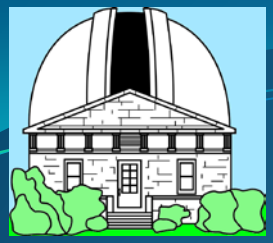

The WDS:

Whence it Came
Whither it Goeth

Bill Hartkopf
U.S. Naval Observatory

Whence…

The WDS is 49/107/140 years old ..

and can be traced back to the efforts of S.W. Burnham

- court reporter by day,
- amateur* astronomer by night

(* except for 4 years as astronomer at Lick Obs.)

Sherburne Wesley Burnham (1838-1921)

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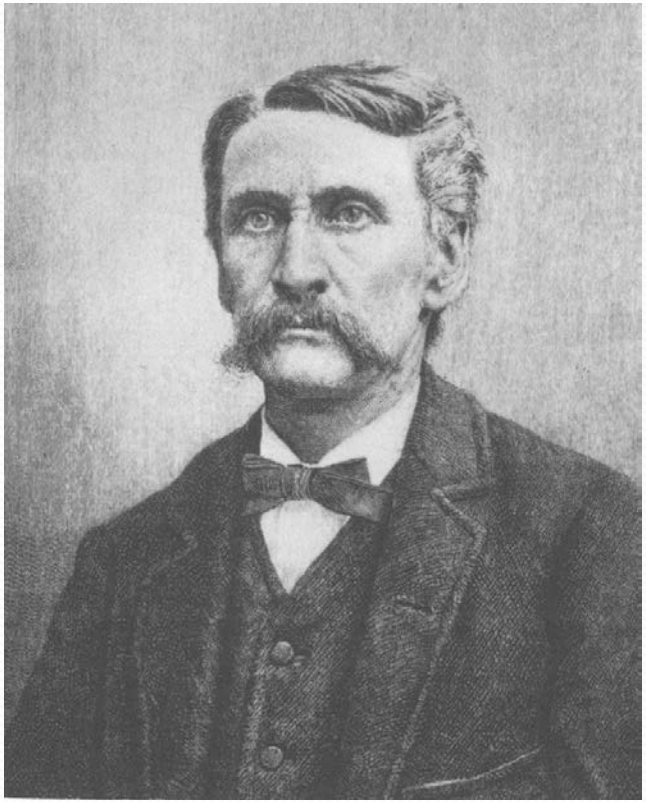


Sherburne Wesley Burnham
(1838-1921)

(* Well, other than 4 years at Lick Observatory.)

Whence…

Catalogue of 81 *Double Stars, discovered with a 6-inch Alvan Clark Refractor.* By S. W. Burnham, Chicago, U.S.A.

It is believed that the stars enumerated in the accompanying list have been hitherto unknown as double stars, as they are not found noted in the numerous catalogues and publications relating to this subject. With a single exception they were discovered with a 6-inch Alvan Clark refractor, and but three or four of them have been seen by me with any other instrument. The position angles and distances are estimated, except in the few instances where measures have been made by George Knott, Esq., as stated in the "Notes." The magnitude of the primary is generally that given in the star-catalogue from which its place is taken, the secondary being rated according to Herschel's scale.

The more prominent works which have been examined are:— Struve's *Mensuræ Micrometricæ;* Otto Struve's *Catalogue de* 514 *Etoiles Doubles et Multiples*, &c., 1843, and the revised edition of 1850; Herschel and South's *Catalogue of* 380 *Double and Triple Stars* ("Philosophical Transactions," 1824); South's *Catalogue of* 458 *Double and Triple Stars* ("Philosophical Transactions," 1826); Secchi's *Catalogo di* 1321 *Stelle Doppie*, &c. Herschel's *Results of Astronomical Observations at the Cape of Good Hope;* the seven series of Sir John Herschel in the *Memoirs of the Royal Astronomical Society; First Catalogue of* 321 *New Double and Triple Stars* (Vol. II.); *Second Catalogue of* 295 *New Double and Triple Stars* (Vol. III.); *Third Catalogue of* 384 *New Double and Triple Stars* (Vol. III.); *Fourth Catalogue of* 1236 *New Double and Triple Stars* (Vol. IV.); *Fifth Catalogue of* 1304 *New Double and Triple Stars* (Vol. VI.); *Sixth Catalogue of* 286 *New Double and Triple Stars* (Vol. IX.); *Seventh Catalogue of* 84 *New Double and Triple Stars* (Vol. XXXVIII.); the several Catalogues of *Jacob, Dunlop, Wrottesley, Powell, Smyth, Fletcher, Dawes,* and others, found in the *Memoirs of the Royal Astronomical Society;* and the discoveries of Dawes, Clark, Dembowski, Winnecke, Knott, Otto Struve, and others, in *Monthly Notices, Astronomische Nachrichten*, &c., embracing altogether nearly 8000 different double stars visible in this latitude.

A GENERAL CATALOGUE OF DOUBLE STARS

WITHIN 121° OF THE NORTH POLE

BY

S. W. BURNHAM

PART I.

THE CATALOGUE

PUBLISHED BY
THE CARNEGIE INSTITUTION OF WASHINGTON
1906

Burnham's first publication (left) and his *Magnum Opus* (above)

Whence…

BDS → ADS (1932)

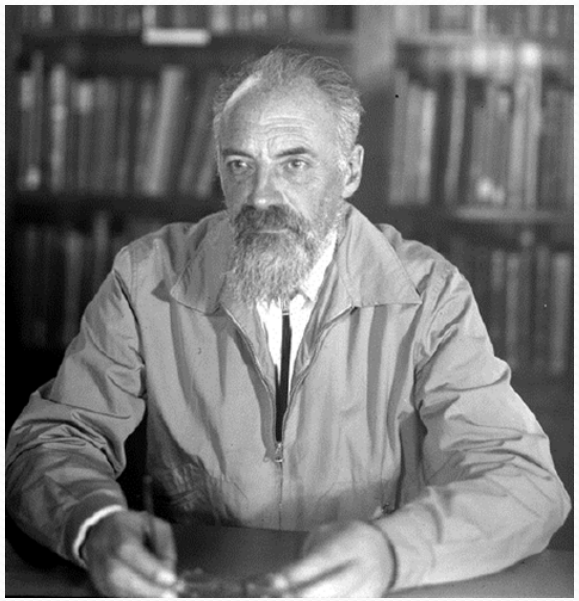
Eric Doolittle
(1869-1920)

Robert Grant Aitken
(1864-1951)

Whence…

SDS (1927)

R. T. A. Innes
(1861-1933)



Willem van den Bos
(1896-1974)

Bernhard H. Dawson
(1890-1960)

Whence…

ADS + SDS → IDS (1963)

Willem van den Bos
(1896-1974)

Hamilton M. Jeffers
(1893-1978)

Frances Greeby
(1921-2002)

Whence…

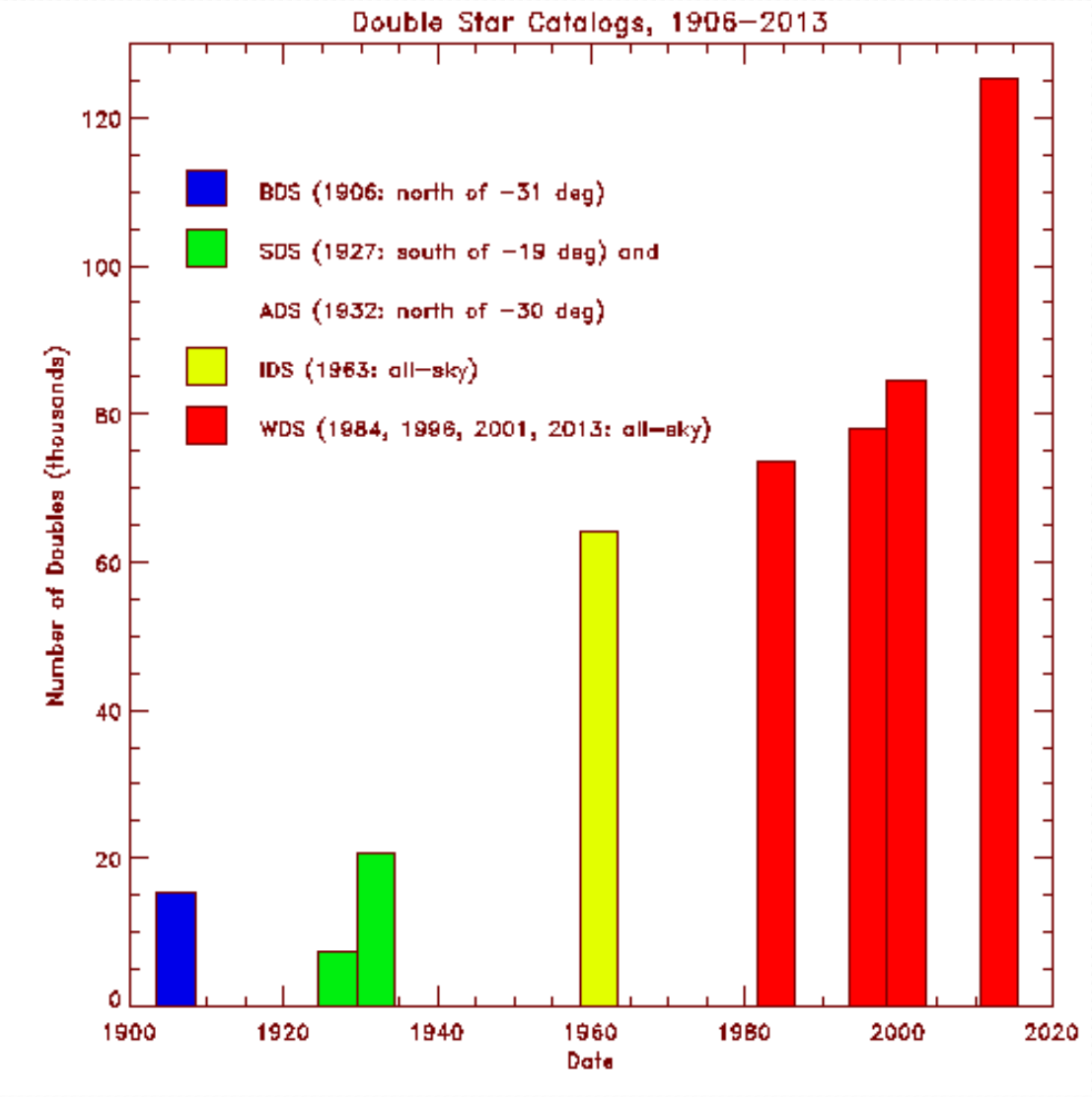
IAU 1964: decision to transfer database to USNO

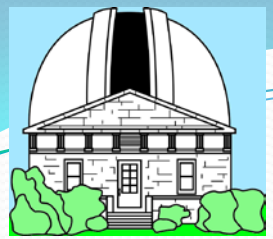
IDS → WDS (1965)

Charles E. Worley
(1935-1997)

Whence…

WDS now includes
125,000+ pairs





Whither…

So what have we been up to lately?

Whither…

2000 – present: addition of precise coordinates (on-going effort, 98.8% complete)

Summer 2012: format change to data lines
Greater precision for ρ, θ, magnitudes, errors
Filter information (λ, $\Delta\lambda$)

Summer 2012: photometry from 2MASS, etc
124,560 additional 2MASS measures

Fall 2012: UCAC4 matches to 60,000+ pairs (on-going)
61,822 astrometric measures
90,783 photometric measures (APASS)

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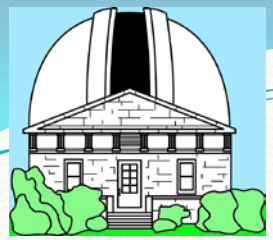

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- Filter information (λ, Δλ)

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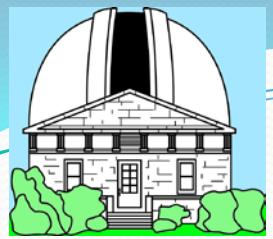
Fall 2012: UCAC4 matches to 60,000+ pairs (on-going)
61,822 astrometric measures
90,783 photometric measures (APASS)



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2000 – present: addition of precise coordinates (on-going effort, 98.8% complete)

Summer 2012: format change to data lines

- Greater precision for ρ, θ, magnitudes, errors
- Filter information (λ, Δλ)

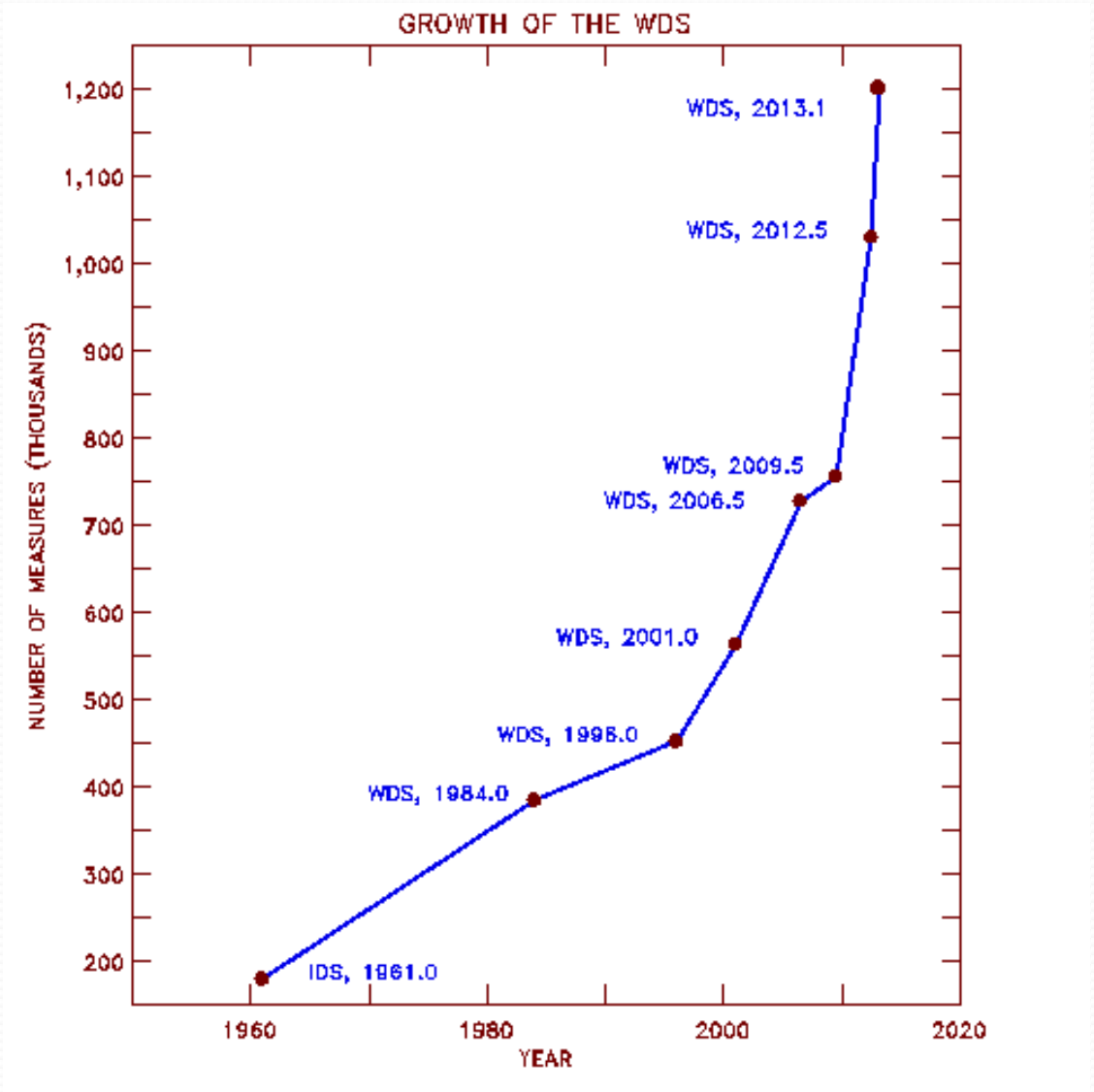
Summer 2012: photometry from 2MASS, INT4, etc.

- 135,000 additional 2MASS measures

Fall 2012: UCAC4 matches to 65,000+ pairs (on-going)

- 67,000 astrometric measures
- 76,000 photometric measures (APASS)

Whither…


GROWTH OF THE WDS
NUMBER OF MEASURES (THOUSANDS)
1,200
1,100
1,000
900
800
700
600
500
400
300
200
1960
1980
2000
2020
YEAR
WDS, 2013.1
WDS, 2012.5
WDS, 2009.5
WDS, 2006.5
WDS, 2001.0
WDS, 1996.0
WDS, 1984.0
IDS, 1961.0

Whither…

Still to come: UCAC proper motions and photometry

Still to come: reformat of summary lines

Greater precision for ρ, θ

More space for components, spectral types

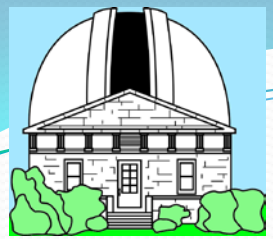
More precise WDS designation?

Drop DM number? Replace with what?

Parallax?

What else would be useful?

Still to come: everything to web?



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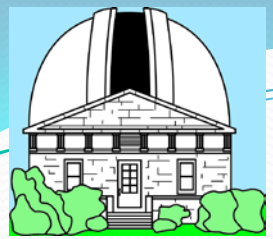

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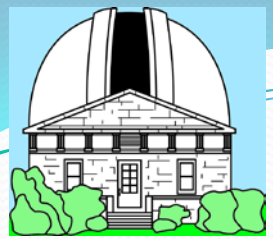

Sources

- U.S. Naval Observatory Library
- NASA Astrophysics Data System
- Yerkes Observatory Photo Archives
- Yerkes Observatory, 1892-1950 by Osterbrock
- Mary Lea Shane Archives of the Lick Observatory, UC Santa Cruz
- California Academy of Sciences
- Astronomy in South Africa, by Moore & Collins
- Eye on the Sky: Lick Observatory's First Century by Osterbrock, Gustafson & Unruh
- Sherburne Wesley Burham (obituary) by E.E. Barnard (Popular Astronomy, 29; 1921)
- Joe Tenn, AAS Historical Astronomy Division