

A FINDING LIST OF H α -EMISSION OBJECTS IN THE COALSACK DIRECTION

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RESUMEN

En este trabajo se da la lista de doscientos setenta y cinco objetos con la línea H α en emisión. Todos ellos están en la dirección del Saco de Carbón en una área de aproximadamente veinticinco grados cuadrados. La comparación con otros estudios indica que 199 astros probablemente son nuevos objetos con emisión en H α .

ABSTRACT

This paper presents a list of 275 H α -emission objects in the Coalsack direction in an area of approximately 25 square degrees. A comparison with other surveys indicates that probably 199 stars are new H α -emission objects.

Key words: H α -EMISSION OBJECTS — SPECTRAL CLASSIFICATION.

I. INTRODUCTION

The Coalsack is a naked-eye dark cloud in the southern Milky Way. Its approximate coordinates are $\alpha=12^h45^m$ and $\delta=-64^\circ$ ($l=302^\circ$, $b=-1^\circ.4$). Our survey covers an area of 25 square degrees, approximately, whose center lies very close to star BS 4830 (see Mendoza and Gómez 1975).

The observations were carried out at the Cerro Tololo Inter-American Observatory with the Curtis Schmidt Camera on March 27, and April 1 and 4, 1968. Two plates were secured behind the 6 $^\circ$ objective prism and a red filter (RG2) on a 103-aE Kodak-emulsion. The exposure times are 5 and 120 minutes, respectively.

II. RESULTS

The result of the present survey is given in the form of a Catalogue of H α -emission objects contained in Table 1. The columns of this table list: first, a serial number; second, the number listed by Wray (1966, Tables XV, XVI and XVII); third and fourth, the 1950.0 coordinates; fifth, a number

to indicate the estimated emission intensity (1 stands for only emission, no continuum; 2, emission stronger than continuum; 3, emission and continuum nearly equal; 4, very weak emission, strong continuum). The last column gives the number of the object in the identification chart.

The coordinates given in Table 1 are only approximate. Their estimated errors are ± 6 sec in right ascension and ± 2 arc min in declination. We feel that there is no need for a higher accuracy since the accompanying charts (see Plates 13-75) give the identification of each object. The charts are reproduced from a Curtis Schmidt yellow plate (103a-D and a GG5 filter) taken on April 4, 1968, excepting the last four which are reproductions of the spectral plate as the yellow plate did not cover all of the region studied.

III. CONCLUSION

The most extensive H α -emission survey in the southern Milky Way is that of Wray (1966) who lists 76 H α -emission objects that lie in the area

TABLE 1

A CATALOGUE OF H α -EMISSION OBJECTS
IN THE COALSACK DIRECTION

Nr.	W	α	(1950)	δ	I	Plate	Nr.	W	α	(1950)	δ	I	Plate
1		12 ^h 19 ^m 5 ^s		-63°57'	1	13	57	115P	12 ^h 25 ^m 57 ^s		-63°28'	1	20
2		19 6		-63 33	2	13	58		26 4		-62 42	3	19
3		19 11		-62 38	2	14	59		26 5		-62 45	2	19
4	964	19 26		-64 31	2	15	60		26 12		-64 45	2	23
5	110P	19 37		-63 1	2	16	61		26 25		-64 44	2	23
6		19 38		-63 11	2	16	62		26 29		-62 23	3	19
7	965	19 39		-62 19	2	14	63		26 33		-61 40	2	22
8		19 42		-62 34	3	14	64		26 38		-63 56	4	21
9	111P	20 15		-63 45	1	13	65		26 46		-61 13	2	24
10	966	20 27		-62 4	2	17	66	982	26 46		-64 33	2	23
11		20 33		-62 6	2	17	67		26 47		-61 14	2	24
12	967	20 41		-62 22	2	14	68		26 48		-63 37	2	21
13		20 54		-62 30	2	14	69		26 59		-63 55	2	21
14	969	21 10		-64 34	2	15	70		27 0		-63 34	2	21
15	970	21 21		-61 14	4	18	71		27 10		-61 15	4	24
16		21 24		-62 48	2	14, 16	72		27 12		-62 18	2	19
17		21 30		-64 45	2	15	73	116P	27 17		-63 36	1	21
18		21 31		-62 50	2	16	74	117P	27 39		-64 35	1	23
19		21 37		-61 42	2	17	75		27 44		-62 1	2	22
20		21 41		-61 41	2	17	76		27 59		-63 37	2	21
21		21 43		-62 55	2	16	77	983	28 0		-61 1	2	24
22		21 45		-62 56	3	16	78		28 13		-64 10	2	23, 25
23		22 4		-61 44	2	17	79		28 27		-64 6	2	25
24		22 10		-61 42	2	17	80	984	29 2		-61 8	2	24
25		22 11		-62 8	2	17	81		29 18		-61 0	3-4	24, 30
26		22 12		-61 43	2	17	82		29 21		-62 8	2	26
27	972	22 12		-64 49	2	15	83	985	29 22		-61 43	2	26
28		22 35		-64 38	2	15	84		29 39		-62 16	4	26, 29
29		22 41		-60 54	2	18	85		29 44		-61 10	4	24, 27
30	973	22 50		-61 56	2	14	86		29 44		-63 50	2	25
31		23 10		-60 55	3	18	87		29 49		-61 35	2	25, 27
32	974	23 10		-61 11	4	18	88		30 15		-61 28	2	27
33		23 10		-61 48	2	17	89		30 16		-62 58	2	28
34	975	23 19		-62 33	2	19	90		30 21		-63 12	3	28
35		23 24		-63 17	2	20	91		20 27		-61 50	4	26
36		23 24		-63 56	3	21	92	986	31 15		-62 21	2	29
37		23 27		-62 7	2	17	93		31 16		-61 55	4	26
38		23 37		-60 53	3-4	18	94	987	31 20		-62 17	2	26, 29
39	976	23 49		-62 31	2	19	95		31 22		-61 55	4	26
40	977	23 49		-62 30	2	19	96		31 47		-64 2	1	25
41		24 6		-61 59	3	22	97	988	32 0		-64 17	3	25, 31
42		24 10		-64 5	2	21	98	118P	32 3		-61 23	2	26
43		24 15		-63 22	2	20	99		32 4		-62 28	2	29
44		24 17		-62 25	2	19	100		32 6		-62 28	2	29
45		24 20		-61 4	3-4	18	101		32 10		-61 1	3-4	27
46		24 20		-62 22	2	19	102		32 12		-60 28	3	30
47		24 52		-64 40	3	23	103		32 16		-64 27	2	31
48		24 55		-64 11	2	23	104		32 21		-60 45	2	30
49	979	24 56		-64 18	4	23	105		32 26		-62 41	3	29
50		25 6		-61 0	2	18	106		32 30		-61 22	3	27
51		25 13		-62 22	2	19	107		32 37		-62 28	3	29
52		25 15		-64 28	3	23	108	989	32 39		-63 57	2	25
53	980	25 19		-63 13	2	20	109		32 47		-60 25	3	30
54		25 35		-61 1	3	24	110		32 56		-61 12	2	27
55		25 53		-61 3	3	24	111		33 8		-60 46	3-4	30
56	114P	25 55		-61 49	1	22	112		33 22		-61 4	3	27

TABLE 1 — Continued

Nr.	W	α	(1950)	δ	I	Plate	Nr.	W	α	(1950)	δ	I	Plate
113		12 ^h 33 ^m 46 ^s		-60°42'	3	32	172		12 ^h 42 ^m 12 ^s		-61°45'	4	42
114		33 47		-61 23	2	33	173		42 19		-62 16	2	42
115		34 22		-60 45	4	32	174		42 34		-60 58	3	45
116		34 52		-60 46	4	32	175	1008	42 34		-61 21	2	46
117		34 55		-62 57	3	34	176	119P	42 49		-62 44	1	47
118	992	35 11		-62 29	2	35	177		42 53		-63 54	2	44
119		35 20		-63 19	2	34	178		42 55		-62 46	2	47
120	993	35 39		-62 14	2	35	179	120P	42 59		-60 4	1	72
121	994	35 43		-60 59	2	32	180		43 9		-62 55	2	47
122		35 45		-64 5	2	36	181	56PP	43 27		-63 8	1	48
123		35 50		-64 57	2	37	182		43 54		-62 30	3	47
124		36 2		-63 49	3	36	183		44 0		-62 32	3	47
125		36 4		-63 26	2	34	184	1009	44 15		-61 3	2	45, 46
126		36 4		-64 15	2	36	185		44 19		-61 1	2	45, 46
127		36 16		-60 11	1	32	186	1010	44 20		-60 24	2	45, 72
128		36 18		-64 3	2	36	187		44 42		-64 3	3-4	49
129	995	36 21		-60 11	4	32	188		44 45		-63 33	2	48
130	996	36 30		-60 25	4	32	189	1012	44 51		-62 43	2	47, 51
131		36 31		-60 0	3-4	32	190		45 8		-63 24	2	48
132		36 33		-64 29	2	37	191		45 8		-63 32	4	48
133		36 39		-62 9	2	35	192	1013	45 21		-60 52	4	45
134		36 43		-61 7	4	33	193	1014	45 29		-60 59	2	45
135		36 46		-60 32	4	32	194	121P	45 30		-63 34	1	48
136		36 53		-64 33	2	37	195	1015	45 43		-63 45	2	49
137		36 58		-64 24	3	37	196	1017	45 52		-64 10	2	49
138		37 2		-62 59	4	34, 41	197		46 7		-63 28	2	48
139		37 3		-63 59	3	36	198		46 31		-61 34	2	50
140		37 5		-62 56	4	38	199		46 38		-63 27	3-4	48
141		37 9		-61 35	3	33	200		47 6		-63 32	2	48
142	999	37 23		-61 10	4	33	201		47 9		-62 24	4	51
143		37 29		-62 22	2	35	202		47 15		-64 59	2	52
144		37 57		-62 40	2	38	203	1020	47 33		-61 51	2	53
145	1000	38 18		-61 27	2	39	204		47 53		-60 55	2	54
146	1001	38 44		-60 44	2	40	205	1021	47 58		-60 26	2	54
147		38 51		-63 20	3-4	41	206		48 21		-61 11	3	50
148		38 52		-61 54	2	42	207		48 22		-64 47	2	52
149		38 53		-63 2	3	41	208		48 28		-62 50	4	51
150		38 59		-61 46	2	42	209		49 4		-61 2	2	55
151		38 59		-63 5	3-4	41	210		49 32		-63 36	2	56
152		39 9		-61 53	2	42	211	1023	49 36		-60 2	2	73
153		39 10		-64 33	2	43	212	1024	49 39		-60 4	2	73
154		39 26		-64 49	1	43	213	1025	49 49		-61 15	2	55
155		39 27		-62 53	2	38	214		49 52		-63 55	4	57
156		39 59		-60 54	2	40	215	1026	50 4		-60 27	4	54, 73
157		39 59		-61 43	2	42	216	57PP	50 14		-61 30	2	55
158		39 59		-62 46	2	38	217		50 26		-63 37	2	56
159	1002	40 13		-61 41	2	39, 42	218	1030	50 40		-60 8	2	73
160		40 20		-64 13	2	44	219		50 45		-63 29	2	56
161		40 23		-64 10	2	44	220		50 46		-64 6	2	57
162		40 36		-62 49	2	38	221		50 47		-60 8	2	73
163		40 42		-62 29	3	38	222		50 52		-63 11	4	56
164		40 51		-61 38	2	39	223		51 0		-63 32	2	58
165	1004	40 53		-62 49	2	38	224		51 7		-65 5	2	59
166		40 55		-63 58	3	44	225		51 0		-64 58	4	59
167		41 27		-61 39	2	39, 46	226	1031	51 25		-61 9	2	55
168		41 33		-61 18	2	39, 46	227		51 26		-63 30	2	56
169	1005	41 38		-60 53	2	40	228		51 27		-62 54	2	58
170		41 40		-61 47	3-4	42	229		51 40		-64 59	2	59
171		41 42		-64 37	2	43	230		51 47		-62 26	3	58

TABLE 1 — Continued

Nr.	W	α	(1950)	δ	I	Plate	Nr.	W	α	(1950)	δ	I	Plate
231		12 ^h 51 ^m 55 ^s		-64°49'	2	59	254		12 ^h 58 ^m 49 ^s		-61°25'	2	66
232		51 58		-63 33	2	56	255		58 52		-62 28	4	67
233		52 7		-62 34	2	58	256		59 8		-62 27	4	67
234		52 15		-61 19	2	55	257	1051	59 28		-62 3	2	68
235		53 38		-64 35	2	59	258		59 35		-63 7	2	69
236	1034	54 12		-62 45	2	60	259	1053	59 37		-63 34	2	70
237		54 12		-61 15	3	61	260		59 44		-61 6	4	66, 74
238	1036	54 40		-61 26	2	61	261		59 53		-64 21	3	63
239	1037	54 58		-63 29	2	62	262		13 0 19		-61 0	2	66, 74
240	1038	55 36		-63 59	2	62	263		0 52		-61 1	2	66, 74
241		55 52		-62 54	2	60	264		0 59		-64 45	2	71
242		55 56		-64 41	3	63	265		1 14		-65 6	2	71
243		56 21		-61 25	3-4	61	266		1 21		-64 11	2	70
244	1040	56 40		-62 15	2	60	267	1056	1 23		-63 5	2	69
245		56 42		-63 56	3	62	268		1 48		-61 49	4	68, 75
246		56 53		-62 2	3	64	269	1057	1 52		-61 15	2	74
247		56 56		-64 29	3	63	270	1058	1 55		-62 17	2	67
248	1041	57 5		-60 32	2	65	271		1 59		-62 49	3	67
249		57 6		-63 34	2	62	272	1059	2 2		-62 12	2	75
250		57 11		-63 40	3-4	62	273		2 3		-64 9	4	70
251		57 16		-63 46	4	62	274	1060	2 14		-62 57	2	69
252		58 10		-61 26	2	66	275	1061	2 18		-61 6	2	74
253		58 44		-64 44	2	63, 71							

Notes to the Catalogue

An L before a number means that the object is listed by Lynga (1969).

1. V probably fainter than 16.0 mag. A possible T Tauri-like object or a Planetary Nebula.
7. L 123.
14. L 124.
63. L 131.
96. A possible T Tauri-like object or a Planetary Nebula.
108. L 139.
118. L 144.
120. L 145.
121. L 146.
127. A possible T Tauri-like object or a Planetary Nebula.
159. B2 Ib(e):
159. Oe (L 152).
165. WN5.
193. L 162.
203. L 167.
211. L 172.
213. L 173.
216. L 175.
236. L 185.
248. L 191.
259. L 195.

under study. Among them 64 are early type stars, 10 are planetary nebulae, and 2 are possible planetary nebulae. Thus, the total number of new H α -emission

objects is probably 199. Some of these have been previously classified as OB-stars (Lynga 1969, and Mendoza and Gómez 1975).

We have not measured any magnitudes. However, the objects contained in Table 1 are all fainter than 9th magnitude. Thus, we have not included in our Catalogue stars brighter than this magnitude (such as BS 4830-B1pe). Perhaps we have also missed a few 9 - 10 magnitude objects with a faint emission and strong continuum. Our faintest H α -emission stars are around the 16th magnitude in the visual.

Objects 1, 96 and 127 are possibly new planetary nebulae or T Tauri-like objects.

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