

VISUALLY DISCOVERED EXTRA-GALACTIC SUPERNOVAE

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Abstract

This paper is intended as a supplement to the author's recent paper (Spratt 1986) entitled, **A Checklist of Supernovae in the NGC and IC Galaxies Through 1985**, and is a listing of those extra-galactic supernovae discovered visually.

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1. Introduction

Various sources were used in this compilation, which is as complete as possible. Like the **Checklist of Supernovae in the NGC and IC Galaxies Through 1985** (Spratt 1986), this current list of supernovae, discovered visually, is not intended to replace any general authoritative listing and is a guide only. Any errors, omissions, comments, etc., should be reported to the author. Table I lists visually discovered supernovae.

2. Description of Table I

1. NAME & YEAR - Self-explanatory; the official designation of the supernova and the year of discovery.

2. NGC (IC) NUMBER - The standard number from the **New General Catalogue of Nebulae and Clusters of Stars** (Dreyer 1888), or the number in the **Index Catalogue** (Dreyer 1895) or the **Second Index Catalogue** (Dreyer 1908).

3. GALAXY TYPE - Galaxy types were primarily obtained from **A Revised Shapley-Ames Catalog of Bright Galaxies** (Sandage and Tammann 1981).

For an extensive review of the classifications of galaxies, other references should be consulted, as certain precepts are set down by various authorities and are beyond the intended scope of this listing. However, a general overview is given in Spratt 1986.

4. SUPERNOVA MAGNITUDE - The supernovae magnitudes (visual), as estimated at discovery, are from the **International Astronomical Union Circulars** (IAUC's), as edited by B. G. Marsden.

5. GALAXY MAGNITUDE - The magnitude estimates for the galaxies were obtained from **Burnham's Celestial Handbook**, Volumes 1, 2, and 3 (Burnham 1978), with occasional reference to **Atlas Coeli II - Katalog 1950.0** (Becvar 1960). Unless otherwise stated, galaxy magnitudes are visual.

6. TYPE - Whether a Type Ia, Type Ib, or Type II supernova, according to its rate and type of decline, spectrum, and absolute magnitude, etc. There are, for those interested, various references in the literature on the differences among Types Ia, Ib, and II supernovae.

7. **DISCOVERER** - The first person to officially report the event and to be credited with same by the International Astronomical Union.

8. **DISCOVERY DATE** - The day, month, and year of discovery.

9. **REFERENCE (IAUC NO.)** - The IAUC's, edited by Marsden and referenced for the period 1 January 1968 to date.

10. **NOTES** - As follow:

- (1) - Discovered prior to maximum light.
- (2) - K. Okazaki (Kozai and Kozai 1983) had unconfirmed photographic discovery one day prior to visual discovery.
- (3) - K. Okazaki (Kozai 1984) and N. Metlova (Aksenov 1984) indicate photographic discovery three days before, but their reports were not communicated to the IAU until after Evans' visual discovery was reported.
- (4) - Independent photographic discoveries by L. Cameron and B. Leibundgut (1986) and M. Lovas (Szeidl 1986).
- (5) - Gaposchkin (1961) and van den Bergh (1986) credit Hartwig. On the other hand, Nielsen (1961) gives credence to a report by Silcock (1885), while Beesley (1985) credits the Irish astronomer Ward. Van den Bergh gives an extensive bibliography on this supernova, the first extra-galactic one to have been so recognized.
- (6) - Also discovered visually by O. Duhalde and A. Jones. Initial discovery by I. Shelton was photographic.
- (7) - Discovered after maximum light.

3. Closing Remarks

The AAVSO, for some time now, has had a regular supernova search program, and is currently developing field charts for specific galaxies. This listing and its companion (Spratt 1986) should supplement the AAVSO program and encourage more observers having suitable equipment to undertake a systematic check of likely candidates for supernovae. For a report on the major and minor problems of undertaking a visual supernova search program, see Evans (1986) who is, as may be seen from the data in Table I, the leading visual discoverer of extragalactic supernovae.

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TABLE I
Extra-Galactic Supernovae Discovered Visually

Name & Year	NGC (IC) Number	Galaxy Type	Supernova Mag.	Galaxy Mag.	Type	Discoverer	Date of Discovery	Reference (IAUC No.)	Notes
1885a	224=M31	Sb	5.4	3.5	I	Hartwig	17 Aug 1885	----	(5)
1945a	5195=M51	Sc/Irr	14.0	8.0	Ia	Humason	6 Apr 1945	----	
19681	5236=M83	Sbc(s)	11.9	8.0	II	Bennett	16 Jul 1967	2085	(1)
1979c	4321=M100	Sc(s)	12.1	10.6	II	Johnson	19 Apr 1979	3348	
1981a	1532	Sab	13.5	11.5	II	Evans	24 Feb 1981	3578	(1)
1981d	1316	SaPec.	12.5	10.1	Ia	Evans	9 Mar 1981	3583	(2)
1983g	4753	S0	12.8	10.5	Ia	Evans	6 Apr 1983	3789	(1)
1983n	5236=M83	Sbc(s)	11.5	8.0	Ib	Evans	3 Jul 1983	3835	
1983s	1448	Sc	11.5	11.8	II	Evans	6 Oct 1983	3877	(1)
1983v	1365	SBb(s)	13.5	11.2	Ib	Evans	25 Nov 1983	3895	(3)
1984e	3169	Sb(r)	14.5	11.5	II	Evans	29 Mar 1984	3931	(1)
1984j	1559	Sbc(s)	13.2	11.1	II	Evans	27 Jul 1984	3963	
1984l	991	Sc(rs)	13.8	12.7	Ib	Evans	28 Aug 1984	3979	(4)
1984n	7184	Sb(r)	14.0	12.0	I	Evans	20 Jul 1984	3962	(1)
1985p	1433	SBb(s)	13.5	11.4	II	Evans	10 Oct 1985	4119	(1)
1986a	3367	Sbc(s)	14.0	12.3	Ia	Evans	4 Feb 1986	4173	(1)
1986g	5128	S0+SPec.	12.0	7.2	Ia	Evans	3 May 1986	4208	(1)
1986l	1559	SBcd(s)	13.5	11.1	II	Evans	7 Oct 1986	4260	(1,6)
1987a	LMC	SB	4.6	1.0	II Pec?	Shelton Duhalde	23 Feb 1987	4316	
1987b*	5850	SBb(r)	14.4	11.7	II	Jones	24 Feb 1987	4321	
1987l*	2336	S	14.2	11.5	Ia	Evans Patchick	16 Aug 1987	4441	

* Entry added after manuscript received at AAVSO Headquarters - Ed.