type		Type	-3.0	1.0
Ntot	15.17	R.A. (1950.) (h m s)	13 48 47	13 48 49
		Decl. (1950.) (° ' ")	-30 14 31	-30 15 17
Notes:		Hel. velocity (km/s)	4531	4655dC
F7, C-		a(25) (")	56.9	71.6
		B	14.92	14.88
		(B-R)	1.89	1.15

Pair 263 Data		**Galaxy Data**		
Projected separation (")	76	Pair member	**a**	**b**
Velocity separation (km/s)	450	ESO number	5100090	5100100
Type	DIS 1	Type	-2.0	-1.0
Ntot	4.456	R.A. (1950.) (h m s)	13 51 29	13 51 29
		Decl. (1950.) (° ' ")	-26 37 37	-26 38 52
Notes:		Hel. velocity (km/s)	6110F	5655
				5660F
F7, C-		a(25) (")	83.2	93.3
		B	13.90	13.69
		(B-R)	1.87	1.41

Pair 265 Data		**Galaxy Data**		
Projected separation (")	130	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	5100430	5100450
Type		Type	5.0	7.3
Ntot	2.546	R.A. (1950.) (h m s)	13 58 46	13 58 49
		Decl. (1950.) (° ' ")	-22 53 52	-22 51 53
Notes:		Hel. velocity (km/s)	2950	
			2970F	
F7, C-		a(25) (")	61.0	58.2
		B	14.63	16.63
		(B-R)	0.83	1.03

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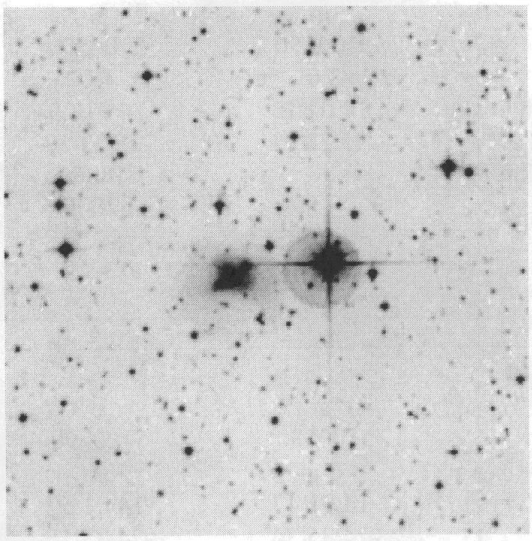

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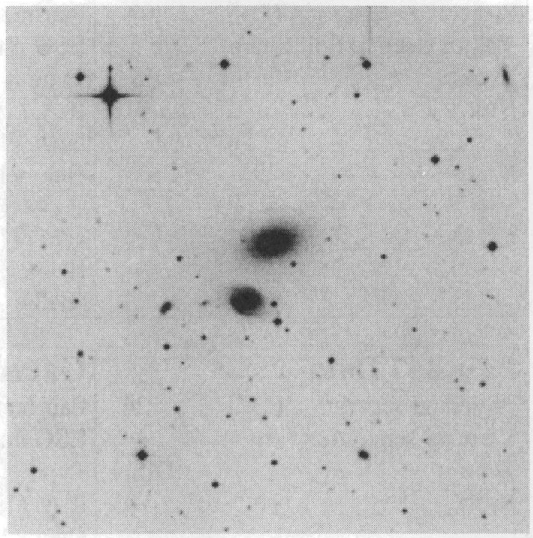

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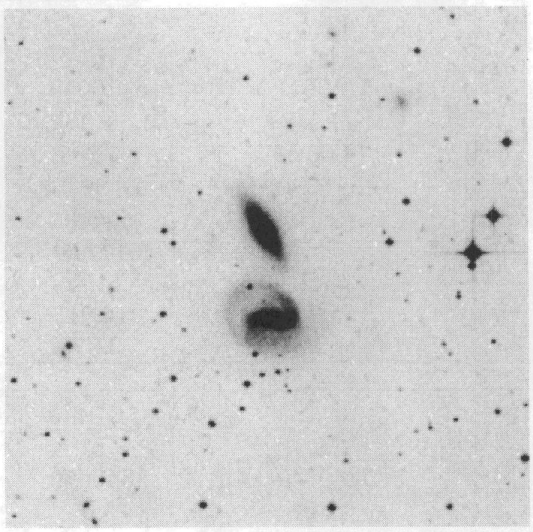

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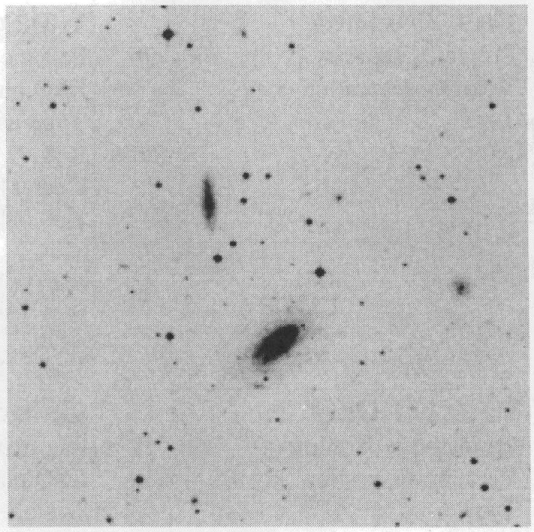

Pair 266 Data		**Galaxy Data**		
Projected separation (")	99	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	5100550	5100560
Type	DIS 1	Type	3.0	1.0
Ntot	5.730	R.A. (1950.) (h m s)	14 01 18	14 01 25
		Decl. (1950.) (° ' ")	-25 23 31	-25 23 59
Notes:		Hel. velocity (km/s)		6188dC
				6200F
F7, C-		a(25) (")	60.3	92.3
		B	15.73	13.98
		(B-R)		

Pair 267 Data		**Galaxy Data**		
Projected separation (")	126	Pair member	**a**	**b**
Velocity separation (km/s)	4	ESO number	5100580	5100590
Type	DIS 1	Type	6.0	6.0
Ntot	3.183	R.A. (1950.) (h m s)	14 01 47	14 01 57
		Decl. (1950.) (° ' ")	-24 35 34	-24 35 16
Notes:		Hel. velocity (km/s)	2333	2337
			2310F	
F7, C+, CCD		a(25) (")	80.4	120.2
		B	14.06	13.49
		(B-R)	1.16	0.56

Pair 270 Data		**Galaxy Data**		
Projected separation (")	74	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	5110011	5110010
Type		Type	1.5	1.0
Ntot	4.456	R.A. (1950.) (h m s)	14 06 53	14 06 57
		Decl. (1950.) (° ' ")	-26 58 44	-26 59 34
Notes:		Hel. velocity (km/s)		6061F
				6172dC
F7, C-		a(25) (")	43.2	51.3
		B	15.71	14.91
		(B-R)	1.26	0.85

Pair 271 Data		**Galaxy Data**		
Projected separation (")	22	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	3840640	3840650
Type		Type	-2.0	3.6
Ntot	12.67	R.A. (1950.) (h m s)	14 09 12	14 09 12
		Decl. (1950.) (° ' ")	-34 01 55	-34 02 16
Notes:		Hel. velocity (km/s)		
F7, C+		a(25) (")	90.2	76.7
		B	14.53	15.51
		(B-R)	1.37	1.53
		Other name	IC 4378	IC 4379

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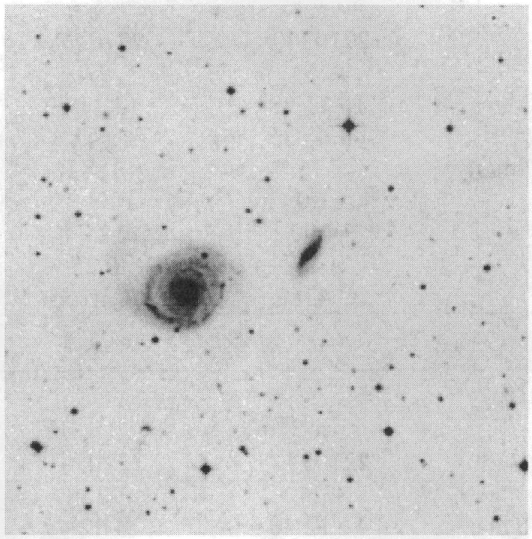

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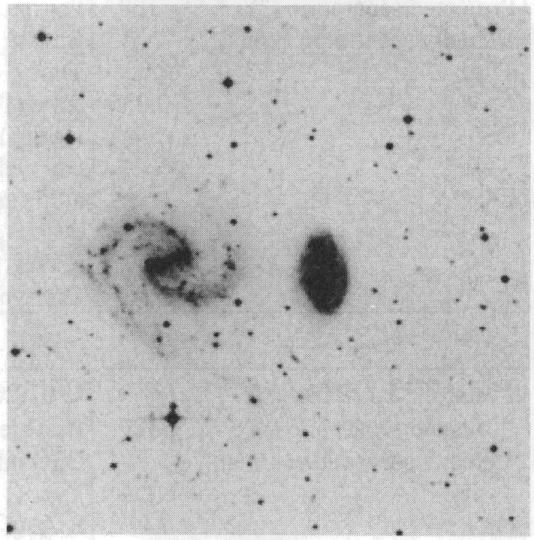

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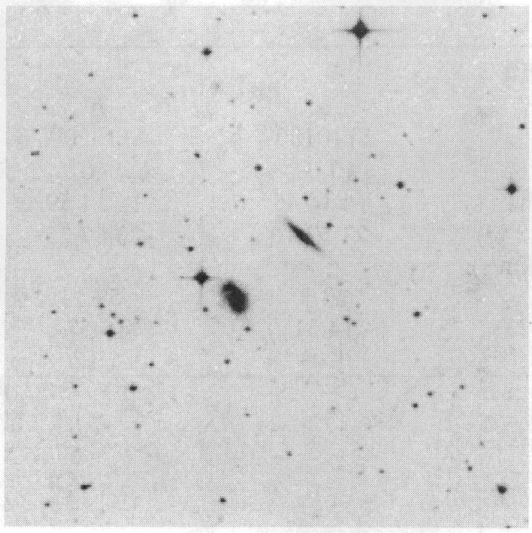

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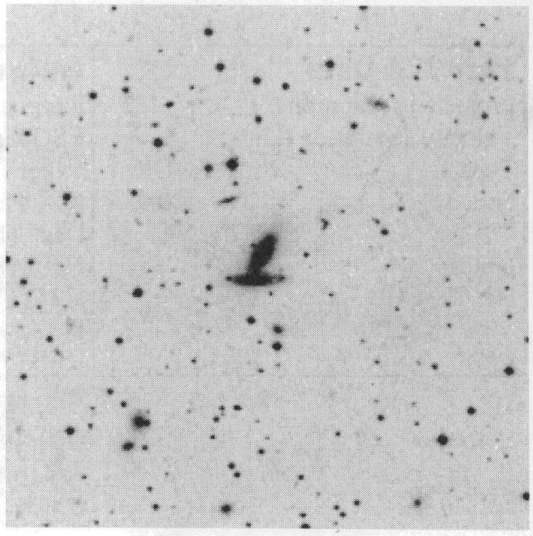
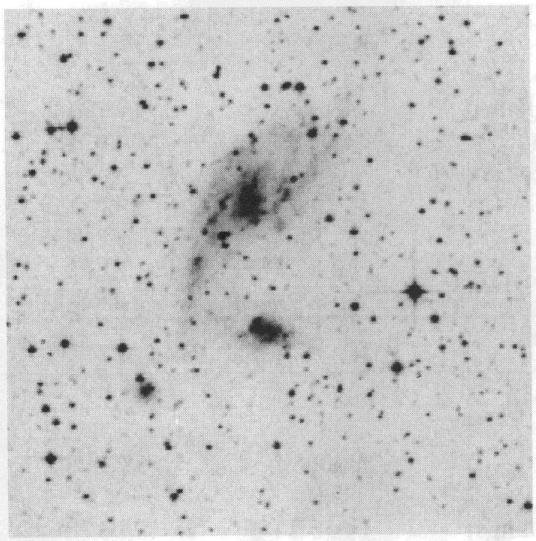


Pair 272 Data		**Galaxy Data**		
Projected separation (")	108	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	2710240	2710250
Type		Type	9.5	8.0
Ntot	0.955	R.A. (1950.) (h m s)	14 11 53	14 11 53
		Decl. (1950.) (° ' ")	-43 45 35	-43 43 47
Notes:		Hel. velocity (km/s)		1882
F7, C-		a(25) (")	61.0	141.3
		B	14.90	12.74
		(B-R)	0.40	0.25
		Other name	IC 4387	IC 4386

Pair 273 Data		**Galaxy Data**		
Projected separation (")	107	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	2210340	2210341
Type		Type	-3.4	-3.4
Ntot	1.273	R.A. (1950.) (h m s)	14 12 40	14 12 49
		Decl. (1950.) (° ' ")	-47 52 58	-47 53 45
Notes:		Hel. velocity (km/s)	4460	
F7, C+, CCD		a(25) (")	127.4	338.8
		B	13.01	12.60
		(B-R)	1.90	1.59
		Other name	NGC 5516	

Pair 274 Data		**Galaxy Data**		
Projected separation (")	139	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	5110180	5110200
Type	DIS 1	Type	3.0	3.0
Ntot	0.955	R.A. (1950.) (h m s)	14 14 48	14 14 59
		Decl. (1950.) (° ' ")	-23 57 10	-23 57 25
Notes:		Hel. velocity (km/s)		
F7, C+, CCD		a(25) (")	63.8	53.1
		B	14.51	15.57
		(B-R)	1.03	1.17

272



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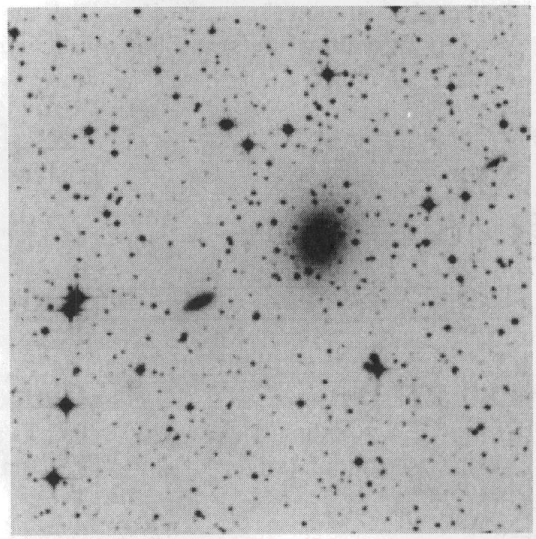

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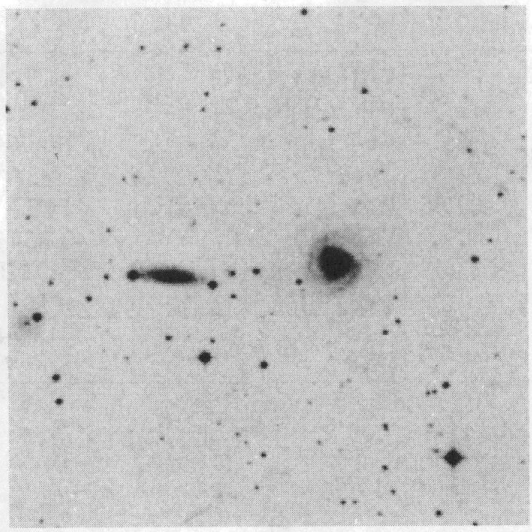

Pair 276 Data		Galaxy Data		
Projected separation (")	531	Pair member	**a**	**b**
Velocity separation (km/s)	126	ESO number	3850150	3850170
Type		Type	1.0	-5.0
Ntot	1.910	R.A. (1950.) (h m s)	14 19 25	14 20 02
		Decl. (1950.) (° ' ")	-34 08 13	-34 03 46
Notes:		Hel. velocity (km/s)	4066F	3940F
				3924dC
F14, C-		a(25) (")	113.5	68.4
		B	13.87	14.05
		(B-R)	1.52	1.68

Pair 277 Data		Galaxy Data		
Projected separation (")	220	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	5800050	5800060
Type		Type	5.0	4.8
Ntot	1.592	R.A. (1950.) (h m s)	14 35 24	14 35 36
		Decl. (1950.) (° ' ")	-22 06 28	-22 09 07
Notes:		Hel. velocity (km/s)		2447
F7, C-		a(25) (")	74.1	146.2
		B	15.52	13.78
		(B-R)	0.77	1.19
		Other name		IC 4468

Pair 278 Data		Galaxy Data		
Projected separation (")	217	Pair member	**a**	**b**
Velocity separation (km/s)	441	ESO number	3860040	3860060
Type		Type	-2.0	2.3
Ntot	0.955	R.A. (1950.) (h m s)	14 37 25	14 37 42
		Decl. (1950.) (° ' ")	-34 54 35	-34 56 06
Notes:		Hel. velocity (km/s)	4017F	4458F
F7, C-, CCD		a(25) (")	71.6	97.7
		B	13.74	14.91
		(B-R)	1.67	1.56

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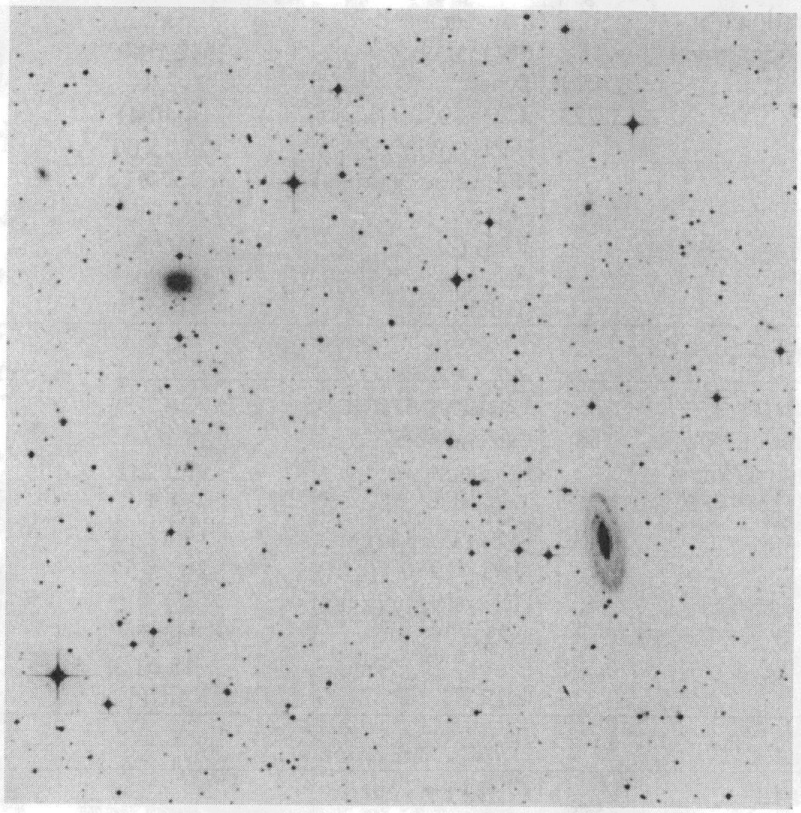

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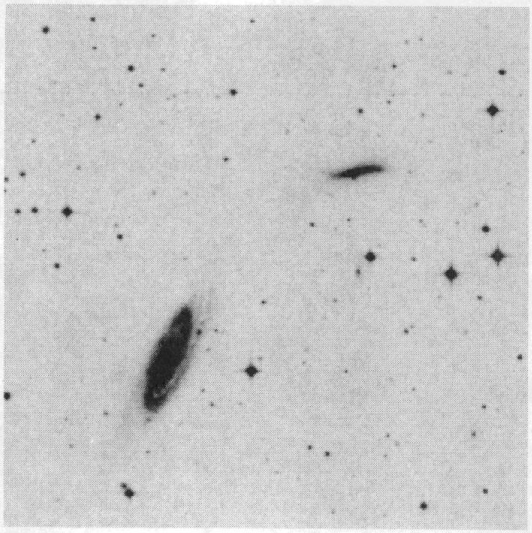

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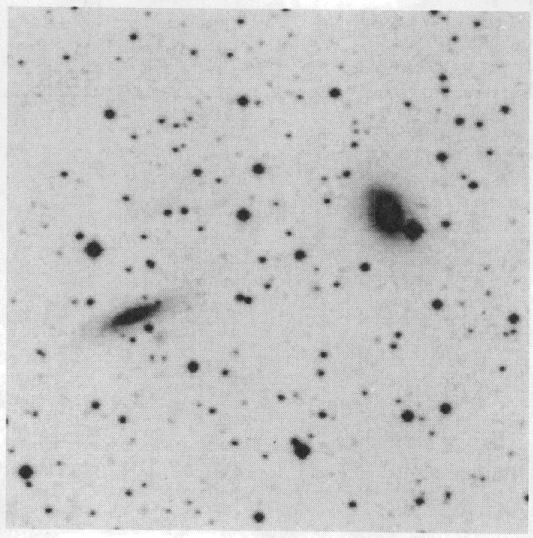

Pair 280 Data		**Galaxy Data**		
Projected separation (")	32	Pair member	**a**	**b**
Velocity separation (km/s)	48	ESO number	5120180	5120190
Type	DIS 1	Type	-2.0	1.0
Ntot	1.273	R.A. (1950.) (h m s)	14 40 41	14 40 42
		Decl. (1950.) (° ' ")	-24 15 00	-24 15 17
Notes:		Hel. velocity (km/s)	3570F	3618F
			3654dC	
F7, C+, CCD		a(25) (")	192.8	179.9
		B	12.96	13.05
		(B-R)	1.59	1.37

Pair 281 Data		**Galaxy Data**		
Projected separation (")	54	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	5120231	5120230
Type		Type	3.5	1.0
Ntot	0.318	R.A. (1950.) (h m s)	14 48 14	14 48 17
		Decl. (1950.) (° ' ")	-26 25 55	-26 25 30
Notes:		Hel. velocity (km/s)		2611F
F7, C+		a(25) (")	41.2	88.1
		B	15.61	14.17
		(B-R)	1.01	1.52

Pair 283 Data		**Galaxy Data**		
Projected separation (")	351	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	5140170	5140180
Type		Type	1.0	3.0
Ntot	0.637	R.A. (1950.) (h m s)	15 23 59	15 24 10
		Decl. (1950.) (° ' ")	-23 35 06	-23 29 49
Notes:		Hel. velocity (km/s)		
F14, C+, CCD		a(25) (")	74.1	66.1
		B	14.84	15.30
		(B-R)	1.30	1.26

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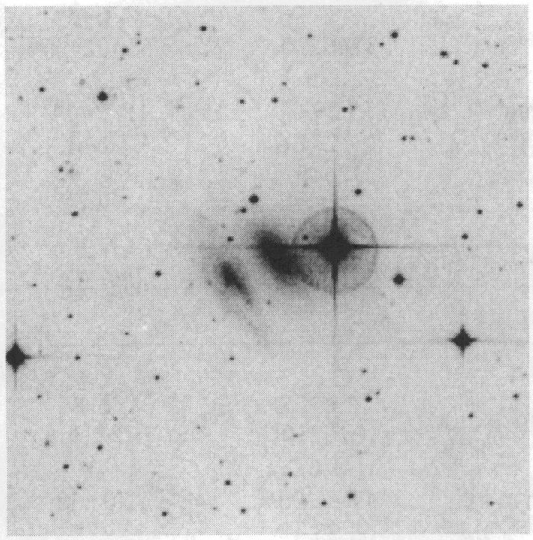

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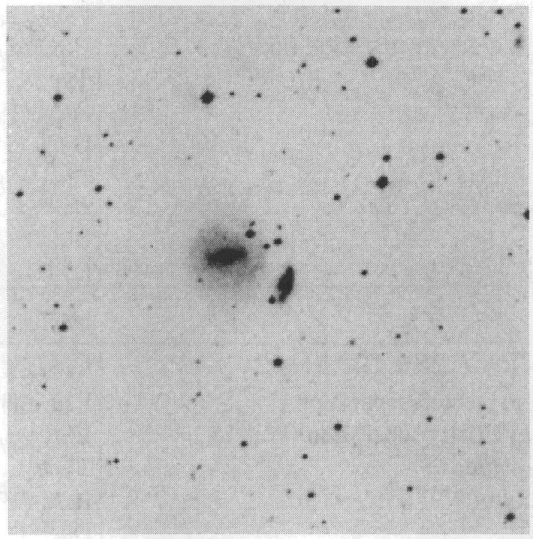

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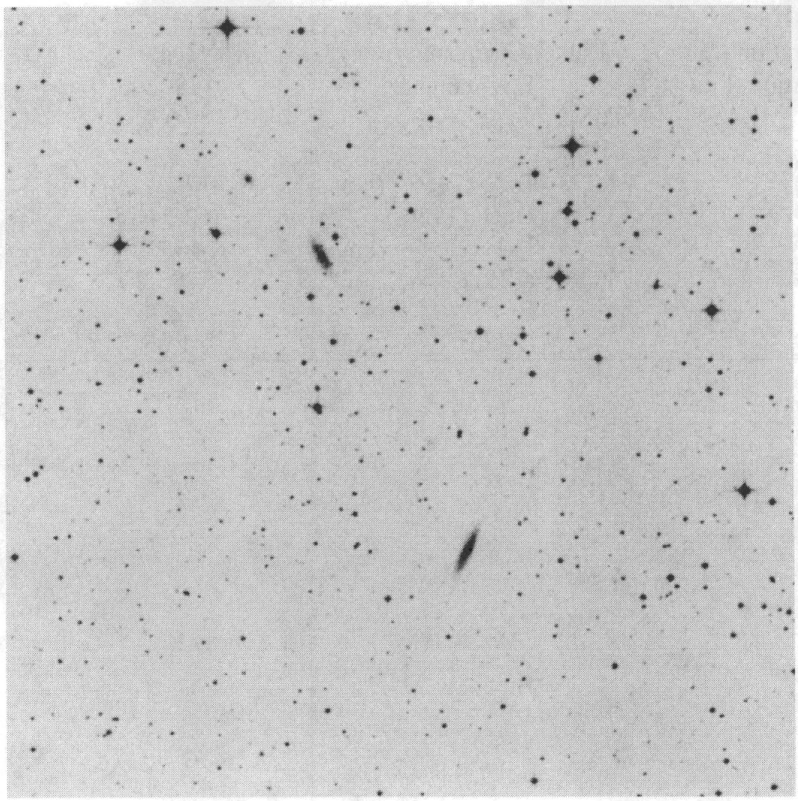

Pair 284 Data		**Galaxy Data**		
Projected separation (")	101	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	5140230	5140240
Type		Type	6.0	2.6
Ntot	0.318	R.A. (1950.) (h m s)	15 29 01	15 29 04
		Decl. (1950.) (° ' ")	-27 27 36	-27 29 13
Notes:		Hel. velocity (km/s)	3764F	
F7, C+, CCD		a(25) (")	127.4	61.7
		B	14.52	15.49
		(B-R)	0.98	0.92

Pair 286 Data		**Galaxy Data**		
Projected separation (")	31	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	1010210	1010211
Type		Type	-1.6	1.2
Ntot		R.A. (1950.) (h m s)	17 01 06	17 01 11
		Decl. (1950.) (° ' ")	-63 23 13	-63 23 27
Notes:		Hel. velocity (km/s)		
F7, C+		a(25) (")	64.6	29.5
		B	14.64	15.15
		(B-R)	1.78	1.62

Pair 287 Data		**Galaxy Data**		
Projected separation (")	174	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	1380290	1380300
Type	DIS 2 LIN br	Type	-0.7	1.9
Ntot	1.273	R.A. (1950.) (h m s)	17 24 29	17 24 45
		Decl. (1950.) (° ' ")	-62 24 18	-62 26 31
Notes:		Hel. velocity (km/s)	4637F	
F7, C+, CCD		a(25) (")	186.2	112.2
		B	12.76	13.96
		(B-R)	1.65	-0.38

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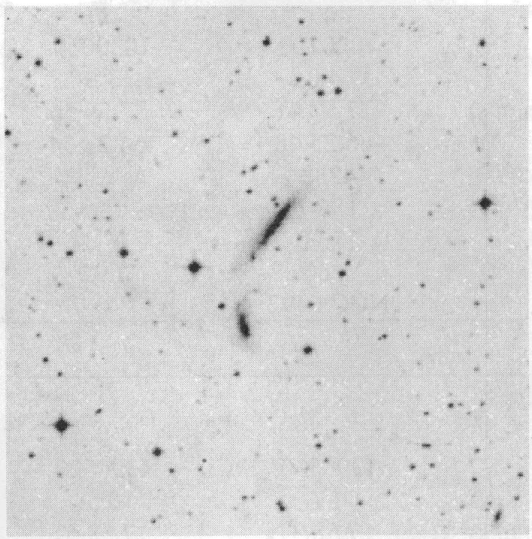

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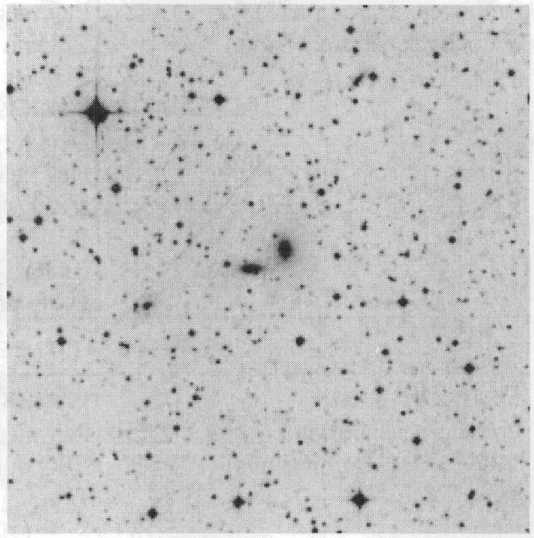

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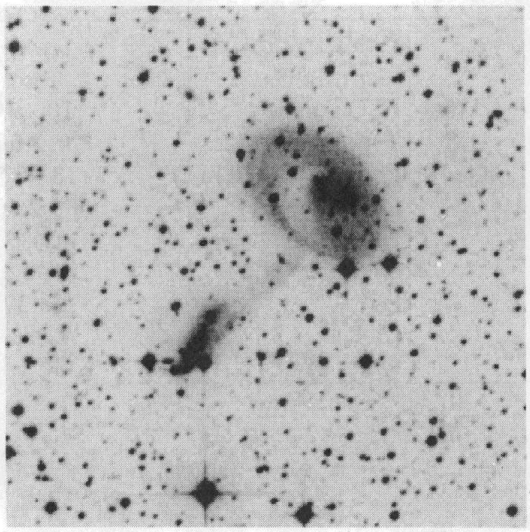

Pair 288 Data		**Galaxy Data**		
Projected separation (")	472	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	1020220	1030010
Type		Type	4.0	3.0
Ntot	0.318	R.A. (1950.) (h m s)	17 57 41	17 58 56
		Decl. (1950.) (° ' ")	-66 25 48	-66 27 54
Notes:		Hel. velocity (km/s)	4282	
F14, C-		a(25) (")	156.7	54.3
		B	12.90	16.04
		(B-R)	1.60	1.30
		Other name	NGC 6492	

Pair 289 Data		**Galaxy Data**		
Projected separation (")	275	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	1390510	1390520
Type		Type	4.7	6.5
Ntot	3.183	R.A. (1950.) (h m s)	17 58 37	17 58 41
		Decl. (1950.) (° ' ")	-58 01 55	-58 06 28
Notes:		Hel. velocity (km/s)	4584F	
F7, C-		a(25) (")	73.3	58.2
		B	14.95	16.11
		(B-R)	0.69	0.83

Pair 290 Data		**Galaxy Data**		
Projected separation (")	35	Pair member	**a**	**b**
Velocity separation (km/s)	75	ESO number	100010	100020
Type	DIS 1	Type	-2.0	10.0
Ntot	0.318	R.A. (1950.) (h m s)	18 05 50	18 06 18
		Decl. (1950.) (° ' ")	-85 25 04	-85 25 19
Notes:		Hel. velocity (km/s)	2437	2512
F7, C+, CCD		a(25) (")	100.0	211.3
RS92		B	13.37	12.57
		(B-R)	1.53	1.17
		Other name	NGC 6438	

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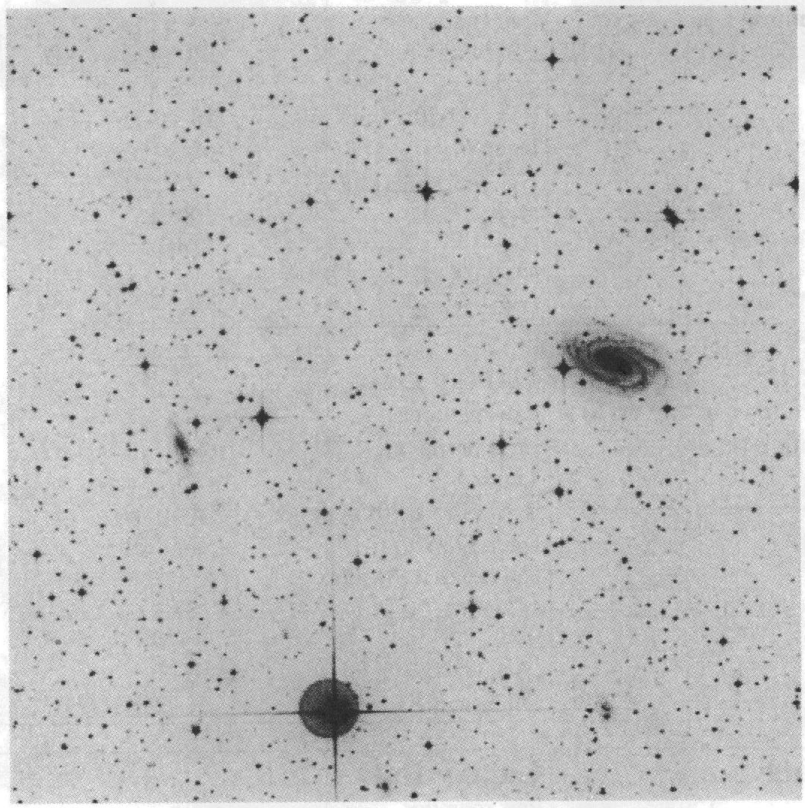

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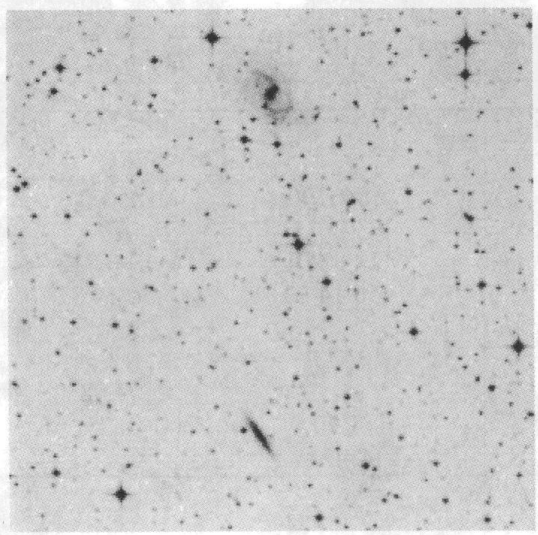

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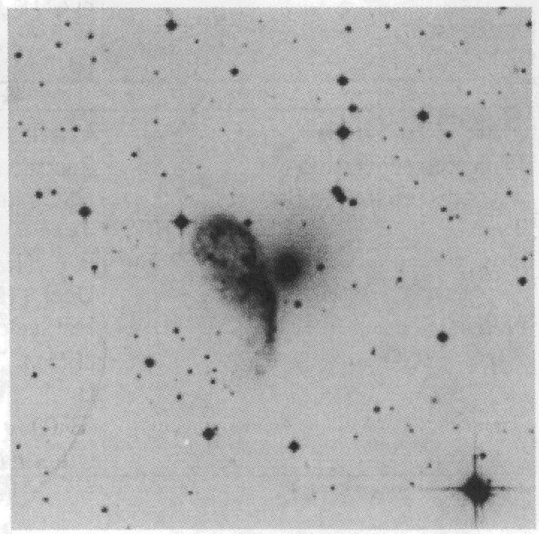

Pair 292 Data		**Galaxy Data**		
Projected separation (")	257	Pair member	**a**	**b**
Velocity separation (km/s)	3191	ESO number	1400430	1400440
Type		Type	2.6	-4.0
Ntot	11.33	R.A. (1950.) (h m s)	18 40 15	18 40 28
		Decl. (1950.) (° ' ")	-62 24 53	-62 20 52
Notes:		Hel. velocity (km/s)	4305	1114
F7, C-, OP, CCD		a(25) (")	85.1	149.6
		B	14.14	12.69
		(B-R)	1.20	1.59
		Other name		NGC 6673

Pair 293 Data		**Galaxy Data**		
Projected separation (")	70	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	1830170	1830180
Type		Type	6.7	6.0
Ntot	0.955	R.A. (1950.) (h m s)	18 46 41	18 46 45
		Decl. (1950.) (° ' ")	-55 34 01	-55 32 59
Notes:		Hel. velocity (km/s)		
F7, C+, CCD		a(25) (")	83.2	75.0
		B	15.84	14.73
		(B-R)	0.70	0.48
		Other name		IC 4782

Pair 295 Data		**Galaxy Data**		
Projected separation (")	47	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	2310141	2310140
Type		Type	0.0	-4.0
Ntot	12.83	R.A. (1950.) (h m s)	18 56 48	18 56 50
		Decl. (1950.) (° ' ")	-49 10 55	-49 10 12
Notes:		Hel. velocity (km/s)		
F7, C+		a(25) (")	169.8	
		B	13.93	14.96
		(B-R)	1.61	1.65

Pair 296 Data		**Galaxy Data**		
Projected separation (")	86	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	1840100	1840110
Type	DIS 2	Type	4.0	9.5
Ntot	2.546	R.A. (1950.) (h m s)	19 02 01	19 02 12
		Decl. (1950.) (° ' ")	-56 14 13	-56 14 31
Notes:		Hel. velocity (km/s)		2638F
F7, C-, CCD		a(25) (")	104.7	95.5
		B	14.52	13.98
		(B-R)	1.20	1.35
		Other name	IC 4817	

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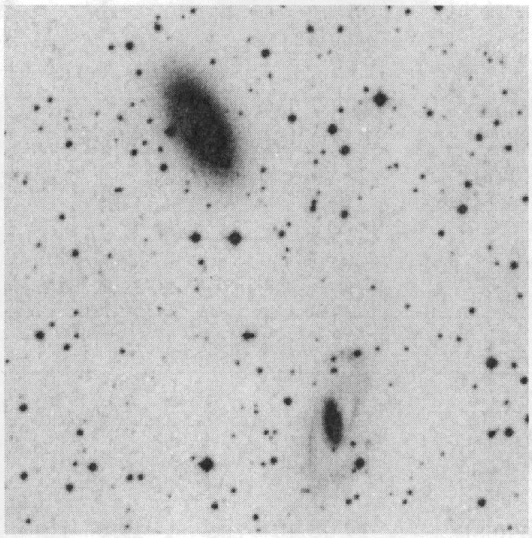

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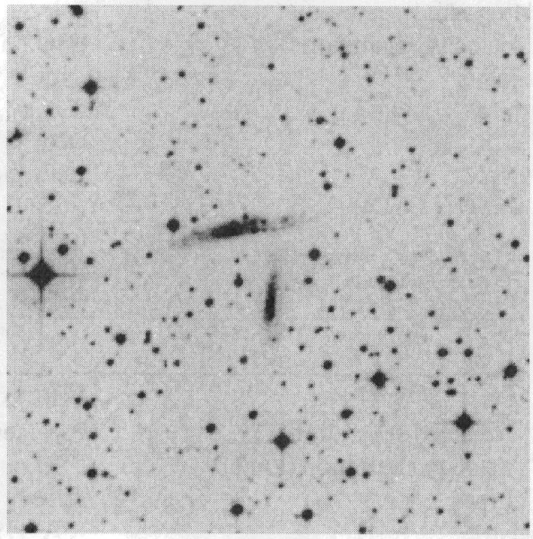

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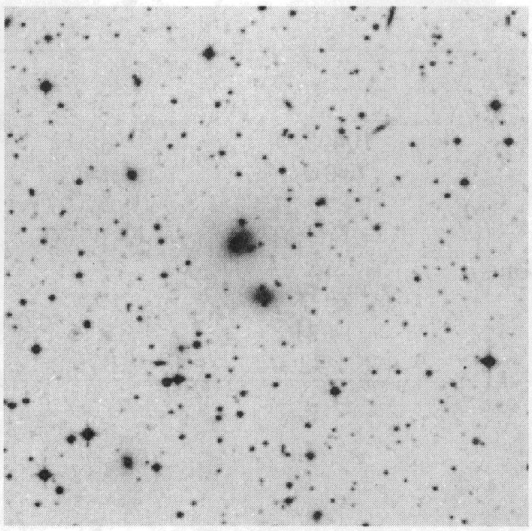

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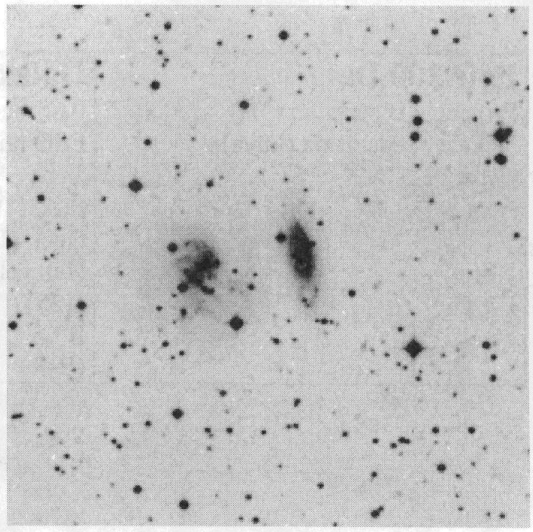

Pair 298 Data		**Galaxy Data**		
Projected separation (")	31	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	1040451	1040450
Type	ATM	Type	0.3	-3.0
Ntot		R.A. (1950.) (h m s)	19 07 28	19 07 30
		Decl. (1950.) (° ' ")	-64 04 15	-64 03 46
Notes:		Hel. velocity (km/s)		
F7, C+, CCD		a(25) (")	46.8	71.6
		B	15.59	14.68
		(B-R)	1.42	1.63
		Other name		IC 4823

Pair 299 Data		**Galaxy Data**		
Projected separation (")	18	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	1840321	1840320
Type	DIS 1	Type	1.7	-0.3
Ntot		R.A. (1950.) (h m s)	19 08 40	19 08 41
		Decl. (1950.) (° ' ")	-53 57 00	-53 57 17
Notes:		Hel. velocity (km/s)		7203
				7300F
F7, C+		a(25) (")	69.2	105.9
		B	14.78	14.74
		(B-R)	1.21	1.50

Pair 300 Data		**Galaxy Data**		
Projected separation (")	30	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	1040510	1040511
Type		Type	-0.5	0.4
Ntot		R.A. (1950.) (h m s)	19 20 23	19 20 27
		Decl. (1950.) (° ' ")	-63 04 01	-63 03 39
Notes:		Hel. velocity (km/s)		
F7, C-		a(25) (")	61.7	59.6
		B	14.81	15.05
		(B-R)	1.72	1.76

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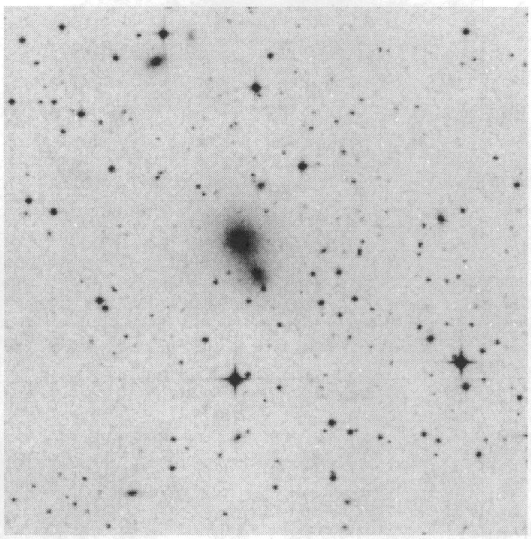

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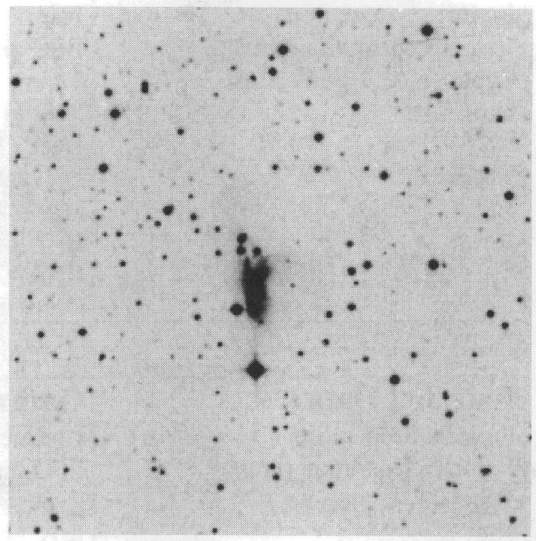

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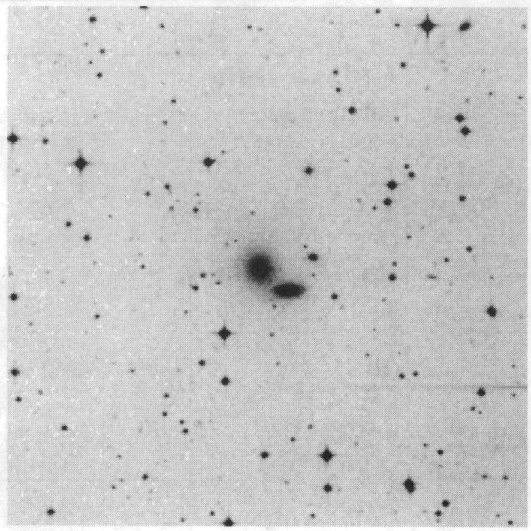

Pair 301 Data		**Galaxy Data**		
Projected separation (")	646	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	1040520	1040530
Type		Type	5.7	-3.7
Ntot	1.910	R.A. (1950.) (h m s)	19 20 25	19 20 37
		Decl. (1950.) (° ' ")	-63 46 55	-63 57 36
Notes:		Hel. velocity (km/s)		5450
F14, C-		a(25) (")	86.1	110.9
		B	14.85	13.19
		(B-R)	1.23	1.60
		Other name		NGC 6776

Pair 302 Data		**Galaxy Data**		
Projected separation (")	41	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	1040550	1040551
Type		Type	-2.3	-0.6
Ntot		R.A. (1950.) (h m s)	19 21 42	19 21 46
		Decl. (1950.) (° ' ")	-65 43 22	-65 42 54
Notes:		Hel. velocity (km/s)		
F7, C+		a(25) (")	49.5	57.5
		B	15.02	14.84
		(B-R)	1.65	1.68
		Other name	NGC 6784	

Pair 303 Data		**Galaxy Data**		
Projected separation (")	176	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	1050010	1050030
Type	DIS 1	Type	5.0	4.3
Ntot	0.955	R.A. (1950.) (h m s)	19 26 25	19 26 37
		Decl. (1950.) (° ' ")	-67 28 29	-67 25 48
Notes:		Hel. velocity (km/s)		
F7, C+, CCD, CPRS94		a(25) (")	58.2	94.4
		B	14.68	14.58
		(B-R)	0.91	1.15
		Lfir/MH2		4.51
		logCO/LB		-1.18
		Other name	IC 4860	IC 4862

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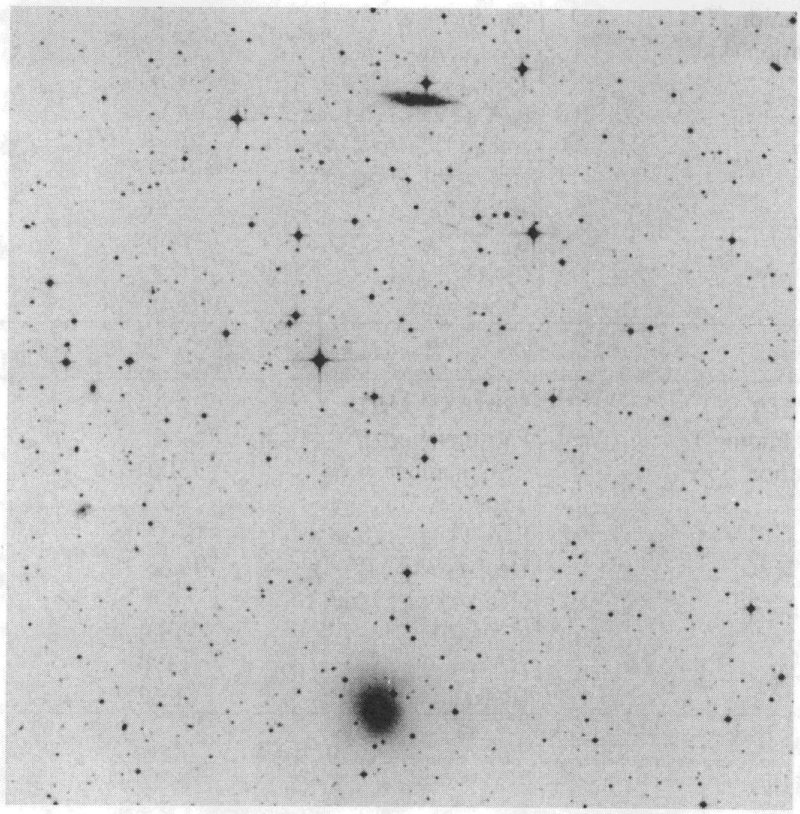

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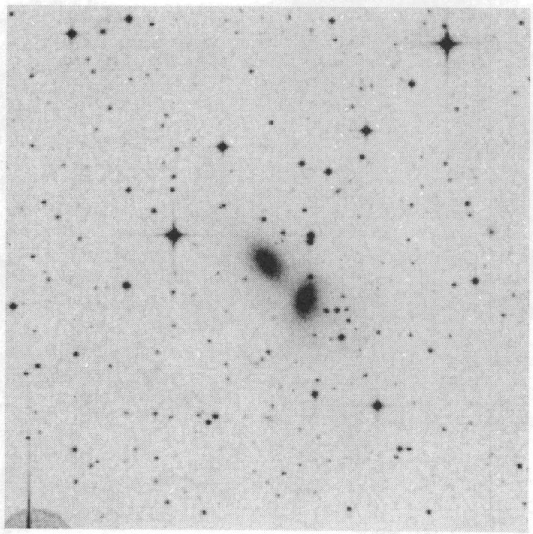

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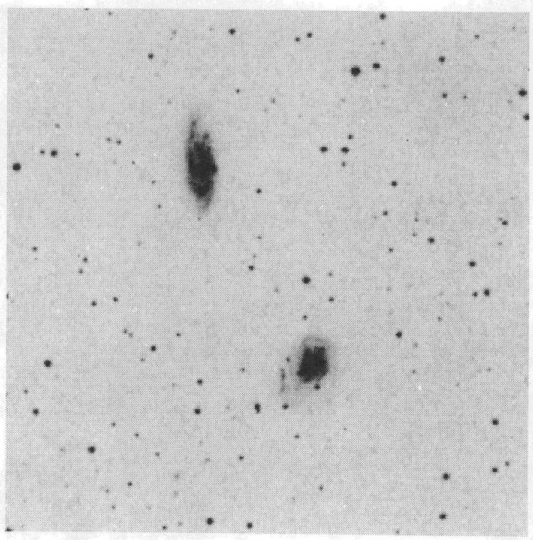
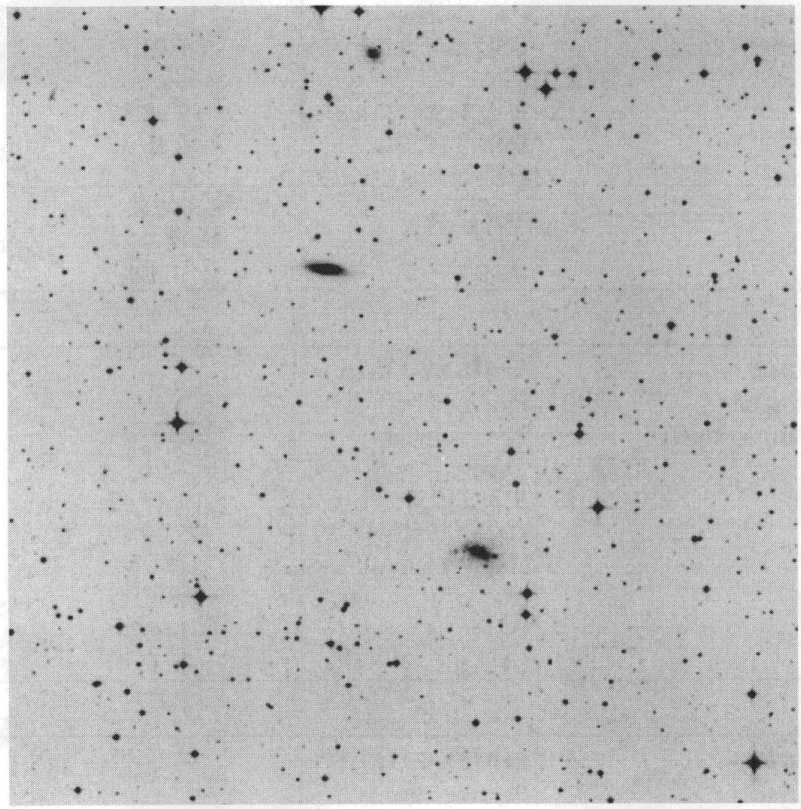


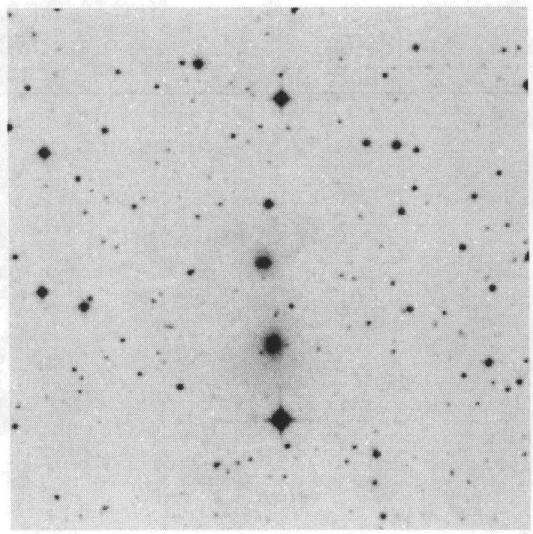
Pair 304 Data		**Galaxy Data**		
Projected separation (")	341	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	2320120	2320140
Type		Type	10.0	-2.0
Ntot	1.910	R.A. (1950.) (h m s)	19 33 47	19 34 04
		Decl. (1950.) (° ' ")	-52 11 13	-52 06 10
Notes:		Hel. velocity (km/s)		
F14, C-		a(25) (")	67.6	93.3
		B	14.54	14.61
		(B-R)	0.95	1.15
		Other name	IC 4875	IC 4877

Pair 305 Data		**Galaxy Data**		
Projected separation (")	66	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	730010	730011
Type		Type	-0.3	-0.5
Ntot	1.592	R.A. (1950.) (h m s)	19 35 16	19 35 18
		Decl. (1950.) (° ' ")	-70 33 18	-70 32 13
Notes:		Hel. velocity (km/s)		
F7, C-		a(25) (")	79.4	30.5
		B	14.48	15.72
		(B-R)	1.62	1.79

304



305

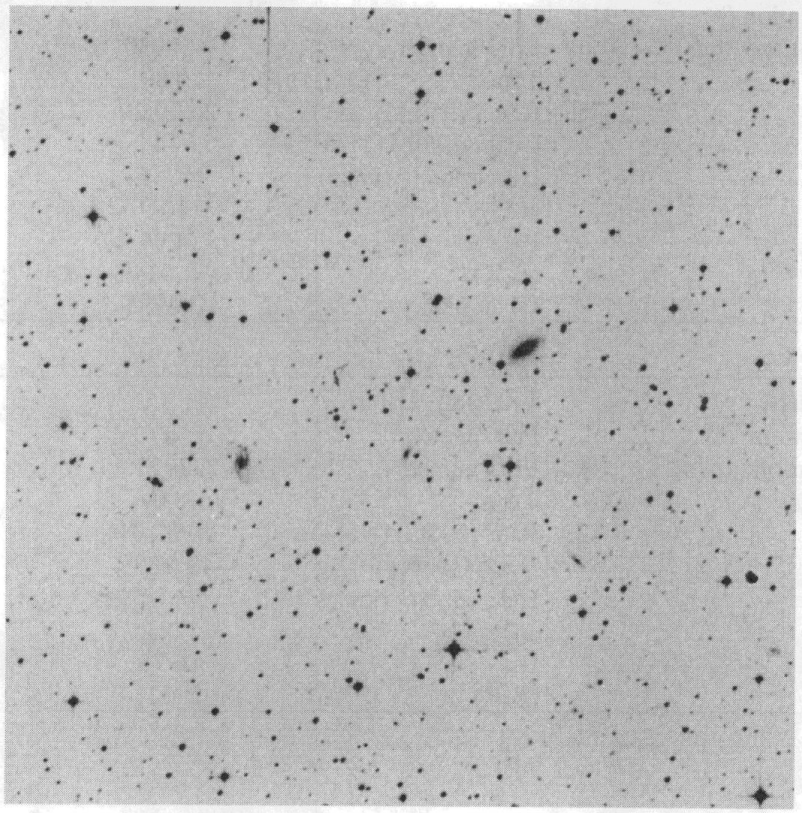


Pair 306 Data		**Galaxy Data**		
Projected separation (")	333	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	2830150	2830160
Type		Type	-2.0	6.0
Ntot	0.318	R.A. (1950.) (h m s)	19 38 37	19 39 07
		Decl. (1950.) (° ' ")	-46 16 37	-46 18 36
Notes:		Hel. velocity (km/s)		
F14, C+		a(25) (")	46.8	38.5
		B	14.90	16.50
		(B-R)	1.42	0.94

Pair 307 Data		**Galaxy Data**		
Projected separation (")	140	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	2830190	2830200
Type	DIS 1	Type	-1.0	-4.0
Ntot	0.318	R.A. (1950.) (h m s)	19 47 47	19 47 54
		Decl. (1950.) (° ' ")	-45 00 18	-44 58 19
Notes:		Hel. velocity (km/s)		
F7, C+, CCD		a(25) (")	61.0	82.2
		B	14.82	13.99
		(B-R)	1.19	1.49

Pair 308 Data		**Galaxy Data**		
Projected separation (")	8	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	1850430	1850431
Type	DIS 1	Type	8.0	7.0
Ntot	5.411	R.A. (1950.) (h m s)	19 56 11	19 56 11
		Decl. (1950.) (° ' ")	-55 30 43	-55 30 50
Notes:		Hel. velocity (km/s)		
F7, C+		a(25) (")	90.2	73.3
		B	15.03	14.58
		(B-R)	0.72	1.10
		Other name	IC 4919	

306



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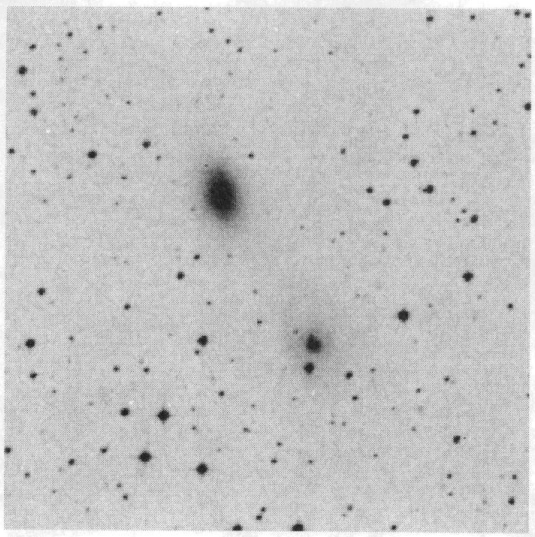
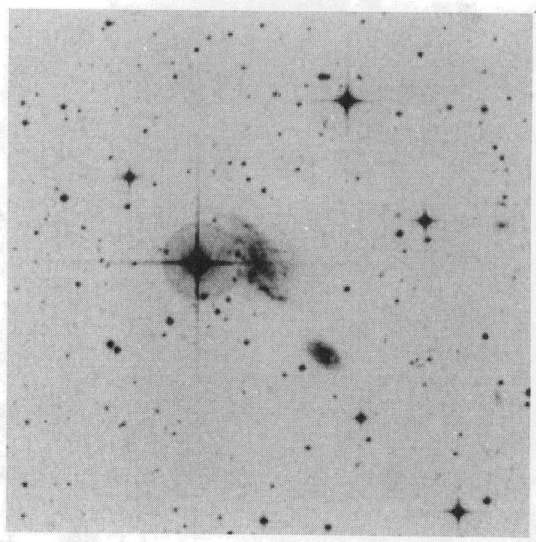


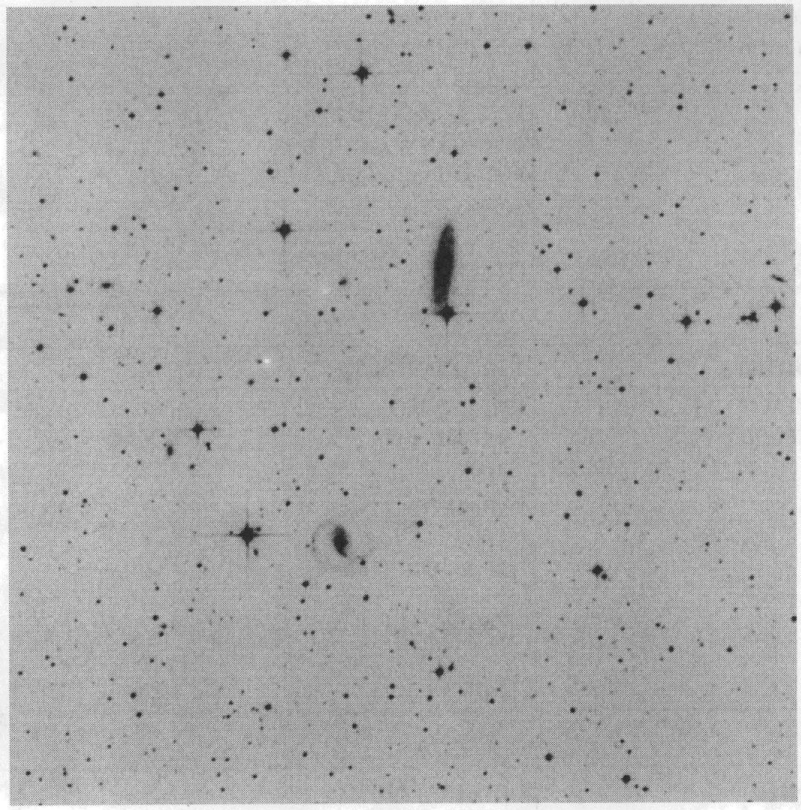
308



Pair 309 Data		**Galaxy Data**		
Projected separation (")	310	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	1430030	1430040
Type		Type	0.8	5.0
Ntot	0.955	R.A. (1950.) (h m s)	20 00 29	20 00 41
		Decl. (1950.) (° ' ")	-57 44 24	-57 49 19
Notes:		Hel. velocity (km/s)	4573F	
F14, C-		a(25) (")	110.9	39.4
		B	14.04	15.19
		(B-R)	1.61	1.35
		Other name	IC 4935	

Pair 311 Data		**Galaxy Data**		
Projected separation (")	91	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	2330230	2330250
Type	DIS 1	Type	8.0	4.0
Ntot	3.820	R.A. (1950.) (h m s)	20 02 01	20 02 11
		Decl. (1950.) (° ' ")	-48 07 19	-48 07 19
Notes:		Hel. velocity (km/s)		
F7, C-		a(25) (")	60.3	84.1
		B	16.76	14.88
		(B-R)	1.31	

309



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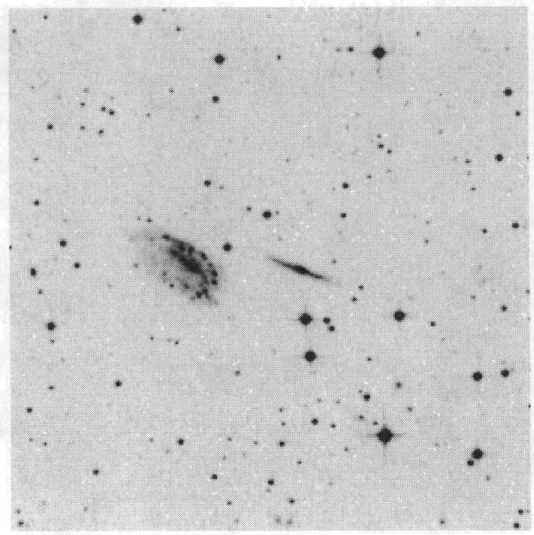
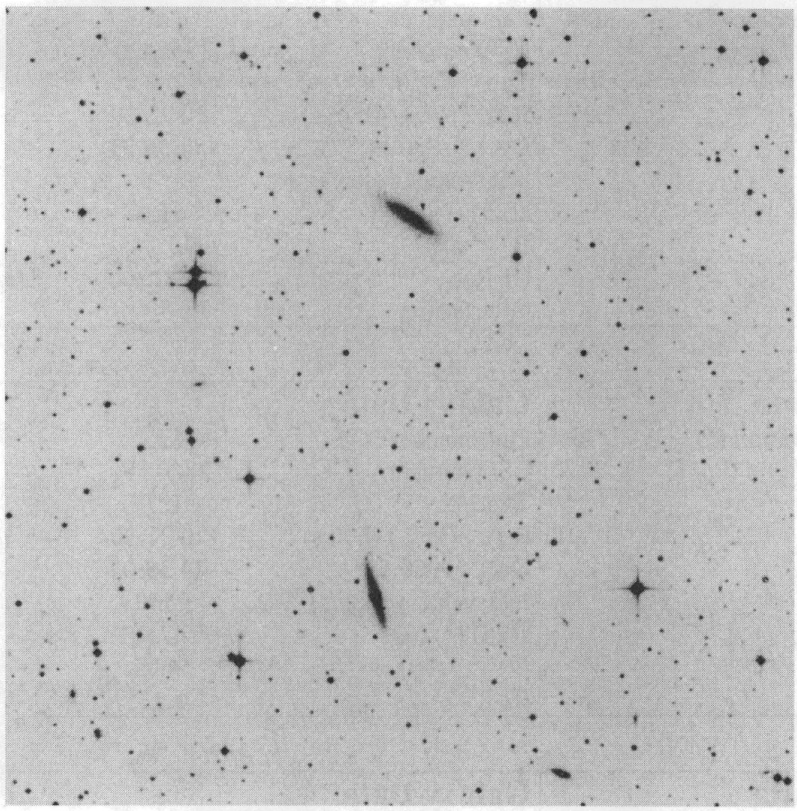


Pair 312 Data		**Galaxy Data**		
Projected separation (")	392	Pair member	**a**	**b**
Velocity separation (km/s)	1839	ESO number	2330360	2330370
Type		Type	2.0	3.0
Ntot	11.00	R.A. (1950.) (h m s)	20 05 54	20 05 59
		Decl. (1950.) (° ' ")	-49 22 11	-49 2840
Notes:		Hel. velocity (km/s)	3200	5039dC
F14, C-, OP		a(25) (")	92.3	88.1
		B	14.77	14.56
		(B-R)		1.30

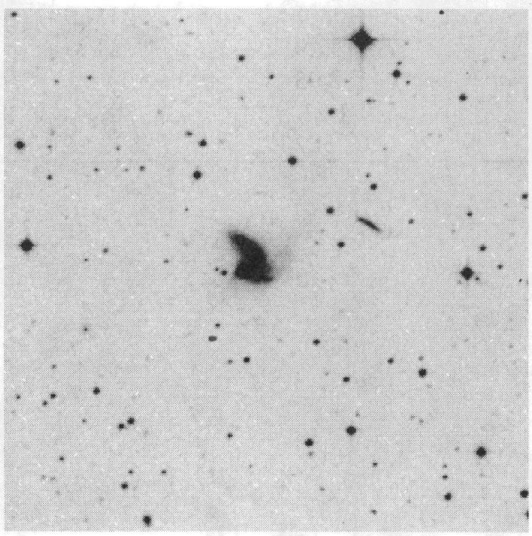
Pair 313 Data		**Galaxy Data**		
Projected separation (")	18	Pair member	**a**	**b**
Velocity separation (km/s)	82	ESO number	2840410	2840411
Type	DIS 2	Type	-1.9	1.0
Ntot		R.A. (1950.) (h m s)	20 12 49	20 12 50
		Decl. (1950.) (° ' ")	-44 27 17	-44 27 32
Notes:		Hel. velocity (km/s)	5327	5387F
			5305F	
F7, C+		a(25) (")	70.0	39.8
		B	13.71	15.22
		(B-R)	1.53	1.46

Pair 314 Data		**Galaxy Data**		
Projected separation (")	84	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	2840500	2840510
Type		Type	3.0	-3.0
Ntot	2.865	R.A. (1950.) (h m s)	20 14 31	20 14 33
		Decl. (1950.) (° ' ")	-45 39 07	-45 40 29
Notes:		Hel. velocity (km/s)		5122dC
F7, C-		a(25) (")	66.8	50.7
		B	15.62	14.61
		(B-R)	0.91	1.33

312



313



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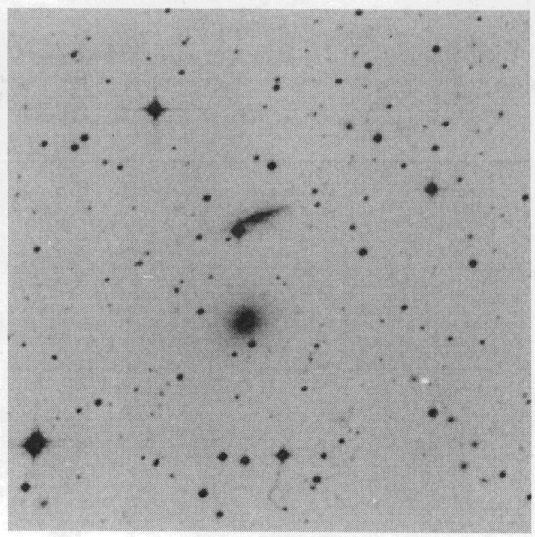
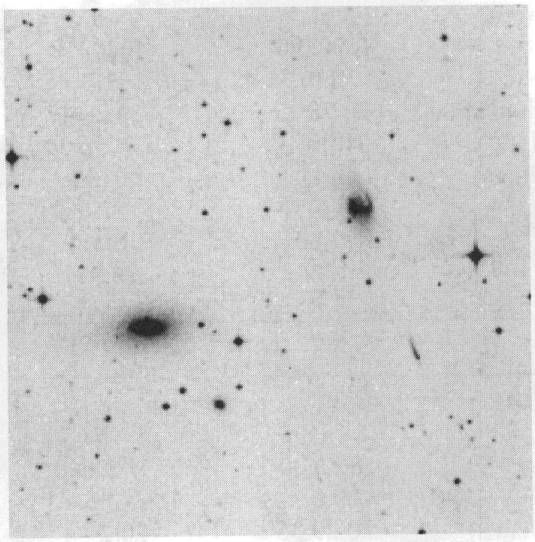


Pair 316 Data		**Galaxy Data**		
Projected separation (")	194	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	1860420	1860440
Type	DIS 1	Type	0.0	-2.0
Ntot	1.273	R.A. (1950.) (h m s)	20 22 29	20 22 48
		Decl. (1950.) (° ' ")	-54 56 23	-54 57 54
Notes:		Hel. velocity (km/s)		4612F
F7, C-		a(25) (")	61.0	68.4
		B	15.24	14.22
		(B-R)	1.19	1.54
		Other name	IC 5001	IC 5002

Pair 318 Data		**Galaxy Data**		
Projected separation (")	76	Pair member	**a**	**b**
Velocity separation (km/s)	247	ESO number	2850230	2850240
Type		Type	0.7	-3.0
Ntot	3.501	R.A. (1950.) (h m s)	20 27 20	20 27 20
		Decl. (1950.) (° ' ")	-44 33 07	-44 34 22
Notes:		Hel. velocity (km/s)	9500	9053dC
F7, C-		a(25) (")	47.9	56.2
		B	14.65	14.69
		(B-R)	1.33	1.64

Pair 319 Data		**Galaxy Data**		
Projected separation (")	438	Pair member	**a**	**b**
Velocity separation (km/s)	111	ESO number	4000340	4000370
Type		Type	4.0	6.0
Ntot	2.228	R.A. (1950.) (h m s)	20 27 29	20 28 04
		Decl. (1950.) (° ' ")	-33 39 10	-33 38 49
Notes:		Hel. velocity (km/s)	3091	3202
			3080F	3136F
F14, C-		a(25) (")	142.9	93.3
		B	12.95	14.58
		(B-R)	1.21	0.94
		Other name	IC 5020	

316



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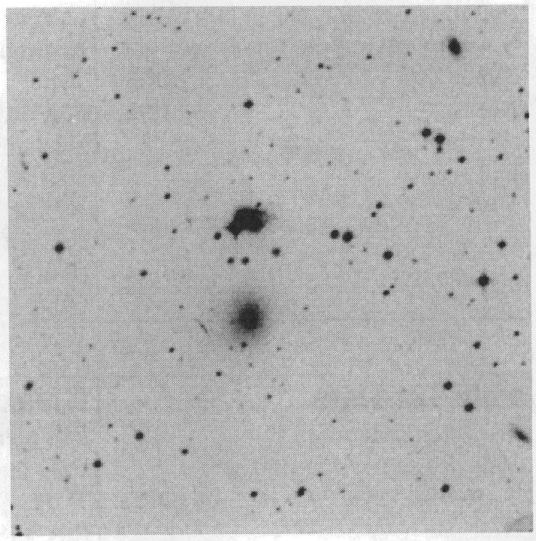

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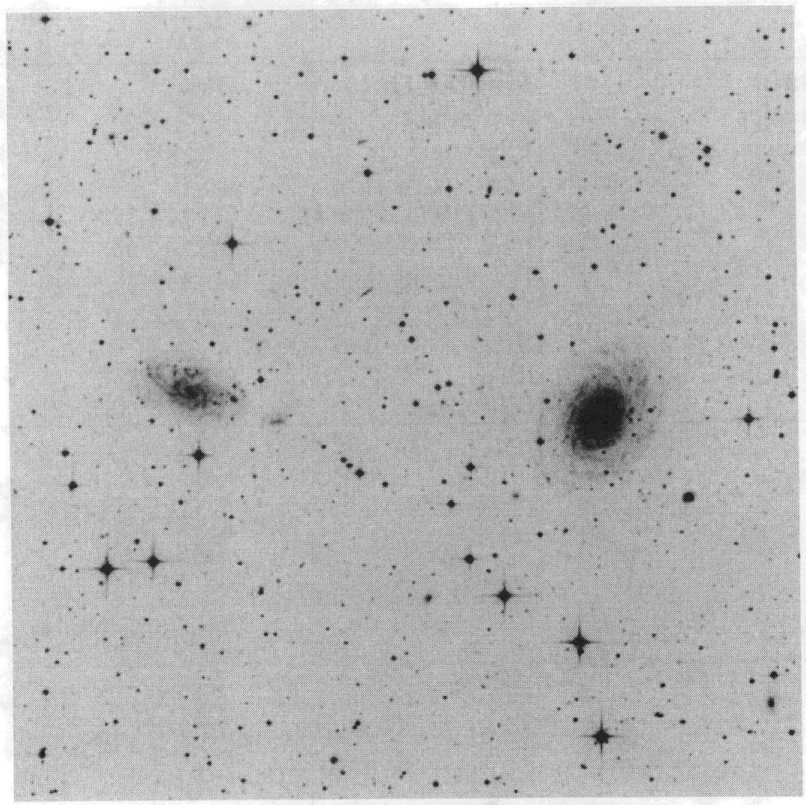
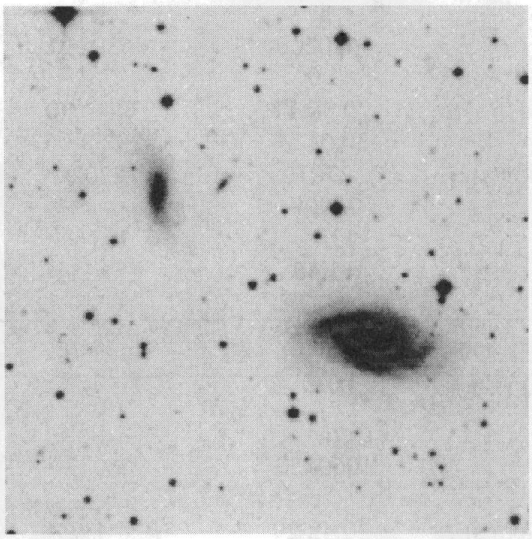


Pair 320 Data		**Galaxy Data**		
Projected separation (")	219	Pair member	**a**	**b**
Velocity separation (km/s)	111	ESO number	4620290	4620310
Type	DIS 1	Type	3.0	1.0
Ntot	1.910	R.A. (1950.) (h m s)	20 28 33	20 28 47
		Decl. (1950.) (° ' ")	-31 00 10	-30 58 04
Notes:		Hel. velocity (km/s)	2811	2700
F7, C-		a(25) (")	144.5	82.2
		B	12.80	14.60
		(B-R)	1.32	0.99
		Other name	NGC 6923	

Pair 321 Data		**Galaxy Data**		
Projected separation (")	102	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	1860600	1860610
Type	DIS 2	Type	9.0	3.5
Ntot	2.228	R.A. (1950.) (h m s)	20 29 35	20 29 47
		Decl. (1950.) (° ' ")	-54 42 07	-54 41 31
Notes:		Hel. velocity (km/s)		
F7, C-		a(25) (")	63.8	53.7
		B	14.79	15.02
		(B-R)	0.80	0.80
		Other name		IC 5021

Pair 322 Data		**Galaxy Data**		
Projected separation (")	269	Pair member	**a**	**b**
Velocity separation (km/s)	49	ESO number	2340590	2340600
Type	DIS 1	Type	1.0	4.7
Ntot	1.592	R.A. (1950.) (h m s)	20 34 39	20 35 05
		Decl. (1950.) (° ' ")	-52 17 05	-52 19 12
Notes:		Hel. velocity (km/s)	4631	4680
F7, C-, CCD		a(25) (")	124.5	103.5
		B	12.77	13.37
		(B-R)	1.20	1.05
		Other name	NGC 6935	NGC 6937

320



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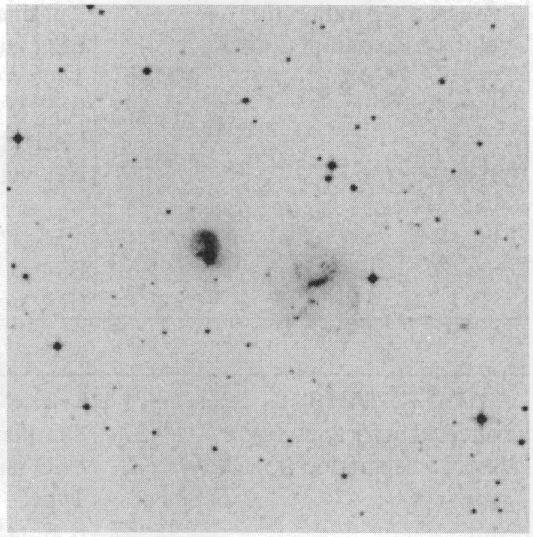

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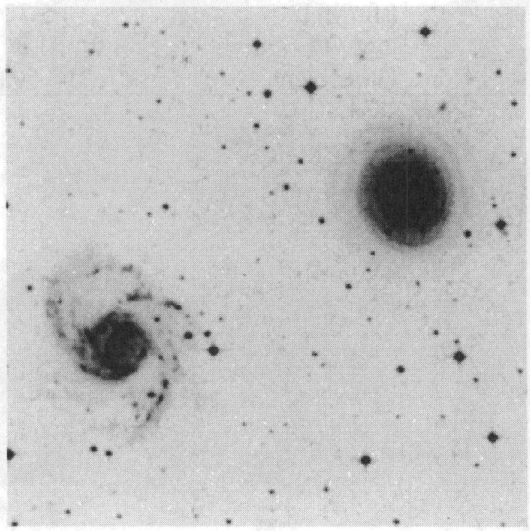
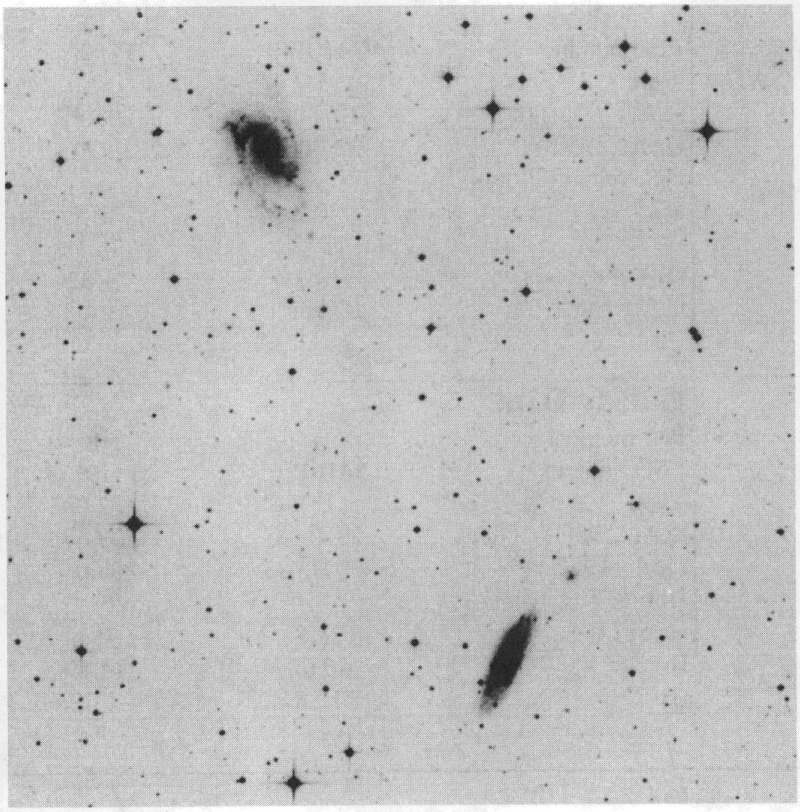


Pair 323 Data		**Galaxy Data**		
Projected separation (")	592	Pair member	**a**	**b**
Velocity separation (km/s)	1	ESO number	4630200	4630210
Type	DIS 1	Type	3.0	7.0
Ntot	1.273	R.A. (1950.) (h m s)	20 40 11	20 40 30
		Decl. (1950.) (° ' ")	-30 01 58	-29 53 06
Notes:		Hel. velocity (km/s)	2701	2702
			2700F	
F14, C-		a(25) (")	138.0	147.9
		B	13.45	13.11
		(B-R)	1.17	0.98

Pair 325 Data		**Galaxy Data**		
Projected separation (")	427	Pair member	**a**	**b**
Velocity separation (km/s)	57	ESO number	1060120	1060130
Type		Type	6.0	6.0
Ntot	0.637	R.A. (1950.) (h m s)	20 42 29	20 43 24
		Decl. (1950.) (° ' ")	-65 12 00	-65 16 11
Notes:		Hel. velocity (km/s)	4157	4214
			4161F	
F14, C+, CPRS94		a(25) (")	84.1	70.8
		B	14.22	14.06
		(B-R)	1.33	1.13
		Lfir/MH2	5.77	5.35
		logCO/LB	-1.36	-1.44
		Other name	IC 5038	IC 5042

323



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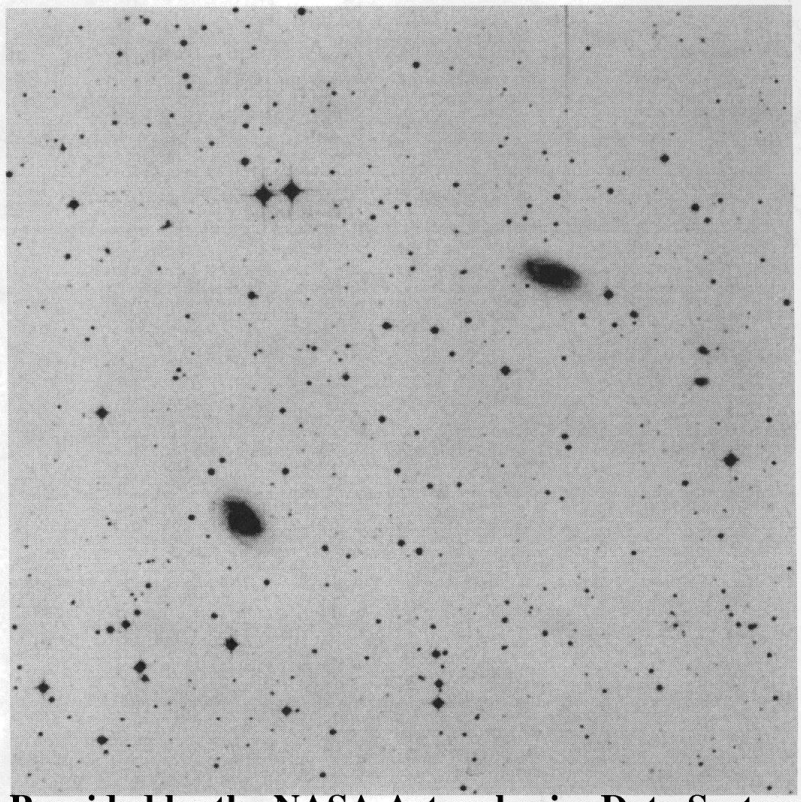

Pair 327 Data		**Galaxy Data**		
Projected separation (")	19	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	3410140	3410141
Type	ATM	Type	-5.0	-2.8
Ntot		R.A. (1950.) (h m s)	20 44 10	20 44 10
		Decl. (1950.) (° ' ")	-38 36 00	-38 36 17
Notes:		Hel. velocity (km/s)		
F7, C+		a(25) (")	39.8	61.0
		B	15.14	14.56
		(B-R)	1.61	1.82
		Other name	IC 5049	

Pair 329 Data		**Galaxy Data**		
Projected separation (")	23	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	3410170	3410171
Type		Type	1.0	2.0
Ntot	1.910	R.A. (1950.) (h m s)	20 46 06	20 46 08
		Decl. (1950.) (° ' ")	-39 01 01	-39 00 43
Notes:		Hel. velocity (km/s)		
F7, C+		a(25) (")	28.8	78.5
		B	16.62	14.82
		(B-R)	1.18	1.42

Pair 330 Data		**Galaxy Data**		
Projected separation (")	49	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	2350041	2350040
Type	DIS 1	Type	9.9	7.5
Ntot	0.955	R.A. (1950.) (h m s)	20 46 18	20 46 24
		Decl. (1950.) (° ' ")	-50 19 19	-50 19 12
Notes:		Hel. velocity (km/s)		3036F
F7, C+		a(25) (")	29.2	70.0
		B	17.03	14.87
		(B-R)	-1.43	1.58

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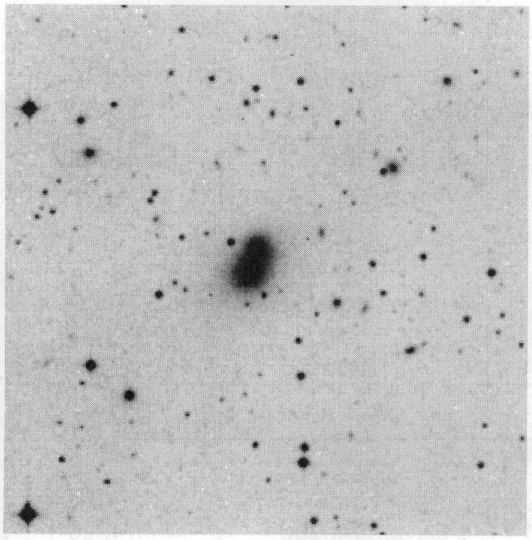

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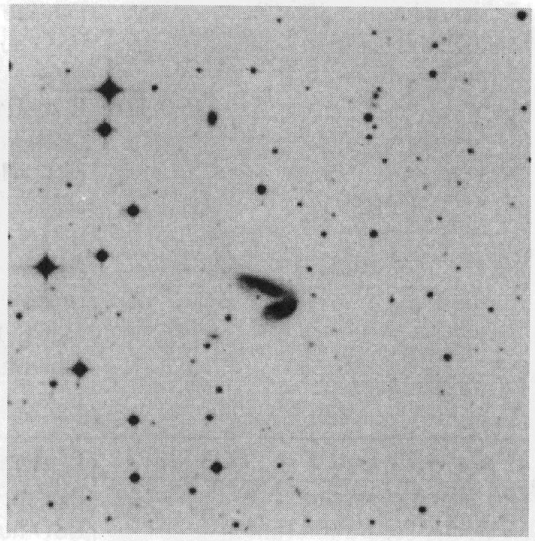

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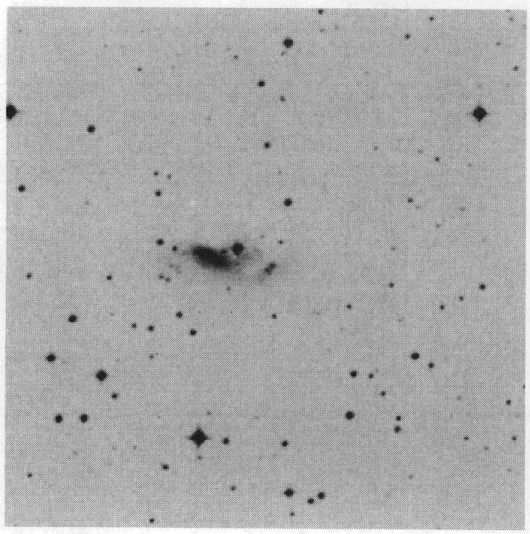

Pair 331 Data	
Projected separation (")	652
Velocity separation (km/s)	25
Type	
Ntot	0.318
Notes:	
F14, C-, CPRS94	

Galaxy Data		
Pair member	a	b
ESO number	1870230	1870280
Type	-0.4	1.0
R.A. (1950.) (h m s)	20 48 12	20 48 47
Decl. (1950.) (° ' ")	-57 15 28	-57 25 12
Hel. velocity (km/s)	3402	3377
a(25) (")	146.2	74.1
B	12.92	14.31
(B-R)	1.62	1.55
Lfir/MH2	66.12	16.64
logCO/LB	-2.32	-1.78
Other name	IC 5063	IC 5064

Pair 333 Data	
Projected separation (")	12
Velocity separation (km/s)	
Type	LIN ta
Ntot	
Notes:	
F7, C+	

Galaxy Data		
Pair member	a	b
ESO number	740200	740201
Type	3.0	4.0
R.A. (1950.) (h m s)	20 49 28	20 49 29
Decl. (1950.) (° ' ")	-69 13 40	-69 13 29
Hel. velocity (km/s)		
a(25) (")	19.5	32.4
B	15.76	14.91
(B-R)	0.88	0.88

Pair 334 Data	
Projected separation (")	130
Velocity separation (km/s)	
Type	DIS 1
Ntot	0.955
Notes:	
F7, C+	

Galaxy Data		
Pair member	a	b
ESO number	2860150	2860160
Type	1.4	2.0
R.A. (1950.) (h m s)	20 54 11	20 54 12
Decl. (1950.) (° ' ")	-46 45 43	-46 47 52
Hel. velocity (km/s)		4986dC
a(25) (")	24.5	94.4
B	16.23	14.62
(B-R)	0.69	1.35

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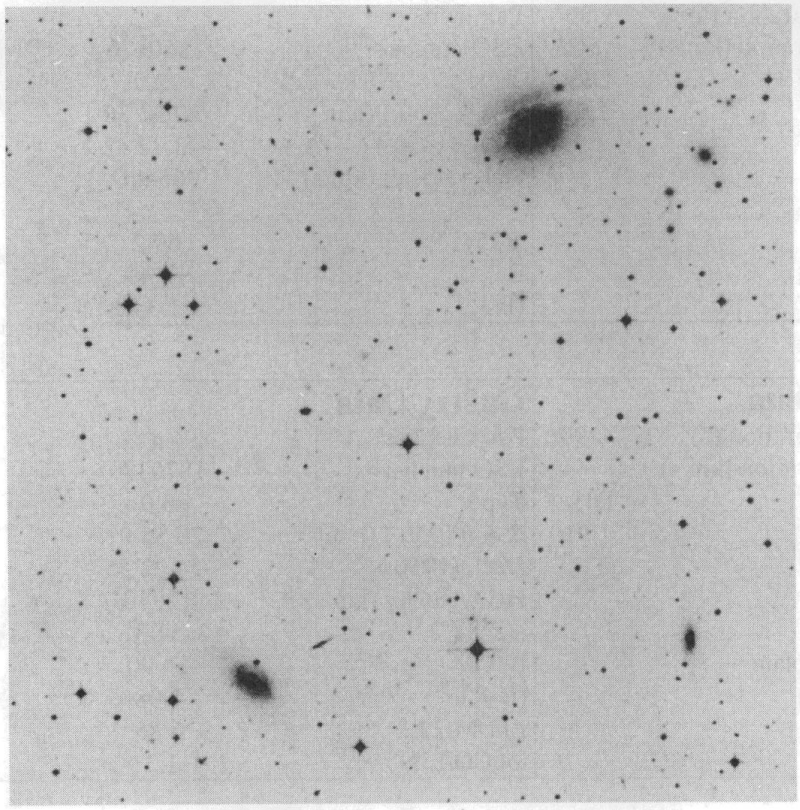

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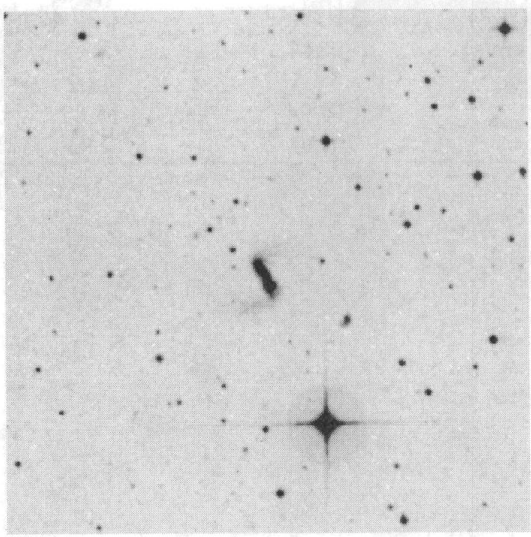

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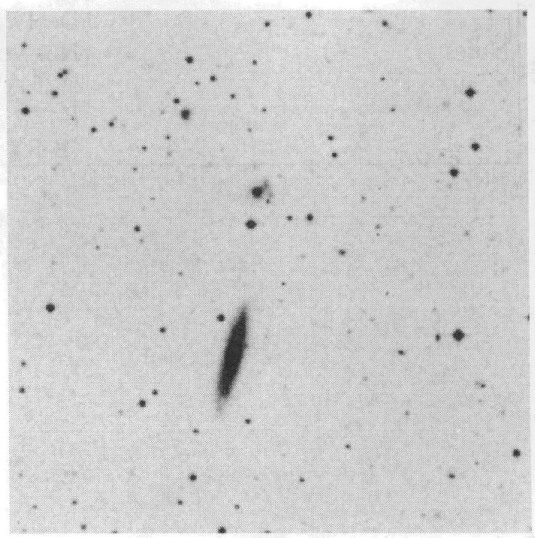

Pair 335 Data		**Galaxy Data**		
Projected separation (")	80	Pair member	**a**	**b**
Velocity separation (km/s)	502	ESO number	2860170	2860180
Type	DIS 1	Type	-2.0	4.0
Ntot	1.910	R.A. (1950.) (h m s)	20 54 30	20 54 30
		Decl. (1950.) (° ' ")	-43 32 42	-43 34 01
Notes:		Hel. velocity (km/s)	9664dC	9162
				9220F
F7, C+		a(25) (")	69.2	162.2
		B	14.49	14.30
		(B-R)	1.33	1.53

Pair 336 Data		**Galaxy Data**		
Projected separation (")	199	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	1870380	1870400
Type	DIS 2	Type	6.0	1.5
Ntot	1.910	R.A. (1950.) (h m s)	20 55 01	20 55 13
		Decl. (1950.) (° ' ")	-54 22 55	-54 20 06
Notes:		Hel. velocity (km/s)	12950	
F7, C-		a(25) (")	51.3	45.7
defect on the plate		B	14.90	15.43
		(B-R)	1.08	1.38
		Lfir/MH2	6.85	
		logCO/LB	-1.31	

Pair 337 Data		**Galaxy Data**		
Projected separation (")	127	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	4640050	4640060
Type		Type	1.0	6.0
Ntot	1.910	R.A. (1950.) (h m s)	20 55 22	20 55 23
		Decl. (1950.) (° ' ")	-31 39 53	-31 37 47
Notes:		Hel. velocity (km/s)	9814	
F7, C-		a(25) (")	57.5	44.2
		B	14.94	15.82
		(B-R)	1.30	0.81

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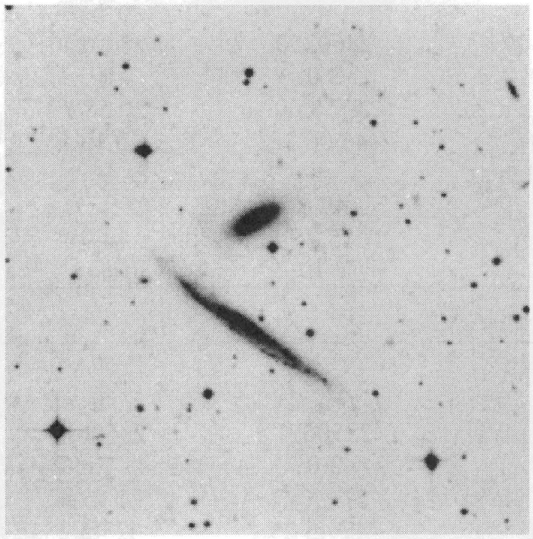

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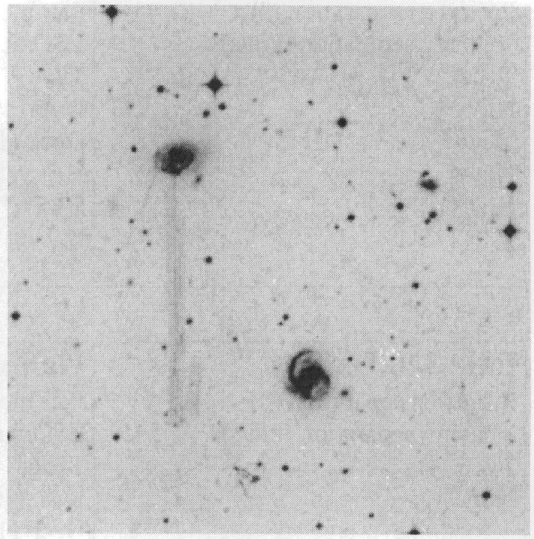

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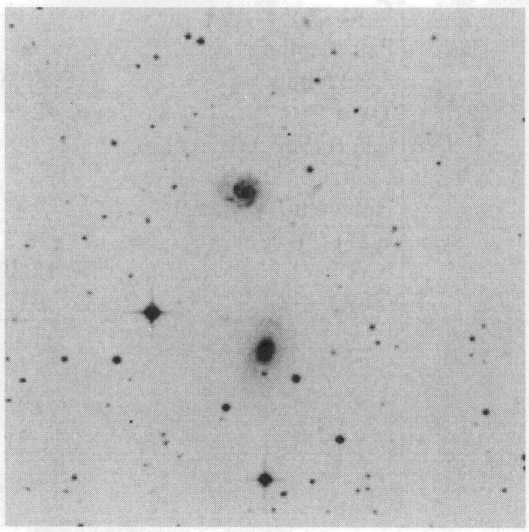

Pair 338 Data		**Galaxy Data**		
Projected separation (")	451	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	2860250	2860260
Type		Type	3.0	0.0
Ntot	1.273	R.A. (1950.) (h m s)	20 58 00	20 58 09
		Decl. (1950.) (° ' ")	-46 06 35	-46 13 58
Notes:		Hel. velocity (km/s)		
F14, C+		a(25) (")	49.0	50.1
		B	15.75	14.91
		(B-R)	1.10	1.49

Pair 340 Data		**Galaxy Data**		
Projected separation (")	19	Pair member	**a**	**b**
Velocity separation (km/s)	545	ESO number	2350611	2350610
Type		Type	3.0	7.0
Ntot		R.A. (1950.) (h m s)	21 03 47	21 03 48
		Decl. (1950.) (° ' ")	-47 45 25	-47 45 25
Notes:		Hel. velocity (km/s)	5100F	4555
F7, C+		a(25) (")	30.9	80.4
		B	15.91	14.73
		(B-R)	0.78	0.75

Pair 341 Data		**Galaxy Data**		
Projected separation (")	220	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	5980300	5980310
Type		Type	2.6	-3.0
Ntot	0.955	R.A. (1950.) (h m s)	21 09 58	21 09 09
		Decl. (1950.) (° ' ")	-19 57 25	-20 00 00
Notes:		Hel. velocity (km/s)		9480
F7, C-		a(25) (")	38.5	56.2
		B	15.39	14.30
		(B-R)	1.12	1.50

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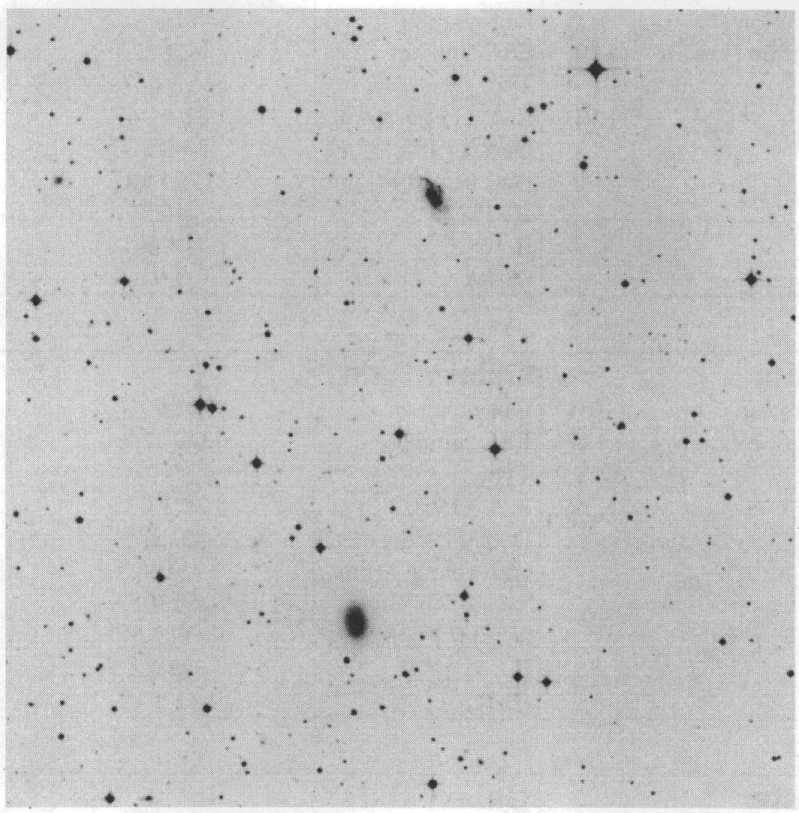

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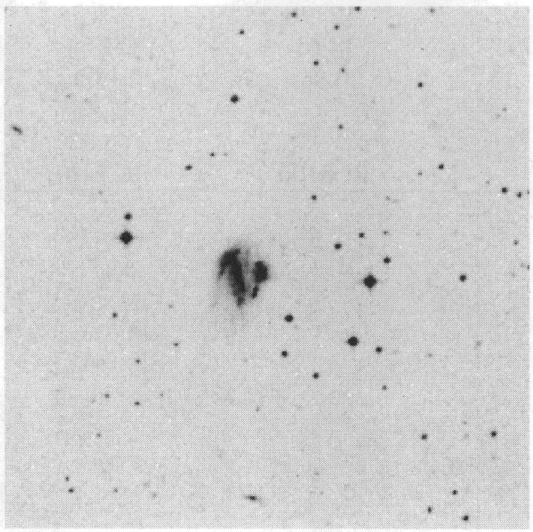

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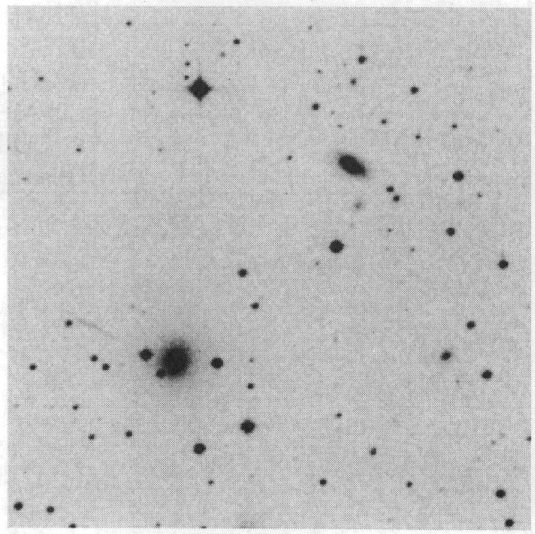

Pair 342 Data		Galaxy Data		
Projected separation (")	100	Pair member	a	b
Velocity separation (km/s)	20	ESO number	3420220	3420230
Type		Type	3.0	6.0
Ntot	1.910	R.A. (1950.) (h m s)	21 09 47	21 09 54
		Decl. (1950.) (° ' ")	-38 04 37	-38 05 34
Notes:		Hel. velocity (km/s)	12944dC	12924dC
F7, C-		a(25) (")	46.8	39.4
		B	14.60	15.31
		(B-R)	0.92	0.84

Pair 343 Data		Galaxy Data		
Projected separation (")	101	Pair member	a	b
Velocity separation (km/s)	127	ESO number	3420260	3420270
Type	DIS 2	Type	0.0	-2.8
Ntot	1.592	R.A. (1950.) (h m s)	21 13 31	21 13 41
		Decl. (1950.) (° ' ")	-42 28 11	-42 28 04
Notes:		Hel. velocity (km/s)	5138	5265
			5130F	5350F
F7, C+		a(25) (")	117.5	141.3
		B	13.22	12.89
		(B-R)	1.11	1.36

Pair 344 Data		Galaxy Data		
Projected separation (")	357	Pair member	a	b
Velocity separation (km/s)	66	ESO number	1070240	1070250
Type		Type	5.0	4.0
Ntot	0.955	R.A. (1950.) (h m s)	21 17 33	21 17 45
		Decl. (1950.) (° ' ")	-66 08 49	-66 02 59
Notes:		Hel. velocity (km/s)	5100F	5166
F14, C-, CCD		a(25) (")	123.0	78.5
		B	14.61	14.04
		(B-R)	0.86	1.09
		Lfir/MH2		2.76
		logCO/LB		-0.92
		Other name	IC 5100	IC 5101

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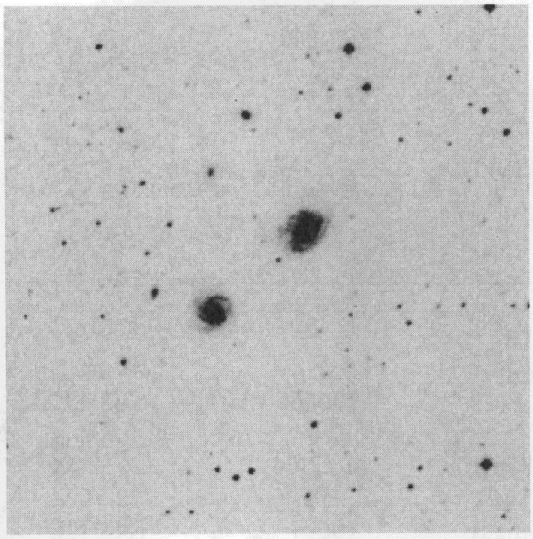

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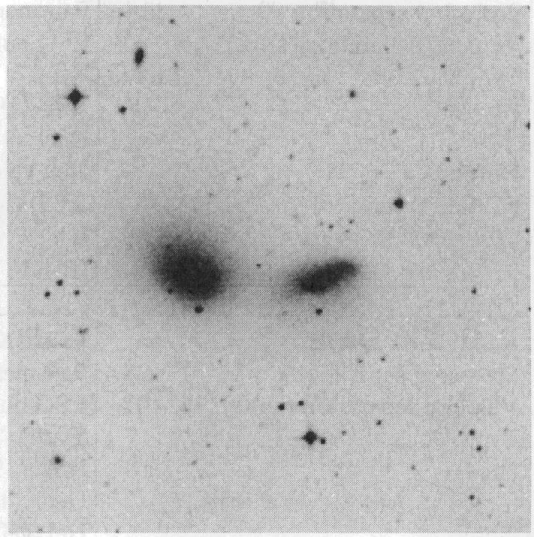

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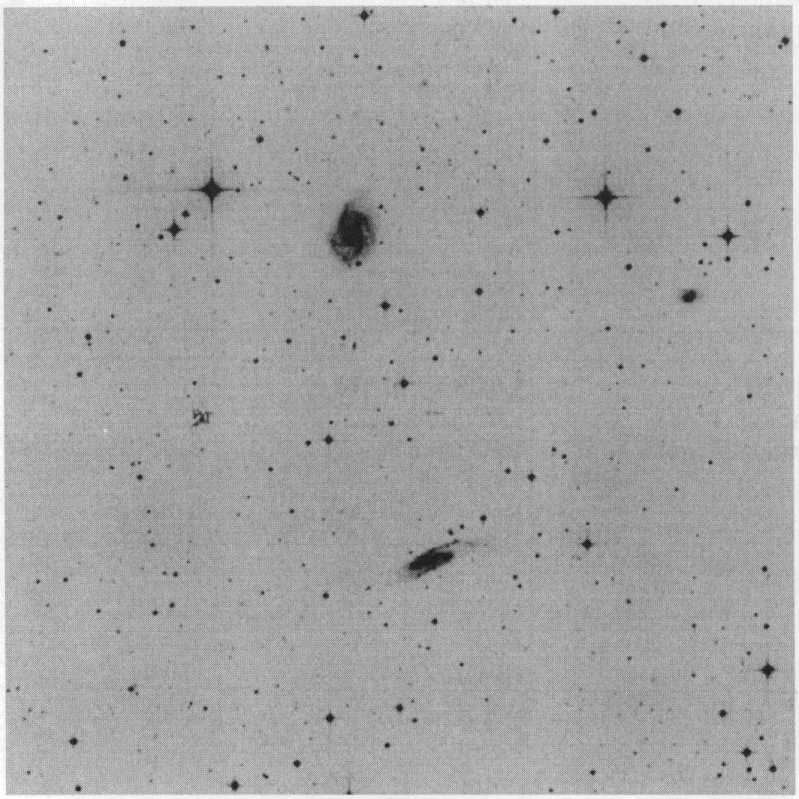

Pair 345 Data		Galaxy Data		
Projected separation (")	114	Pair member	a	b
Velocity separation (km/s)		ESO number	2870240	2870260
Type	LIN ta	Type	6.0	1.0
Ntot	3.183	R.A. (1950.) (h m s)	21 22 59	21 23 07
		Decl. (1950.) (° ' ")	-43 27 17	-43 26 16
Notes:		Hel. velocity (km/s)		
F7, C+		a(25) (")	63.1	61.7
		B	17.17	14.93
		(B-R)		1.66

Pair 346 Data		Galaxy Data		
Projected separation (")	125	Pair member	a	b
Velocity separation (km/s)	107	ESO number	5300460	5300430
Type		Type	3.0	6.0
Ntot	3.183	R.A. (1950.) (h m s)	21 23 04	21 23 06
		Decl. (1950.) (° ' ")	-22 58 40	-22 56 42
Notes:		Hel. velocity (km/s)	10697	10804dC
F7, C-		a(25) (")	73.3	53.7
		B	14.77	15.33
		(B-R)	1.25	1.19

Pair 349 Data		Galaxy Data		
Projected separation (")	197	Pair member	a	b
Velocity separation (km/s)	44	ESO number	3430030	3430040
Type		Type	-2.0	-4.0
Ntot	1.910	R.A. (1950.) (h m s)	21 28 09	21 28 25
		Decl. (1950.) (° ' ")	-38 50 31	-38 50 16
Notes:		Hel. velocity (km/s)	5443F	5487
			5474dC	
F7, C+		a(25) (")	97.7	87.1
		B	14.25	13.80
		(B-R)	1.68	1.66
		Other name		NGC 7075

Pair 350 Data		Galaxy Data		
Projected separation (")	30	Pair member	a	b
Velocity separation (km/s)		ESO number	2360191	2360190
Type	DIS 1	Type	0.3	0.3
Ntot		R.A. (1950.) (h m s)	21 28 57	21 28 59
		Decl. (1950.) (° ' ")	-48 26 02	-48 25 37
Notes:		Hel. velocity (km/s)		
F7. C+		a(25) (")	47.9	31.6
		B	15.61	14.92
		(B-R)	0.44	0.78

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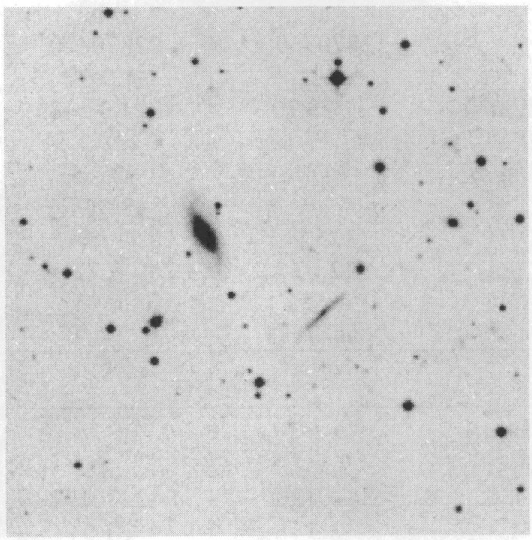

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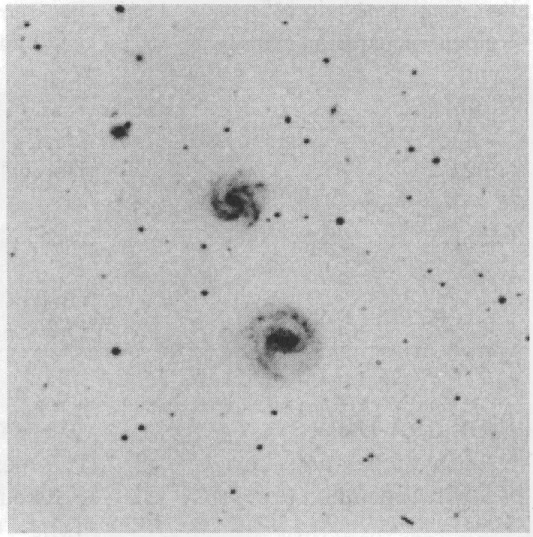

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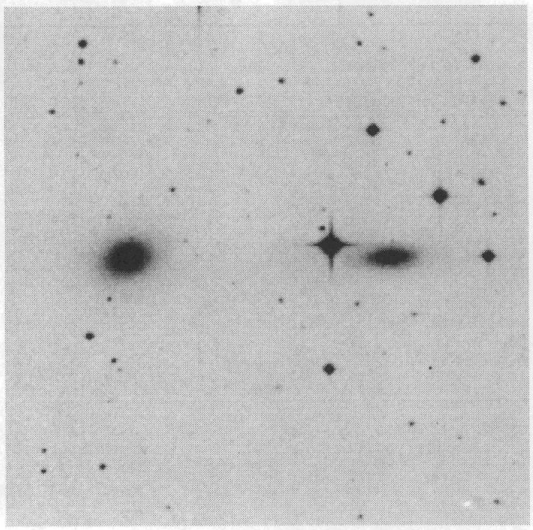

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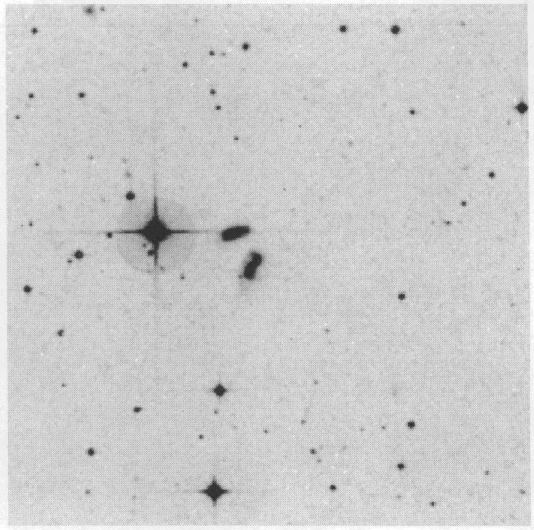

Pair 351 Data		**Galaxy Data**		
Projected separation (")	1540	Pair member	**a**	**b**
Velocity separation (km/s)	105	ESO number	2870360	2870370
Type		Type	-2.0	9.0
Ntot	0.955	R.A. (1950.) (h m s)	21 29 20	21 31 18
		Decl. (1950.) (° ' ")	-44 17 16	-44 32 13
Notes:		Hel. velocity (km/s)	2670	2565
				2600F
F35, C-		a(25) (")	125.9	108.4
		B	12.63	3.72
		(B-R)	1.55	0.95
		Other name	NGC 7079	

Pair 352 Data		**Galaxy Data**		
Projected separation (")	8	Pair member	**a**	**b**
Velocity separation (km/s)	82	ESO number	3430130	3430131
Type	DIS 2	Type	2.3	1.5
	LIN ta			
Ntot		R.A. (1950.) (h m s)	21 33 05	21 33 05
		Decl. (1950.) (° ' ")	-38 46 04	-38 45 57
Notes:		Hel. velocity (km/s)	5750	5832dC
F7, C+		a(25) (")	86.1	60.3
		B	14.59	15.12
		(B-R)	1.32	1.29

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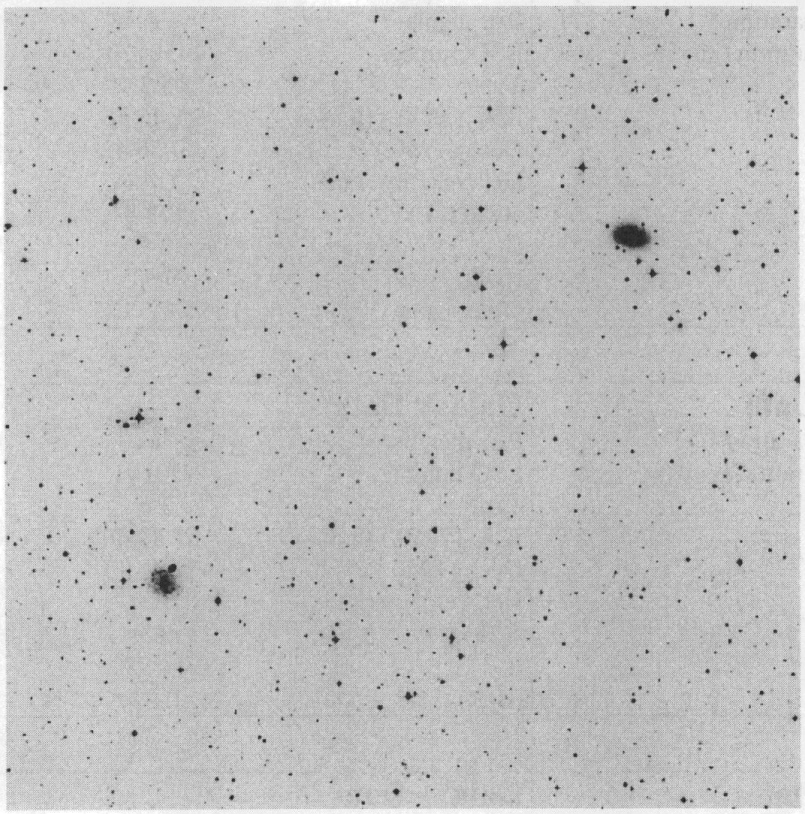

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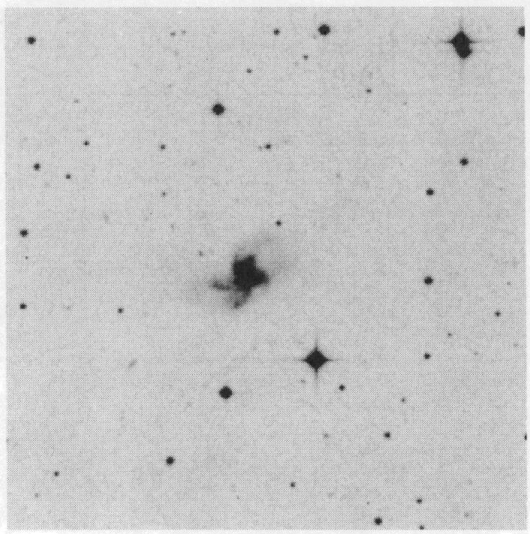

Pair 354 Data		**Galaxy Data**		
Projected separation (")	371	Pair member	**a**	**b**
Velocity separation (km/s)	167	ESO number	1450170	1450180
Type		Type	5.3	4.0
Ntot	0.955	R.A. (1950.) (h m s)	21 45 36	21 45 39
		Decl. (1950.) (° ' ")	-60 56 42	-60 50 31
Notes:		Hel. velocity (km/s)	3148	2981
F14, C-		a(25) (")	173.8	171.8
		B	12.70	12.99
		(B-R)	0.93	1.18
		Other name	NGC 7125	NGC 7126

Pair 356 Data		**Galaxy Data**		
Projected separation (")	69	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	480101	480100
Type		Type	3.6	6.0
Ntot	1.273	R.A. (1950.) (h m s)	21 47 46	21 47 48
		Decl. (1950.) (° ' ")	-72 43 15	-72 42 07
Notes:		Hel. velocity (km/s)		
F7, C+		a(25) (")	48.4	61.7
		B	14.73	16.68
		(B-R)	0.92	0.44

Pair 357 Data		**Galaxy Data**		
Projected separation (")	56	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	480110	480120
Type		Type	4.0	5.4
Ntot	1.592	R.A. (1950.) (h m s)	21 48 00	21 48 13
		Decl. (1950.) (° ' ")	-73 31 55	-73 31 48
Notes:		Hel. velocity (km/s)		
F7, C+		a(25) (")	64.6	78.5
		B	14.72	16.25
		(B-R)		1.49

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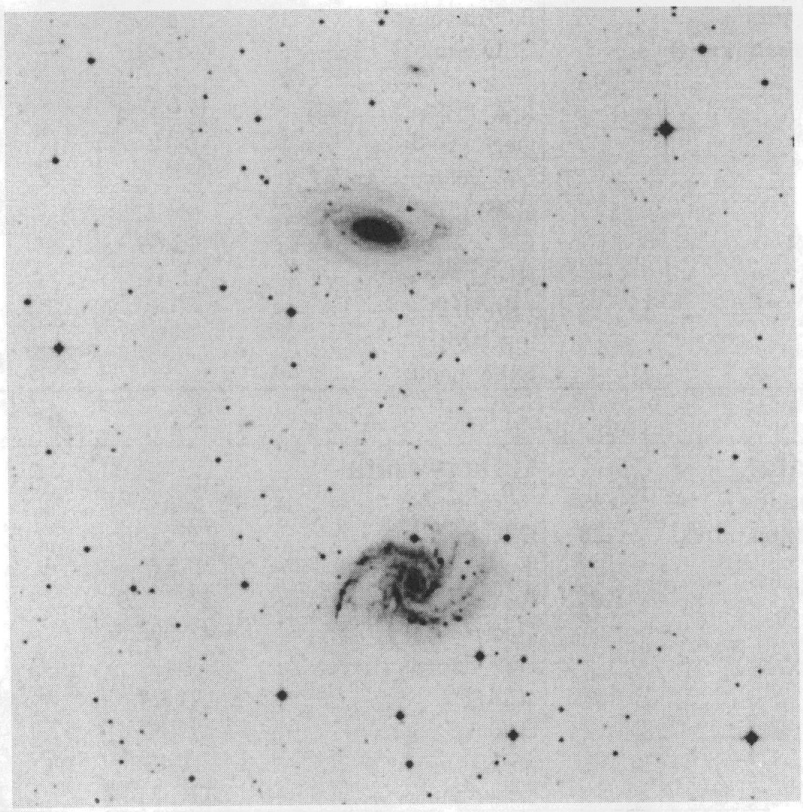

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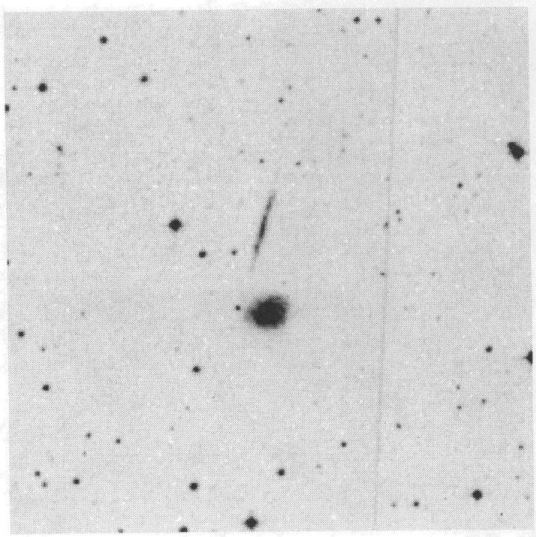

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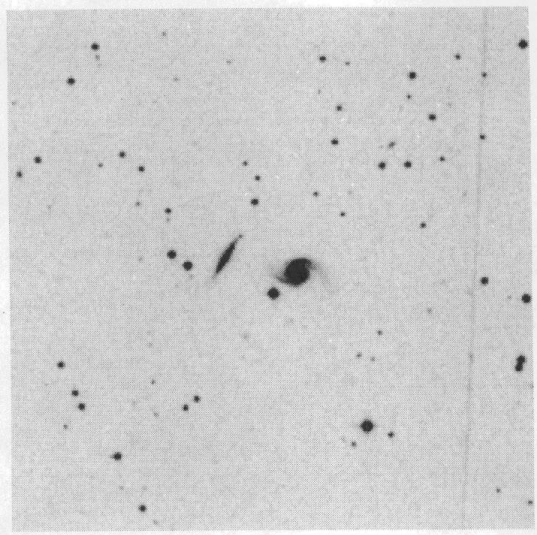

Pair 358 Data		**Galaxy Data**		
Projected separation (")	392	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	1452210	1450220
Type		Type	4.5	4.5
Ntot	1.592	R.A. (1950.) (h m s)	21 49 24	21 49 42
		Decl. (1950.) (° ' ")	-59 37 40	-59 43 47
Notes:		Hel. velocity (km/s)		4392
F14, C-		a(25) (")	84.1	98.9
		B	15.69	13.49
		(B-R)	1.41	1.17
		Lfir/MH2		3.07
		logCO/LB		-1.22
		Other name		IC 5141

Pair 359 Data		**Galaxy Data**		
Projected separation (")	1392	Pair member	**a**	**b**
Velocity separation (km/s)	28	ESO number	2370110	2370130
Type		Type	-5.0	-5.0
Ntot	2.228	R.A. (1950.) (h m s)	21 49 29	21 50 06
		Decl. (1950.) (° ' ")	-48 29 25	-48 07 04
Notes:		Hel. velocity (km/s)	1928	1900
F35, C+		a(25) (")	188.4	158.5
		B	11.87	12.13
		(B-R)	1.48	1.36
		Other name	NGC 7144	NGC 7145

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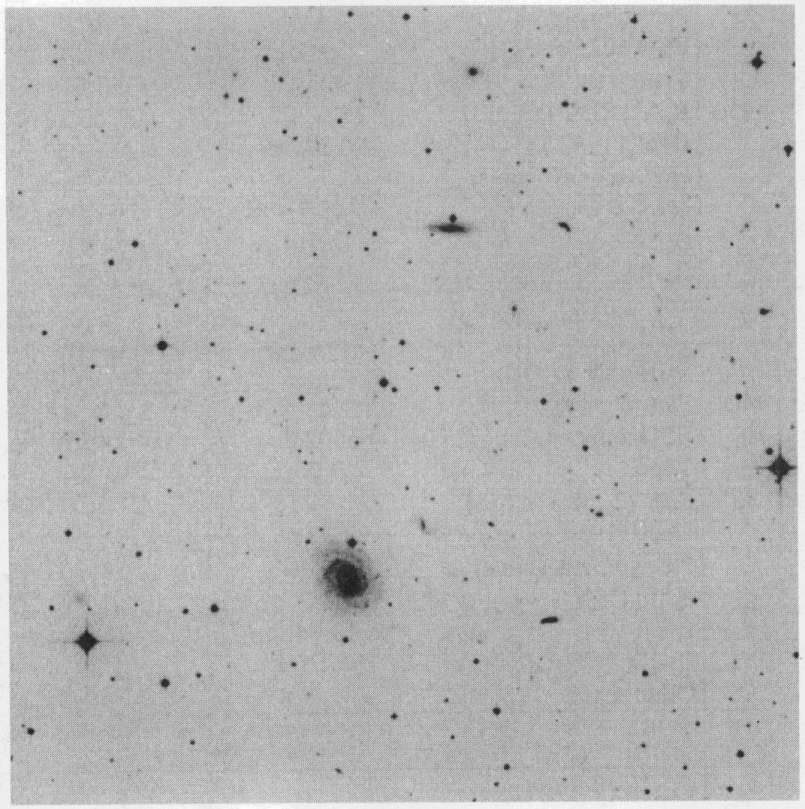

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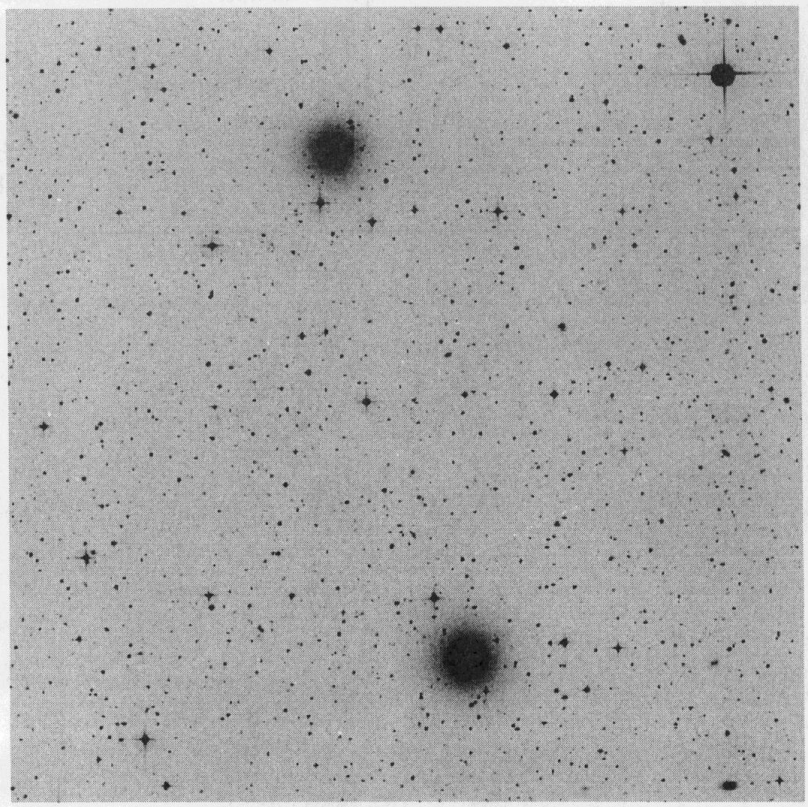

Pair 360 Data		**Galaxy Data**		
Projected separation (")	91	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	750420	750430
Type		Type	-2.0	-3.0
Ntot	4.456	R.A. (1950.) (h m s)	21 53 07	21 53 24
		Decl. (1950.) (° ' ")	-70 24 46	-70 24 43
Notes:		Hel. velocity (km/s)		
F7, C+		a(25) (")	45.7	58.9
		B	15.10	14.44
		(B-R)	1.24	1.32

Pair 361 Data		**Galaxy Data**		
Projected separation (")	642	Pair member	**a**	**b**
Velocity separation (km/s)	25	ESO number	4660240	4660270
Type		Type	3.0	3.0
Ntot	0.955	R.A. (1950.) (h m s)	21 55 18	21 56 06
		Decl. (1950.) (° ' ")	-27 37 55	-27 39 10
Notes:		Hel. velocity (km/s)	5508dC	5483
F14, C-		a(25) (")	71.6	75.9
		B	13.84	14.50
		(B-R)	1.10	1.24
		Other name		IC 5149

Pair 362 Data		**Galaxy Data**		
Projected separation (")	77	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	2880300	2880320
Type	DIS 1	Type	3.0	3.0
Ntot	1.592	R.A. (1950.) (h m s)	21 58 28	21 58 33
		Decl. (1950.) (° ' ")	-42 41 42	-42 40 47
Notes:		Hel. velocity (km/s)		
F7, C+		a(25) (")	55.0	61.0
		B	14.71	14.95
		(B-R)		

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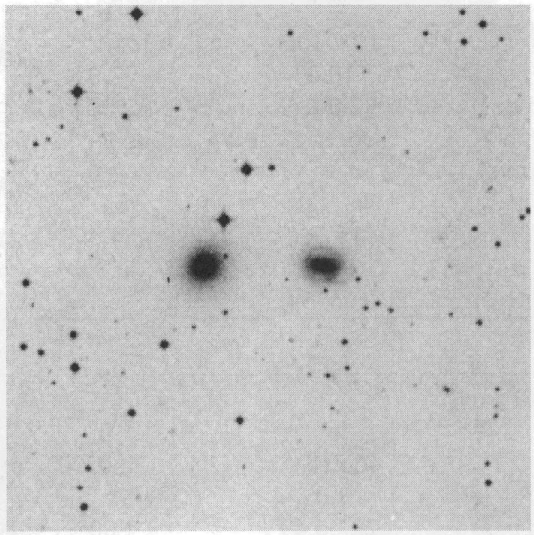

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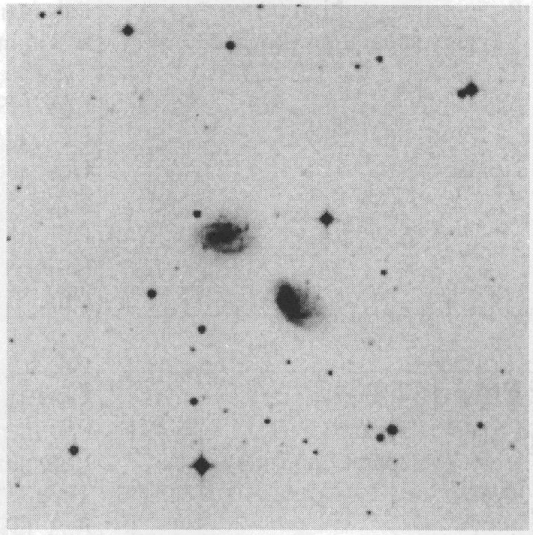

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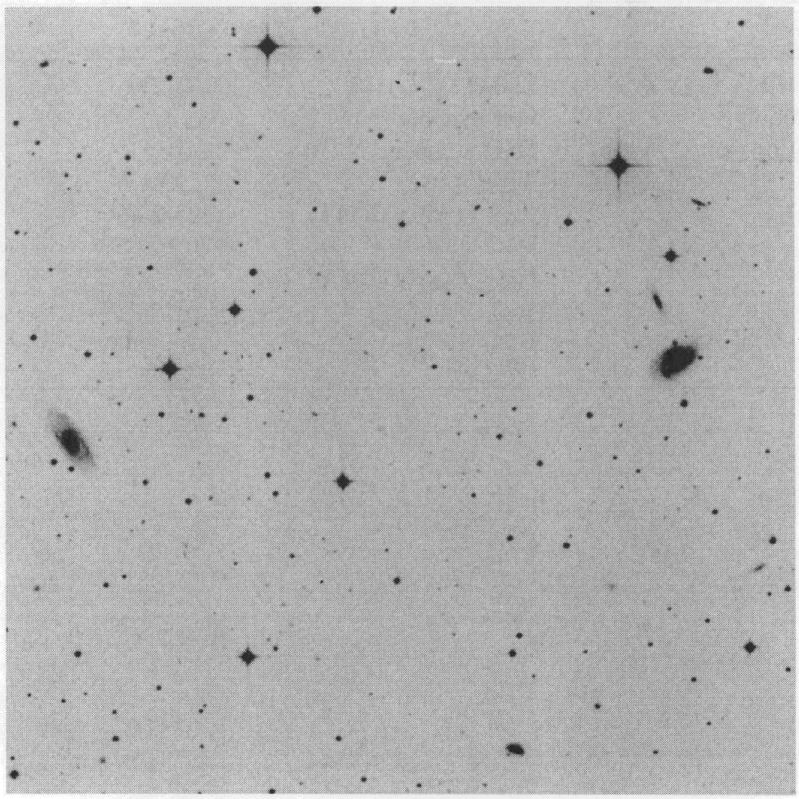

Pair 363 Data		**Galaxy Data**		
Projected separation (")	5	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	1080100	1080101
Type		Type	10.0	3.0
Ntot		R.A. (1950.) (h m s)	22 00 42	22 00 42
		Decl. (1950.) (° ' ")	-66 21 28	-66 21 32
Notes:		Hel. velocity (km/s)		
F7, C+		a(25) (")		53.7
		B	15.84	14.29
		(B-R)	0.82	0.83
		Other name	IC 5154	

Pair 364 Data		**Galaxy Data**		
Projected separation (")	491	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	4660490	4660500
Type		Type	3.0	-2.0
Ntot	2.228	R.A. (1950.) (h m s)	22 00 49	22 00 53
		Decl. (1950.) (° ' ")	-28 10 40	-28 02 31
Notes:		Hel. velocity (km/s)		7104
				7036F
F14, C-		a(25) (")	69.2	69.2
		B	15.54	14.28
		(B-R)	0.71	1.36

Pair 365 Data		**Galaxy Data**		
Projected separation (")	17	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	750561	750560
Type		Type	2.3	1.5
Ntot		R.A. (1950.) (h m s)	22 02 46	22 02 48
		Decl. (1950.) (° ' ")	-70 11 06	-70 10 55
Notes:		Hel. velocity (km/s)		
F7, C+		a(25) (")	70.8	73.3
		B	14.96	15.38
		(B-R)	1.65	1.22

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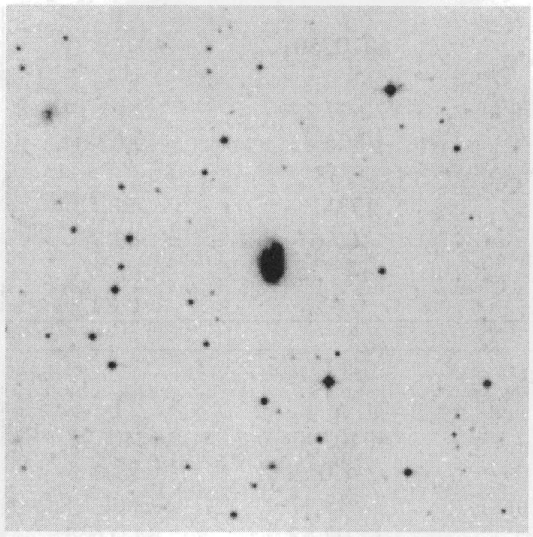

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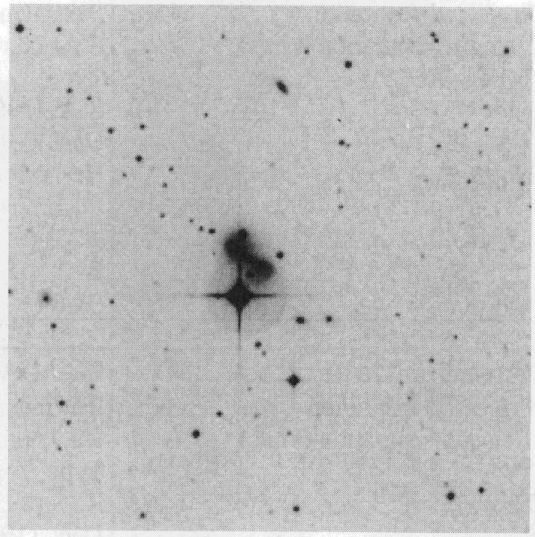

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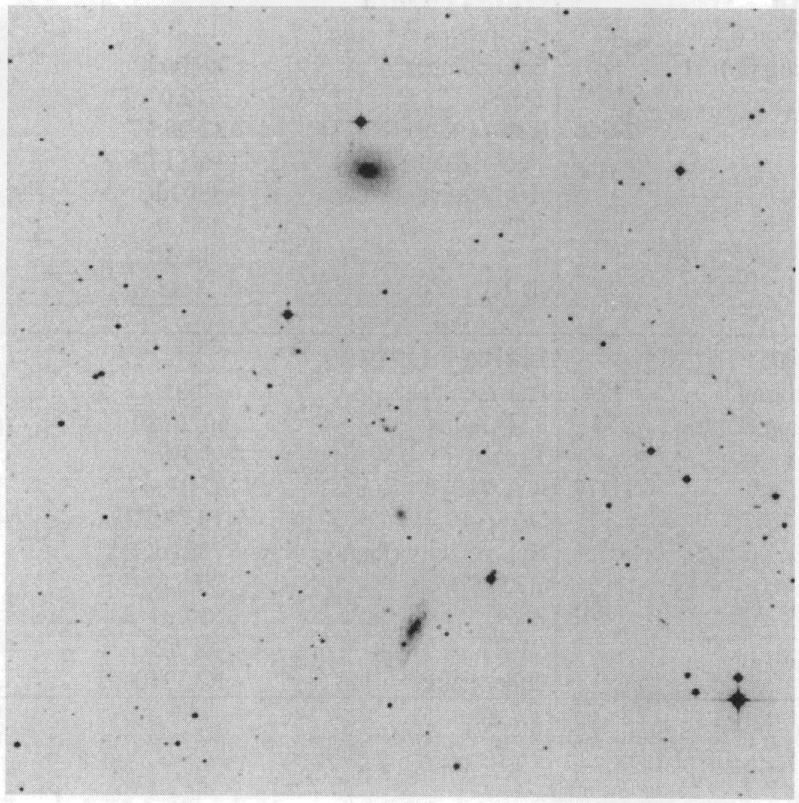

Pair 369 Data		Galaxy Data		
Projected separation (")	158	Pair member	a	b
Velocity separation (km/s)		ESO number	6010250	6010260
Type		Type	8.0	6.0
Ntot	1.910	R.A. (1950.) (h m s)	22 07 28	22 07 39
		Decl. (1950.) (° ' ")	-19 06 43	-19 07 04
Notes:		Hel. velocity (km/s)	1738	
			1735F	
F7, C-		a(25) (")	109.6	42.7
		B	14.73	15.72
		(B-R)	0.85	0.84

Pair 371 Data		Galaxy Data		
Projected separation (")	60	Pair member	a	b
Velocity separation (km/s)		ESO number	4040390	4040391
Type		Type	-1.0	-3.0
Ntot	1.273	R.A. (1950.) (h m s)	22 08 47	22 08 51
		Decl. (1950.) (° ' ")	-34 07 58	-34 07 51
Notes:		Hel. velocity (km/s)	2624dC	
F7, C-		a(25) (")	66.1	25.7
		B	14.27	16.23
		(B-R)	1.10	1.31

Pair 373 Data		Galaxy Data		
Projected separation (")	83	Pair member	a	b
Velocity separation (km/s)		ESO number	4040400	4040410
Type		Type	-2.0	8.6
Ntot	2.546	R.A. (1950.) (h m s)	22 09 37	22 09 40
		Decl. (1950.) (° ' ")	-36 11 06	-36 12 25
Notes:		Hel. velocity (km/s)	9693dC	
F7, C+		a(25) (")	75.0	46.2
		B	14.50	16.02
		(B-R)	1.35	0.58

Pair 377 Data		Galaxy Data		
Projected separation (")	174	Pair member	a	b
Velocity separation (km/s)	53	ESO number	6020120	6020140
Type		Type	-3.0	1.0
Ntot	1.273	R.A. (1950.) (h m s)	22 19 47	22 19 59
		Decl. (1950.) (° ' ")	-19 07 22	-19 07 58
Notes:		Hel. velocity (km/s)	7329dC	7382
F7, C+		a(25) (")	66.8	47.9
		B	14.01	14.66
		(B-R)	1.52	1.54
		Other name	IC 5210	IC 5211

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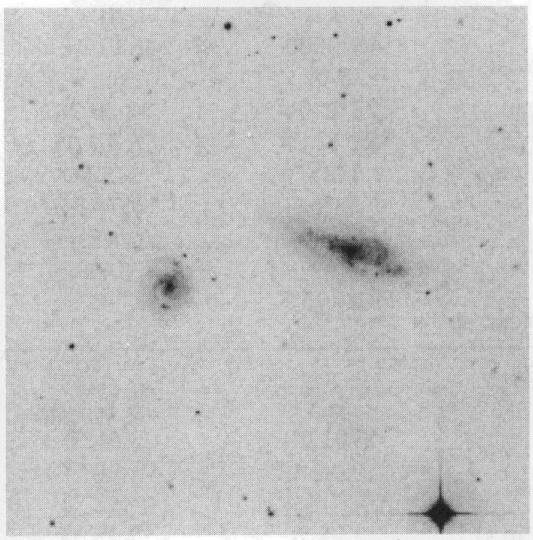

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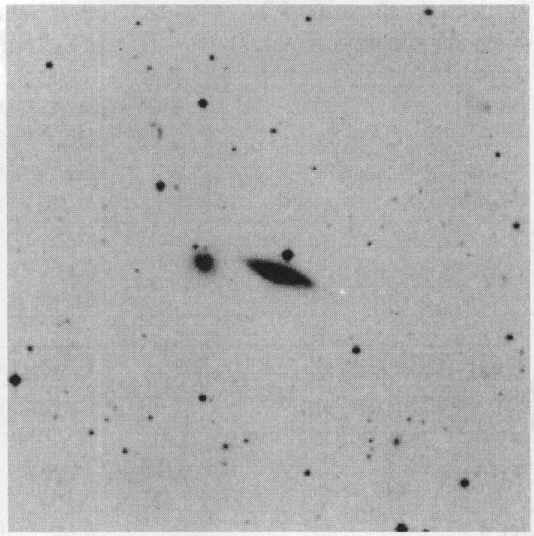

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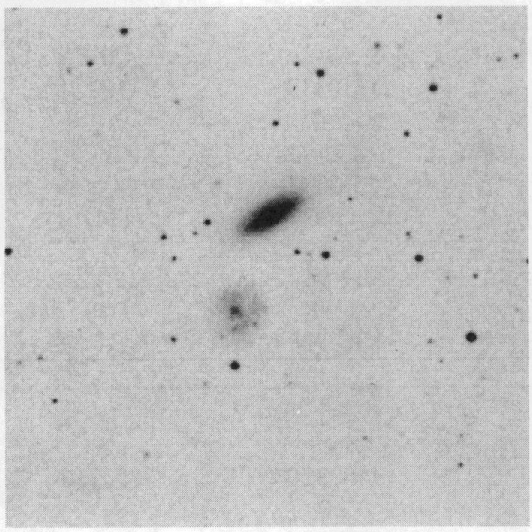

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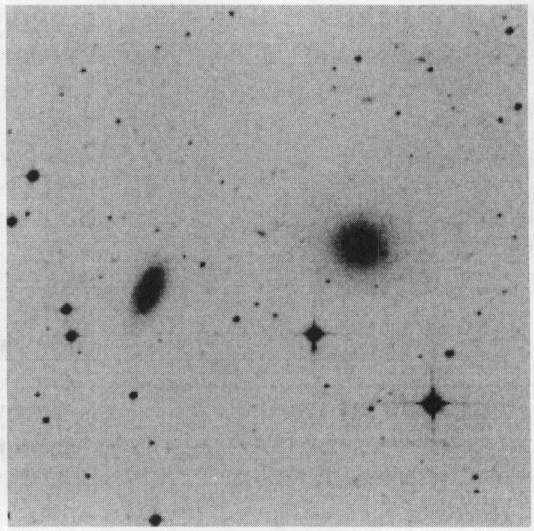
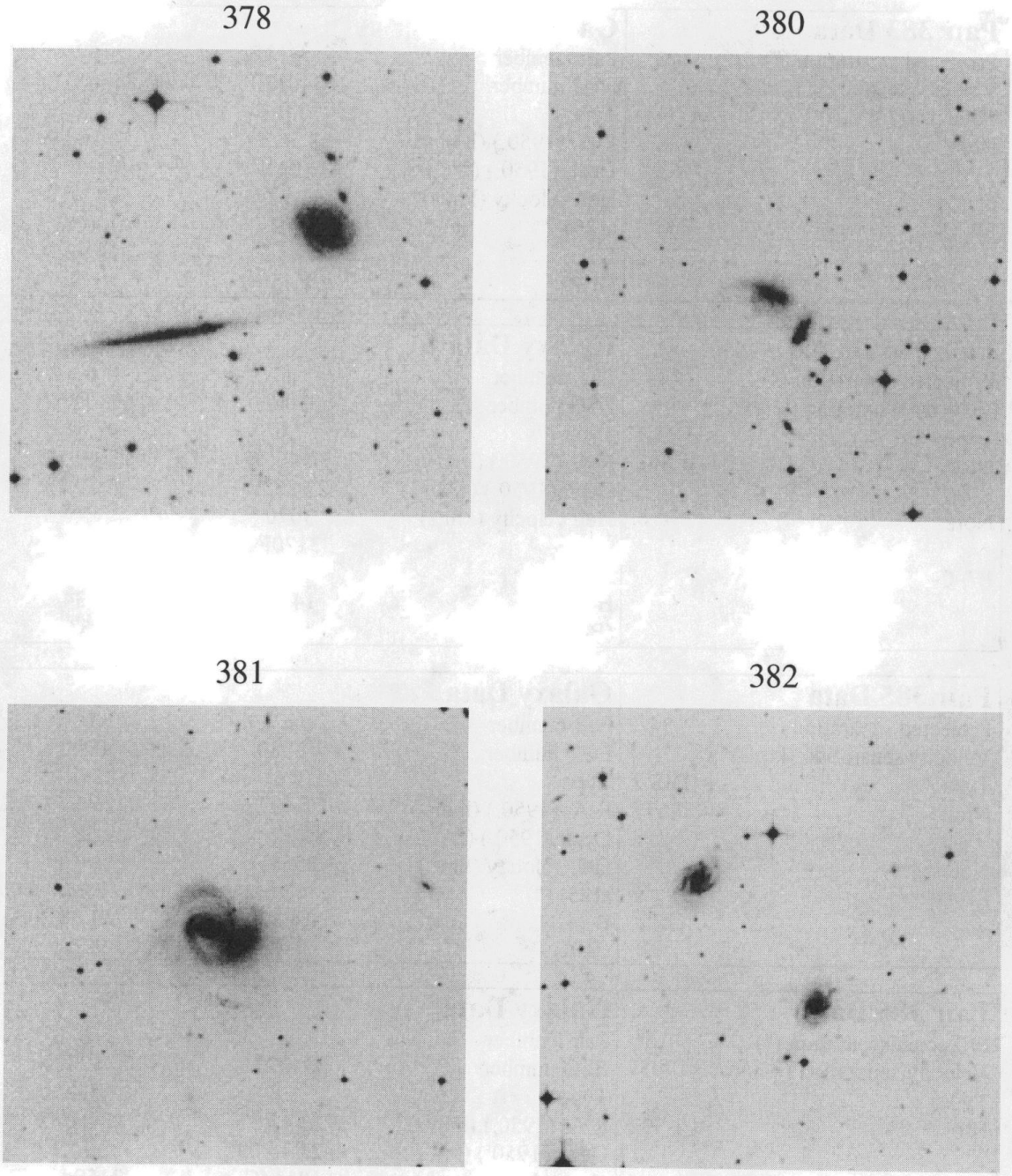


Pair 378 Data		**Galaxy Data**		
Projected separation (")	185	Pair member	**a**	**b**
Velocity separation (km/s)	51	ESO number	4670500	4670510
Type		Type	3.0	6.0
Ntot	1.273	R.A. (1950.) (h m s)	22 20 16	22 20 28
		Decl. (1950.) (° ' ")	-29 12 28	-29 14 05
Notes:		Hel. velocity (km/s)	1718	1769F
F7, C-		a(25) (")	71.6	184.1
		B	13.91	14.53
		(B-R)	1.03	0.70
		Other name	NGC 7259	

Pair 380 Data		**Galaxy Data**		
Projected separation (")	43	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	270120	270121
Type	DIS 1 LIN ta	Type	6.5	6.0
Ntot		R.A. (1950.) (h m s)	22 25 20	22 25 31
		Decl. (1950.) (° ' ")	-79 57 10	-79 56 38
Notes:		Hel. velocity (km/s)		
F7, C+		a(25) (")	46.8	64.6
		B	15.53	14.94
		(B-R)	0.83	0.19

Pair 381 Data		**Galaxy Data**		
Projected separation (")	31	Pair member	**a**	**b**
Velocity separation (km/s)	359	ESO number	5330310	5330320
Type	LIN ta	Type	-2.0	1.0
Ntot	2.865	R.A. (1950.) (h m s)	22 25 49	22 25 52
		Decl. (1950.) (° ' ")	-25 06 00	-25 05 49
Notes:		Hel. velocity (km/s)	4706	4347
F7, C+		a(25) (")	134.9	164.1
		B	12.96	12.82
		(B-R)	1.37	1.28
		Other name	NGC 7284	NGC 7285

Pair 382 Data		**Galaxy Data**		
Projected separation (")	156	Pair member	**a**	**b**
Velocity separation (km/s)	0?	ESO number	3450320	3450330
Type		Type	3.0	3.0
Ntot	2.228	R.A. (1950.) (h m s)	22 32 33	22 32 42
		Decl. (1950.) (° ' ")	-37 39 25	-37 37 30
Notes:		Hel. velocity (km/s)	11442dC	11442dC
F7, C-		a(25) (")	53.1	56.9
		B	14.95	14.83
		(B-R)	1.38	1.31



Pair 383 Data		Galaxy Data		
Projected separation (")	22	Pair member	a	b
Velocity separation (km/s)		ESO number	5340120	5340121
Type	LIN ta	Type	3.0	7.0
Ntot	3.820	R.A. (1950.) (h m s)	22 36 29	22 36 29
		Decl. (1950.) (° ' ")	-26 06 10	-26 06 32
Notes:		Hel. velocity (km/s)		8082dC
F7, C-		a(25) (")	56.2	100.0
		B	15.43	14.92
		(B-R)	1.15	1.03

Pair 384 Data		Galaxy Data		
Projected separation (")	234	Pair member	a	b
Velocity separation (km/s)		ESO number	6030060	6030070
Type	DIS 1	Type	7.6	7.5
Ntot	1.592	R.A. (1950.) (h m s)	22 40 05	22 40 12
		Decl. (1950.) (° ' ")	-21 25 40	-21 29 13
Notes:		Hel. velocity (km/s)	3070	
			3120F	
F7, C-		a(25) (")	78.5	37.2
		B	14.07	16.34
		(B-R)	0.93	0.53

Pair 385 Data		Galaxy Data		
Projected separation (")	74	Pair member	a	b
Velocity separation (km/s)		ESO number	10080	10090
Type	DIS 2	Type	9.5	3.0
Ntot	0.637	R.A. (1950.) (h m s)	22 40 56	22 47 13
		Decl. (1950.) (° ' ")	-89 22 58	-89 23 41
Notes:		Hel. velocity (km/s)	2558F	
F7, C+		a(25) (")	67.6	78.5
		B	15.32	14.88
		(B-R)	0.76	0.55

Pair 386 Data		Galaxy Data		
Projected separation (")	16	Pair member	a	b
Velocity separation (km/s)	14957	ESO number	5340211	5340210
Type		Type	2.6	5.4
Ntot	1.592	R.A. (1950.) (h m s)	22 41 51	22 41 52
		Decl. (1950.) (° ' ")	-23 15 03	-23 15 17
Notes:		Hel. velocity (km/s)	1811dC	3159dC
F7, C+, OP		a(25) (")	90.2	62.4
		B	14.66	14.92
		(B-R)	1.32	1.31

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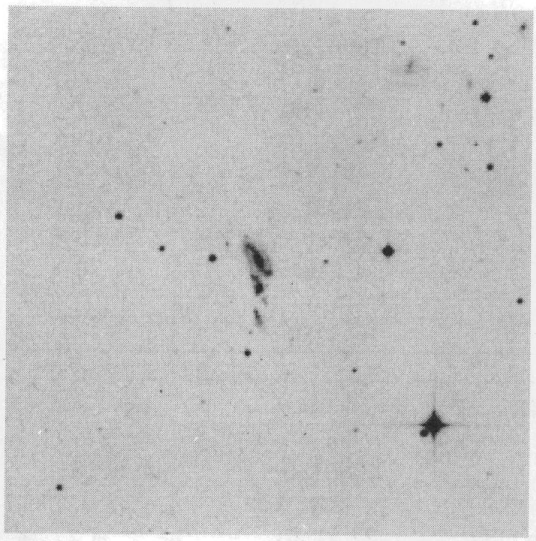

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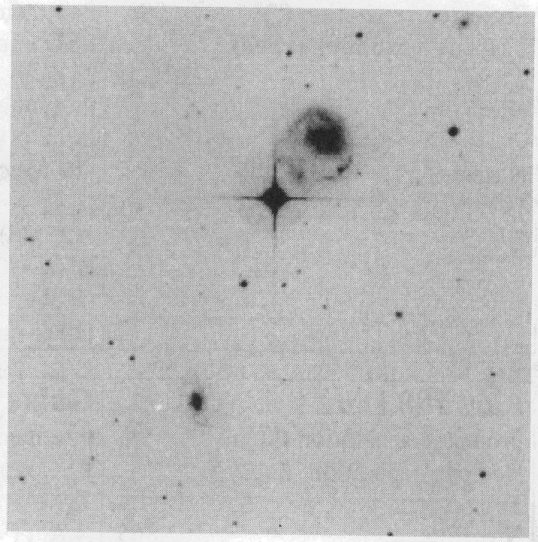

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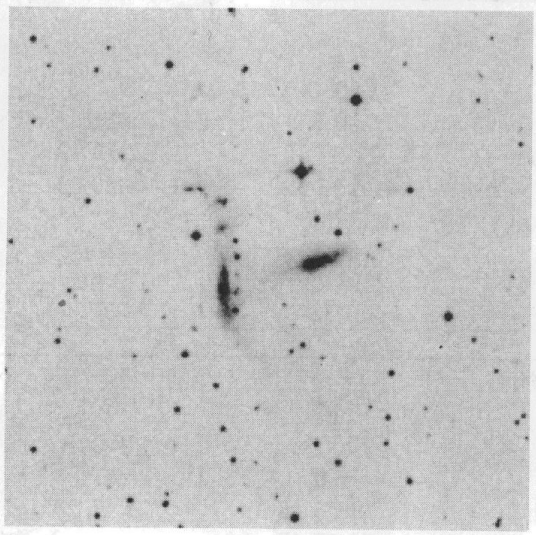

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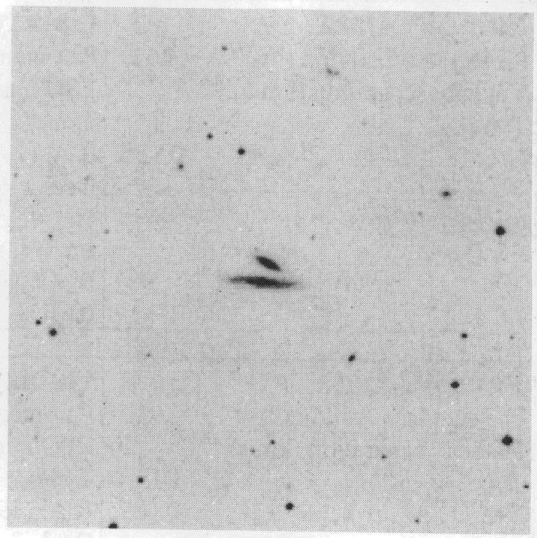

Pair 387 Data		Galaxy Data		
Projected separation (")	29	Pair member	a	b
Velocity separation (km/s)		ESO number	1090220	1090221
Type	LIN ta	Type	-2.0	-3.0
Ntot		R.A. (1950.) (h m s)	22 44 00	22 44 04
		Decl. (1950.) (° ' ")	-65 19 19	-65 19 11
Notes:		Hel. velocity (km/s)	2947	
			3123F	
F7, C+		a(25) (")	166.0	166.0
		B	12.10	12.20
		(B-R)	1.60	1.61
		Other name	IC 5250	

Pair 388 Data		Galaxy Data		
Projected separation (")	5	Pair member	a	b
Velocity separation (km/s)		ESO number	4060180	4060181
Type	LIN ta	Type	-0.4	-3.0
Ntot	2.865	R.A. (1950.) (h m s)	22 51 26	22 51 27
		Decl. (1950.) (° ' ")	-37 20 52	-37 20 56
Notes:		Hel. velocity (km/s)	17157dC	
F7, C+		a(25) (")	39.4	69.2
		B	15.17	14.65
		(B-R)	0.78	1.02

Pair 389 Data		Galaxy Data		
Projected separation (")	262	Pair member	a	b
Velocity separation (km/s)		ESO number	760300	760310
Type		Type	-0.3	-4.0
Ntot	0.955	R.A. (1950.) (h m s)	22 51 56	22 52 29
		Decl. (1950.) (° ' ")	-70 53 52	-70 50 24
Notes:		Hel. velocity (km/s)	3750	
F7, C+		a(25) (")	84.1	72.4
		B	14.20	13.96
		(B-R)	1.38	1.45

Pair 392 Data		Galaxy Data		
Projected separation (")	93	Pair member	a	b
Velocity separation (km/s)		ESO number	770030	770040
Type	DIS 1	Type	6.0	3.2
Ntot	0.637	R.A. (1950.) (h m s)	23 06 18	23 06 24
		Decl. (1950.) (° ' ")	-72 17 49	-72 16 19
Notes:		Hel. velocity (km/s)	8914F	
F7, C+		a(25) (")	64.6	43.7
		B	14.81	15.10
		(B-R)	0.89	0.58

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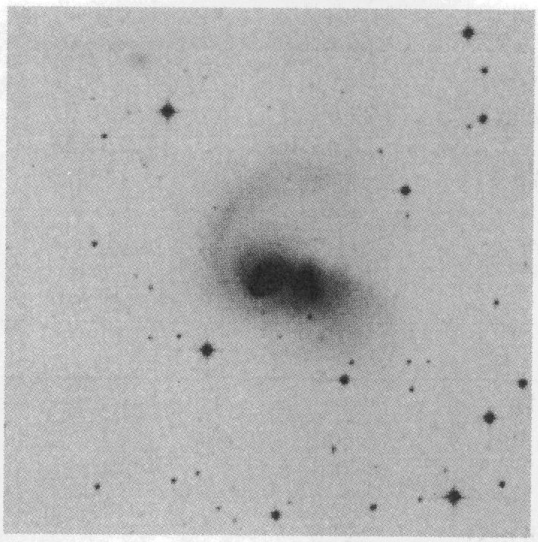

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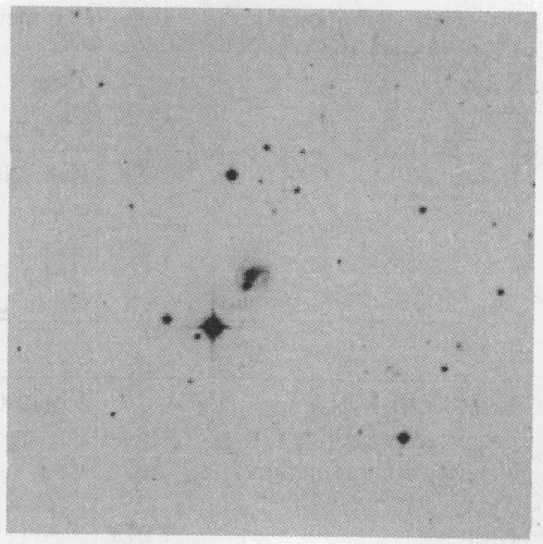

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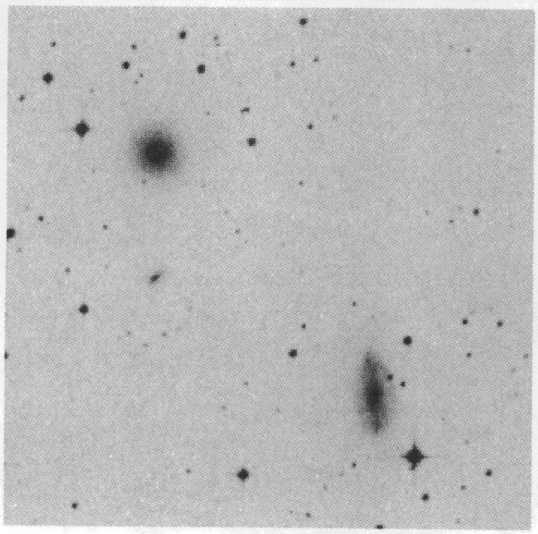

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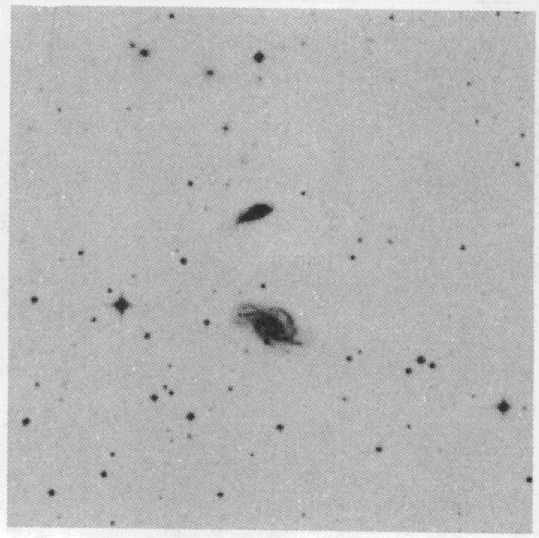

Pair 393 Data		**Galaxy Data**		
Projected separation (")	1086	Pair member	**a**	**b**
Velocity separation (km/s)	40	ESO number	4690190	4690220
Type		Type	-5.0	3.0
Ntot	16.00	R.A. (1950.) (h m s)	23 09 25	23 10 31
		Decl. (1950.) (° ' ")	-28 48 46	-28 37 55
Notes:		Hel. velocity (km/s)	1604	1564
F25, C+		a(25) (")	186.2	173.8
		B	11.60	12.73
		(B-R)	1.62	1.33
		Other name	NGC 7507	NGC 7513

Pair 396 Data		**Galaxy Data**		
Projected separation (")	764	Pair member	**a**	**b**
Velocity separation (km/s)	207	ESO number	4700110	4700150
Type		Type	3.0	1.0
Ntot	1.273	R.A. (1950.) (h m s)	23 26 55	23 27 53
		Decl. (1950.) (° ' ")	-29 06 25	-29 05 23
Notes:		Hel. velocity (km/s)	7248dC	7041dC
F20, C-		a(25) (")	66.1	58.2
		B	14.91	14.90
		(B-R)	1.36	1.30
		Other name	IC 5326	

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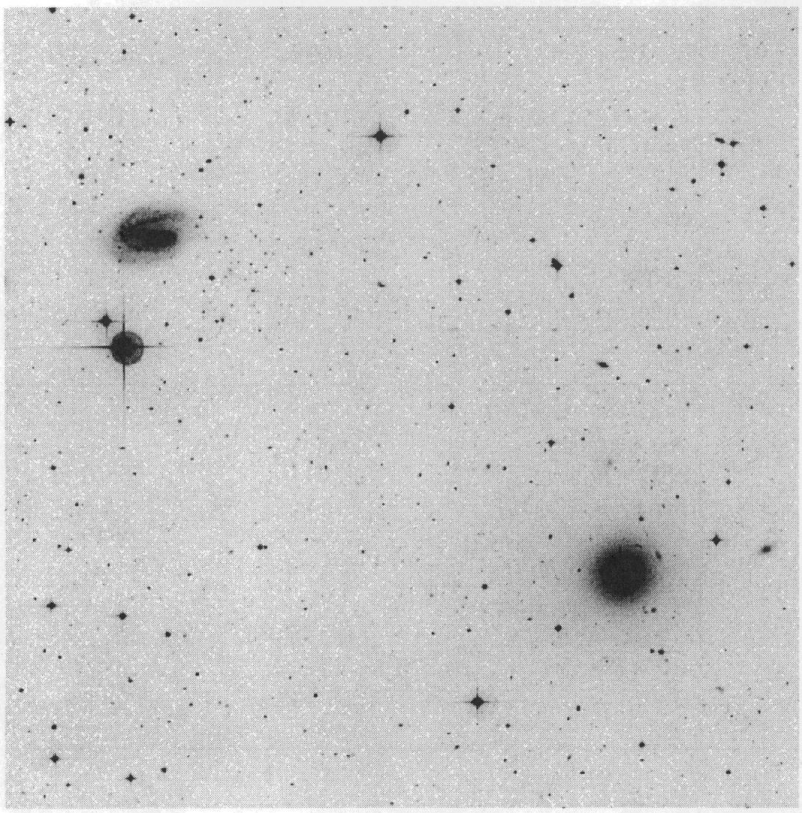

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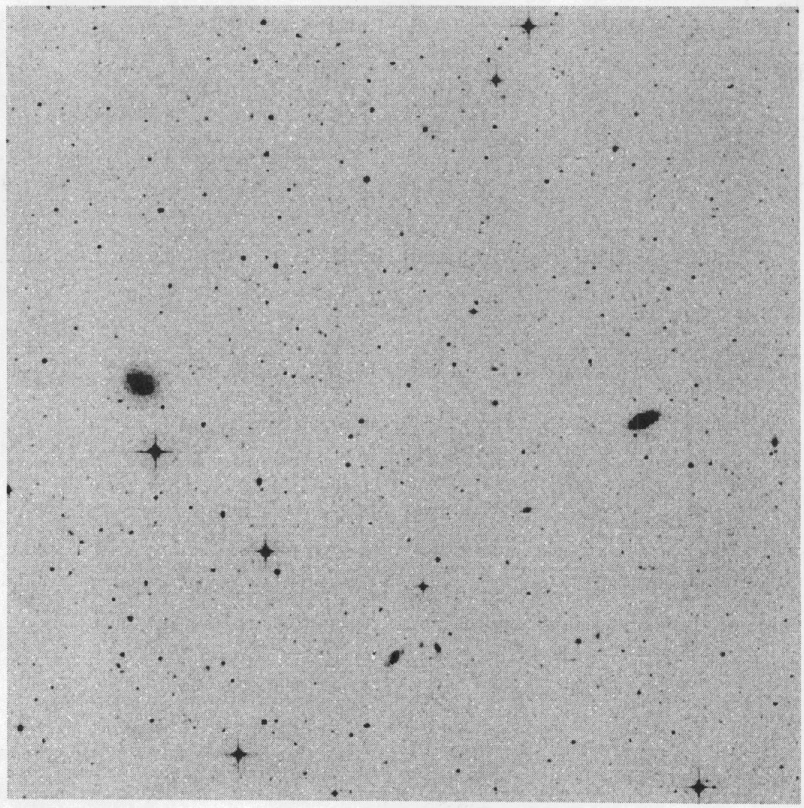

Pair 397 Data		Galaxy Data		
Projected separation (")	49	Pair member	a	b
Velocity separation (km/s)	977	ESO number	2910280	2910290
Type	ATM	Type	-1.0	-2.5
Ntot	1.910	R.A. (1950.) (h m s)	23 30 31	23 30 35
		Decl. (1950.) (° ' ")	-45 18 10	-45 17 34
Notes:		Hel. velocity (km/s)	4113	3136
F7, C+		a(25) (")		175.8
		B	14.69	12.21
		(B-R)	1.26	1.39
		Other name		IC 5328

Pair 398 Data		Galaxy Data		
Projected separation (")	35	Pair member	a	b
Velocity separation (km/s)		ESO number	6050110	6050111
Type	DIS 2	Type	6.4	8.5
Ntot	0.318	R.A. (1950.) (h m s)	23 32 43	23 32 45
		Decl. (1950.) (° ' ")	-17 41 49	-17 41 24
Notes:		Hel. velocity (km/s)	4358	
			4538F	
F7, C+		a(25) (")	53.1	94.4
		B	15.30	14.91
		(B-R)	0.58	0.68

Pair 399 Data		Galaxy Data		
Projected separation (")	327	Pair member	a	b
Velocity separation (km/s)		ESO number	6050180	6050200
Type		Type	-5.0	3.0
Ntot	1.273	R.A. (1950.) (h m s)	23 34 54	23 35 15
		Decl. (1950.) (° ' ")	-19 53 52	-19 51 10
Notes:		Hel. velocity (km/s)	9359dC	
F14, C-		a(25) (")	49.5	42.7
		B	14.52	15.55
		(B-R)	1.12	0.95

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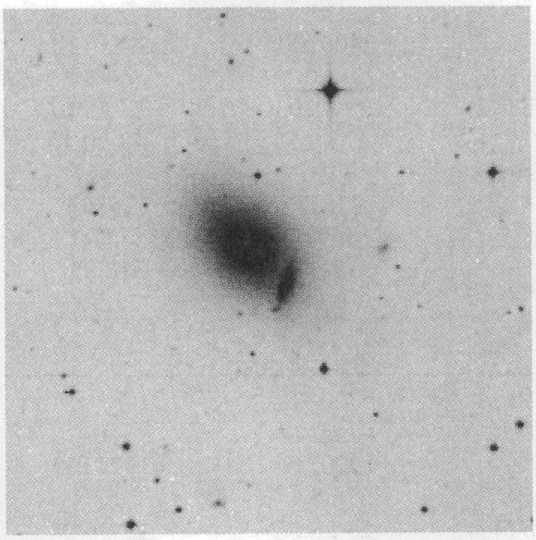

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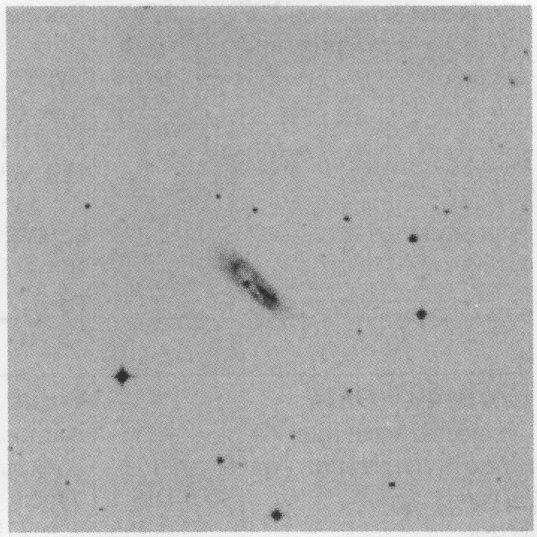

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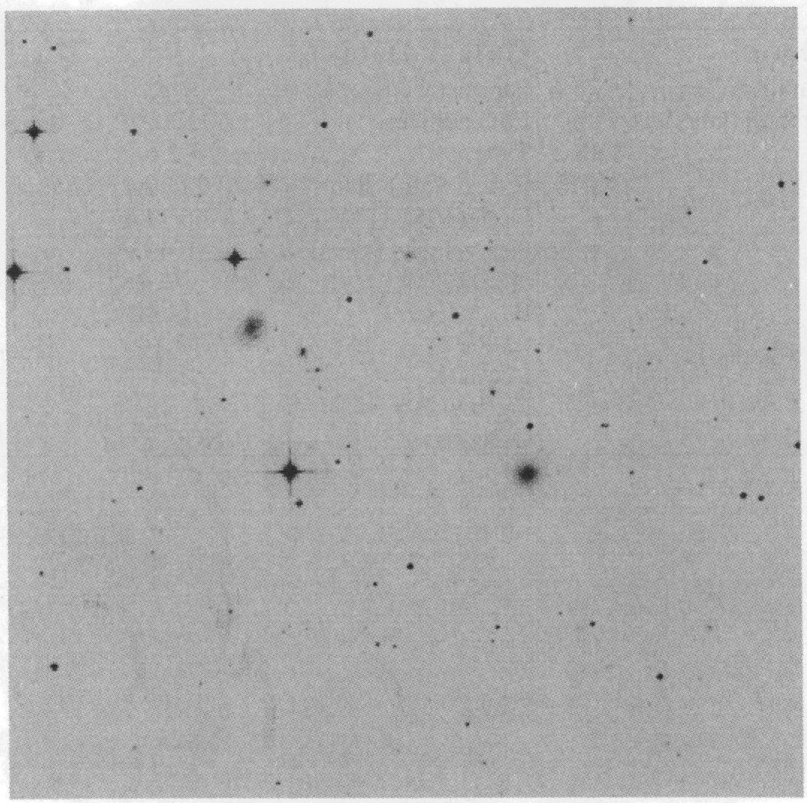

Pair 400 Data		**Galaxy Data**		
Projected separation (")	797	Pair member	**a**	**b**
Velocity separation (km/s)	378	ESO number	2400100	2400110
Type	DIS 1	Type	-2.0	4.8
Ntot	1.592	R.A. (1950.) (h m s)	23 35 03	23 35 07
		Decl. (1950.) (° ' ")	-47 46 55	-48 00 10
Notes:		Hel. velocity (km/s)	3195	2817
			3181F	2830F
F25, C-		a(25) (")	169.8	331.1
		B	12.49	13.05
		(B-R)	1.34	1.36

Pair 401 Data		**Galaxy Data**		
Projected separation (")	296	Pair member	**a**	**b**
Velocity separation (km/s)	171	ESO number	1920111	1920120
Type	DIS 1	Type	6.4	6.0
Ntot	0.955	R.A. (1950.) (h m s)	23 36 02	23 36 24
		Decl. (1950.) (° ' ")	-56 45 25	-56 41 34
Notes:		Hel. velocity (km/s)	10179F	10350
F7, C+		a(25) (")	72.4	58.9
		B	14.52	15.01
		(B-R)	0.63	0.93

Pair 402 Data		**Galaxy Data**		
Projected separation (")	76	Pair member	**a**	**b**
Velocity separation (km/s)	455	ESO number	1100220	1100230
Type	DIS 2	Type	2.6	3.3
Ntot	1.910	R.A. (1950.) (h m s)	23 39 47	23 39 56
		Decl. (1950.) (° ' ")	-66 14 05	-66 13 19
Notes:		Hel. velocity (km/s)	10132	10587
F7, C+, CCD		a(25) (")	72.4	78.5
		B	14.49	13.95
		(B-R)	1.14	1.39
		Lfir/MH2		4.18
		logCO/LB		-1.49
		Other name	NGC 7733	NGC 7734

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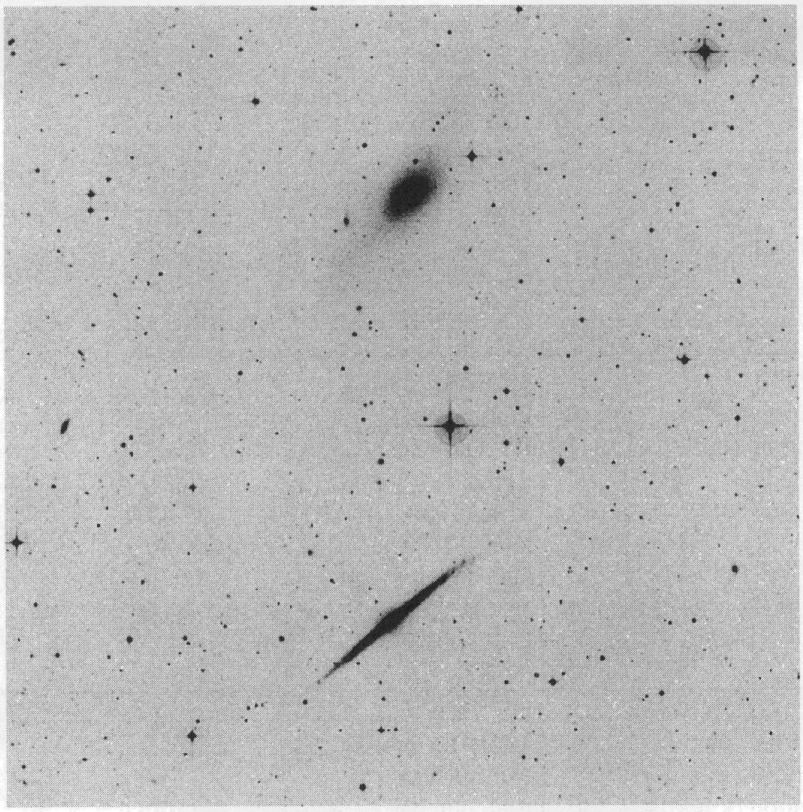

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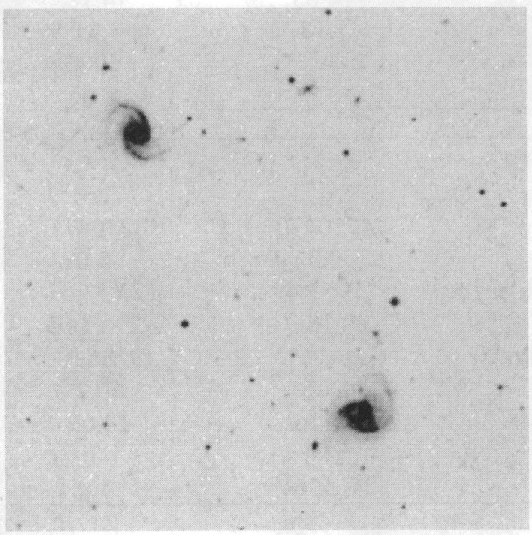

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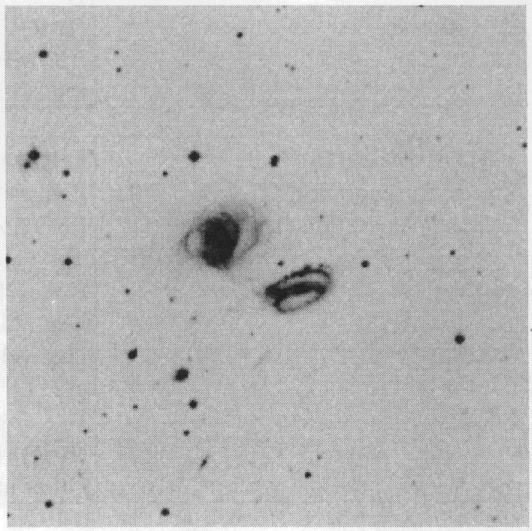

Pair 404 Data		**Galaxy Data**		
Projected separation (")	12	Pair member	**a**	**b**
Velocity separation (km/s)	840	ESO number	4710110	4710111
Type		Type	-2.0	-1.0
Ntot	29.50	R.A. (1950.) (h m s)	23 43 47	23 43 47
		Decl. (1950.) (° ' ")	-28 16 58	-28 16 48
Notes:		Hel. velocity (km/s)	7833	8673dC
F7, C+		a(25) (")	55.0	61.7
		B	15.24	14.77
		(B-R)	1.39	1.24
		Other name	IC 5349	

Pair 407 Data		**Galaxy Data**		
Projected separation (")	213	Pair member	**a**	**b**
Velocity separation (km/s)	241	ESO number	4710320	4710340
Type		Type	-2.0	1.0
Ntot	1.592	R.A. (1950.) (h m s)	23 49 47	23 49 55
		Decl. (1950.) (° ' ")	-30 30 28	-30 27 28
Notes:		Hel. velocity (km/s)	8639dC	8880dC
F7, C-		a(25) (")	54.3	66.1
		B	14.74	14.33
		(B-R)	1.16	1.13

Pair 408 Data		**Galaxy Data**		
Projected separation (")	94	Pair member	**a**	**b**
Velocity separation (km/s)	550	ESO number	1110090	1110100
Type		Type	5.0	4.0
Ntot	0.955	R.A. (1950.) (h m s)	23 53 18	23 53 30
		Decl. (1950.) (° ' ")	-60 57 36	-60 57 00
Notes:		Hel. velocity (km/s)	4279	4829
F7, C+		a(25) (")	118.9	70.8
		B	14.65	14.18
		(B-R)	1.18	1.31
		Lfir/MH2		140.42
		logCO/LB		-2.65

Pair 409 Data		**Galaxy Data**		
Projected separation (")	19	Pair member	**a**	**b**
Velocity separation (km/s)		ESO number	4710470	4710471
Type	DIS 1	Type	0.3	-3.0
Ntot		R.A. (1950.) (h m s)	23 53 49	23 53 51
		Decl. (1950.) (° ' ")	-29 18 07	-29 18 03
Notes:		Hel. velocity (km/s)		9186dC
F7, C+		a(25) (")	57.5	56.2
RS92		B	15.16	14.69
		(B-R)	1.41	1.36
		Other name	IC 5364	

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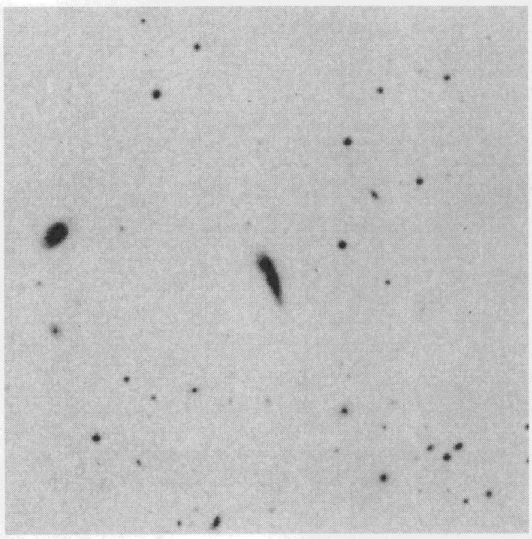
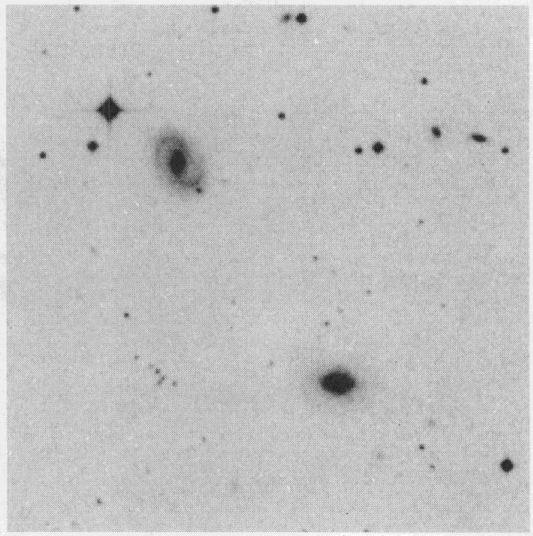


407



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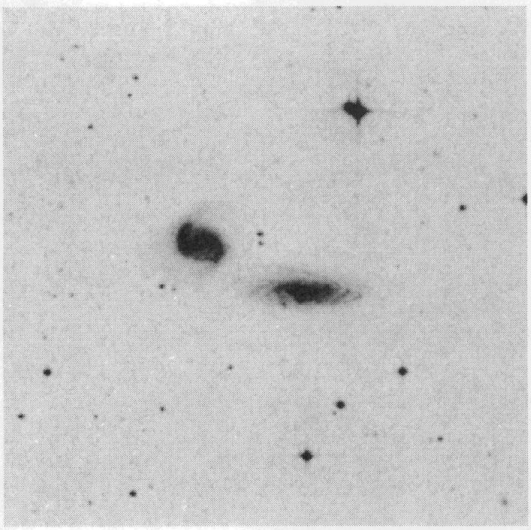

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