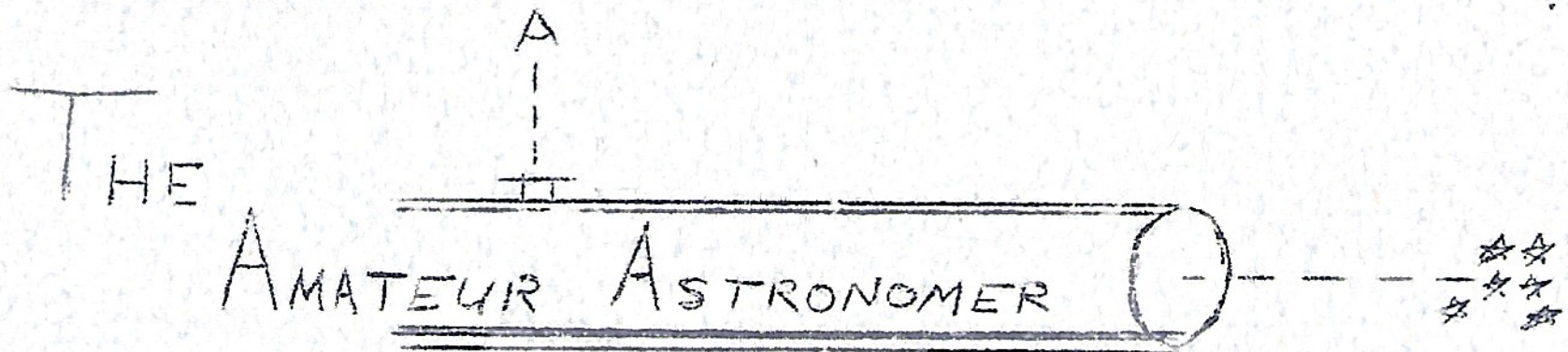


The Ann Arbor Amateur Astronomers wish to thank Dr. William Bidelman for his stimulating discussion of "Recent Results in Astronomical Spectroscopy." His discussion began with introductory and historical spectroscopy and led to the main and concluding theme "line identification in the spectra of peculiar stars." Dr. Bidelman went on stating that differences in stellar spectra are due to chemical composition, and also in special cases of low pressure also due to the Stark effect. Unusual spectral lines have been observed in the so called "peculiar" stars. These lines correspond extremely heavy elements, some of which have never been known to exist in a star before. The peculiar stars discussed were grouped into manganese, silicon, europium, strontium and chromium star groups. Others mentioned were carbon and S stars. We again thank Dr. Bidelman and hope, in the future, to have him address the membership again on other interesting topics.



ANN ARBOR AMATEUR ASTRONOMERS

Meeting: November 6, 1964 (Friday.)

7:30 p.m. EST./19:30 Hours

Second floor, Room 2009, Exhibit Museum  
University of Michigan (Use rear entrance)

Program -- Origin and Nature of Tektites

By: Dennis W. Sunal

Observing Session Nov. 7, 1964 (Sat.)

7:30 p.m., Andresen Farm, 8830 N. Rushton Rd.,  
South Lyon area. See the October star party  
bulletin.

Alternate Date. Sat., Nov., 14, 1964, 7:30 p.m.

Same place. Call Don Kucera, 663-6532 if in doubt.

\* \* \* \* \*  
An Ann Arbor Amateur Astronomers and University of Michigan  
Exhibit Museum Publication.  
\* \* \* \* \*

THE SKY -- November - December, 1964

Risings and Settings (E.S.T. From Eastern Michigan)

	Sunrise	Sunset	Mercury Sets	Mars Rises
Nov. 15	7:20 a.m.	5:14 p.m.	6:05 p.m.	12:36 a.m.
Nov. 30	7:34 a.m.	5:05 p.m.	6:22 p.m.	12:13 a.m.
Dec. 15	7:49 a.m.	5:06 p.m.	5:42 p.m.	11:47 p.m.
Dec. 30	7:53 a.m.	5:18 p.m.	-----	11:10 p.m.

THE MOON

New Moon	First Quarter	Full Moon	Last Quarter
Nov. 4	Nov. 12	Nov. 19	Nov. 26
Dec. 3	Dec. 12	Dec. 18	Dec. 25

During the period beginning shortly after new moon and ending at full, the moon is always visible at sunset  
 \* -- Total eclipse of the moon -- see below.

SKY EVENTS

Nov. 5	Taurid meteor shower (hourly rate 25)
Nov. 13	Opposition of Jupiter (372,500,000 mi. from earth)
Nov. 16	Leonid meteor shower (hourly rate 15)
Nov. 30	Mercury at greatest elongation (21°) 8° above horizon
Dec. 5	Mars 1.6° of Uranus.
Dec. 9	Venus 0.1° of Neptune.
Dec. 13	Geminid meteor shower (hourly rate 50).
Dec. 18	Total eclipse of the moon -- Moon enters penumbra 7:01 p.m. Moon enters umbra 7:59 p.m. Total eclipse begins 9:07 p.m. Middle of eclipse 9:37 p.m. Total eclipse ends 10:07 p.m. Moon leaves umbra 11:15 p.m. Moon leaves penumbra 12:14 a.m.
Dec. 21	Winter begins 2:50 p.m.
Dec. 22	Ursid meteor shower (hourly rate 15)

THE PLANETS

Mercury	-- Visible in evening sky until Dec. 10.
Venus	-- Morning star, prominent object (magnitude - 3.4)
Mars	-- In Leo, late evening sky, (magnitude 1.0).
Jupiter	-- In Aries, evening sky (magnitude - 2.3) Jupiter in opposition Nov. 13.
Saturn	-- In evening sky in Aquarius (magnitude 1.0)
Uranus	-- In Leo in morning sky.

BRIGHT STARS IN EVENING SKY

In the West	-- <u>Vega</u> , brilliant bluish white, <u>Altair</u> , and <u>Deneb</u> , complete summer triangle.
In the East	-- <u>Aldebaran</u> , <u>Capella</u> (The names of the brightest stars are underlined).

November, 1964

Many persons have asked for the names and addresses of the officers and committee people of the Ann Arbor Amateur Astronomers. They are as follows.

PRESIDENT	G. Donald Kucera (Don) 1737 Broadway, AA 663-6532	observing session. bulletin odds & ends
FIRST VICE-PRESIDENT	Arthur Bartlett (Art) 1031 Woodbridge Blvd., AA 662-5827	observing session
SECOND VICE-PRESIDENT	Mrs. Paul Halmos (Virginia) 804 Berkshire Road, AA 668-8193	inter-club communica- tions typist
SECRETARY	Robert Rau (Bob) 2811 Cumberland, AA 663-6268	minutes at meetings change in address for bulletin
TREASURER	William Huizenga (Bill) 2401 Easy Street, AA 663-3192	membership discount publications AAAA representative of the AAVSO
INSTRUMENT GROUP	Myron Brownie Ann Arbor, Mich. 665-7116	mirror-grinding session
SATELLITE GROUP	Richard B. Innes (Dick) 7445 Plymouth Road, AA 662-9983	Artificial earth satellite reports & information
TECHNICAL CONSULTANT	Dennis Sunal 2721 Ackley Wayne, Mich. PA-1-5919	

G. D. K.

November, 1964

### BRIEF NOTES OF THE AAAA

All attending the 10 October observing session wish to thank Mr. Andresen for inviting us to his beautiful country home near South Lyons. We are looking forward to the next session.

The following instruments were in attendance:

Denver Brixy brought out his 4-inch (101.6 mm.) refractor and made an attempt to take some astro-photographs.

Denver also had two moonscopes; a moonscope is almost a refracting richfield, and makes for a very fine wide field observing instrument.

Dennis Sunal also brought a 4-inch (101.6 mm.) refractor, and with thirty frozen fingers and forty-five minutes later it was assembled. But it was worth the effort.

Don Kucera had a 3-inch (76.2 mm) reflector.

Others had binoculars.

At about 22h., Mr. Andresen invited us to his house for coffee, apples and popcorn. After finishing with the refreshments and talking around the round table, we retired to the observing site and found all instruments frosted.

This closed down the observing session. However, after most persons had left, Myron Brownie came with his 6-inch (152.4 mm) reflector that extended the observing for another half hour or so.

One of the most interesting objects in the sky was the unusual position of the four brighter satellites of Jupiter.

\* \* \* \*

Dennis Sunal, who has helped the AAAA so much, has accepted the position of curator of the John Glenn Planetarium at the John Glenn High School in Wayne, Michigan. Dennis also is teaching classes in astronomy and physics at the high school.

\* \* \* \*

Earlier this week I talked to Dick Innes, and he described an interesting project. He has been experimenting with taking pictures of the sky with simple cameras, and he obtained some interesting results which he will discuss at one of the meetings coming up.

\* \* \* \*

Anyone interested in adding to this column please contact Don Kucera.

G.D.K.

November, 1964

Addresses of Astronomical Societies and Organizations in the U.S.A.

The following addresses are for persons interested in specific fields of astronomy who wish to contact these organizations for further information. However, other groups are listed for general interest. If anyone knows of any changes in the addresses, please notify one of the officers, and the change will be put in the bulletin.

1. American Association of Variable Star Observers (AAVSO)  
4 Brattle Street, Cambridge, Mass., 02138  
Margaret W. Mayall, Director  
Founded in 1911 Members: 700; Staff: 3 (Professional<sup>s</sup> & Amateurs)
2. American Astronomers' Association (AAA)  
225 West 79th Street, New York 24, N. Y.  
Horace S. Pridmore, Secretary  
Founded in 1927 Members: 435; (Mostly New York membership)  
Bulletin: Skylines, Asterisks and the Eyepiece
3. American Astronomical Society (AAS)  
265 Fitz Randolph Road, Princeton, N. J.  
Paul M. Routly, Executive Officer  
Founded in 1899 Members: 1100  
Professional Society of Astronomers  
Publications: "Astronomical Journal" (monthly), &  
"Astrophysical Journal" (monthly)
4. American Meteor Society (AMS)  
521 North Wynnewood Avenue, Harberth, Pennsylvania  
C. P. Olivier, President  
Founded in 1911 Members: 100 (Amateurs & Professionals)
5. Association of Lunar and Planetary Observers (ALPO)  
Box 26, University Park, New Mexico  
Walter H. Haas, Director-Editor  
Founded in 1947 Members: 720  
Publication: Strolling Astronomers (bi-monthly)  
To promote lunar and planetary astronomy among amateurs by  
observation.
6. Association of Universities for Research in Astronomy (AURA)  
950 North Cherry Avenue, Tucson, Arizona  
Nicholas U. Mayall, Director  
Founded in 1957 Members: 9; Staff: 65  
Trustee Group of nine universities: California, Chicago & Texas,  
Harvard, Indiana, Michigan, Ohio State, Princeton, Wisconsin, Yale.
7. Astronomical League (AL)  
Four Klopfen Street, Milvale, Pittsburgh 9, Pennsylvania  
Wilma A. Cherup, Executive Secretary  
Founded in 1946 Members: 10,000 9 Regional groups,  
138 member societies, 38 junior groups  
Publications: Reflector (quarterly) and Convention proceedings  
Federation of Amateur Astronomy Societies

November, 1964

8. Astronomical Society of the Pacific (ASP)  
% California Academy of Sciences  
Golden Gate Park, San Francisco 18, California  
Sturla Einarsson, Secretary-Treasurer  
Members: 1500; Staff: 4  
Publications of the ASP (bi-monthly), & Leaflets (monthly)  
To promote astronomy and to publish information in astronomy
9. Meteoritical Society (MS)  
% Gerald L. Rowland, Secretary  
Long Beach City College, Long Beach 8, California  
Founded in 1933 Members: 175 (Amateurs & Professionals)
10. Rocket City Astronomical Association (RCAA)  
P. O. Box 1142, Huntsville, Alabama  
Founded in 1954 Members: 100  
(Membership mainly in the Huntsville area)
11. Society for Research on Meteorites  
now called Meteoritical Society
12. Western Amateur Astronomers (WAA)  
4636 Vineta Avenue, La Canada, California  
Rudy Perkins, Secretary  
Founded in 1946 Members: 2000 Regional groups: 32  
Publication: Proceedings (annual)  
Federation of amateur astronomical societies in the western U. S.

\* \* \* \*

#### MATCH QUIZ

- |           |                                  |    |   |                  |
|-----------|----------------------------------|----|---|------------------|
| 1. _____  | 2331 U. T.                       | A. | $\alpha$ 6 <sup>h</sup> 42 <sup>m</sup> .9  | $\delta$ -16°39' |
| 2. _____  | 25 December 1964                 | B. | 20 August 2144 E. S. T.                     |                  |
| 3. _____  | 21 August 244 U. T.              | C. | A <sub>0</sub> greenish-white               |                  |
| 4. _____  | 21 August 344 U. T.              | D. | 231 U. T.                                   |                  |
| 5. _____  | 2131 E.S.T.                      | E. | G <sub>0</sub> yellowish                    |                  |
| 6. _____  | Position of Sirius<br>1950 epoch | F. | R <sub>0</sub> reddish                      |                  |
| 7. _____  | Position of Spica<br>1950 epoch  | G. | 1831 E.S.T.                                 |                  |
| 8. _____  | Spectrum class of<br>Castor      | H. | 20 August 2144 E.S.T.                       |                  |
| 9. _____  | Spectrum class of<br>Capella     | I. | 2,438,755                                   |                  |
| 10. _____ | Spectrum class of<br>Betelgeuse  | J. | $\alpha$ 13 <sup>h</sup> 22 <sup>m</sup> .6 | $\delta$ -10°54' |

G. D. K.

ANSWERS TO THE QUESTIONS IN THE OCTOBER, 1964, BULLETIN

11. The next partial eclipse of the sun is on 3 December, 1964, and will be visible in northeastern Asia, most of the Pacific, and southwestern Alaska.
12. The next total eclipse of the moon is on 18 December, 1964, and will be visible in North and South America.
13. The meanings of the following words are
  - a. Perihelion: the point nearest the sun that a planet reaches in its orbit around the sun
  - b. Aphelion: the point farthest from the sun that a planet reaches in its orbit around the sun
  - c. Perigee: the point nearest the earth that the moon reaches in its orbit around the earth
  - d. Apogee: the point farthest from the earth that the moon reaches in its orbit around the earth
14. In what century did the following astronomers live?
  - a. Galileo Galilei 16th & 17th centuries (1564-1642)
  - b. Tycho Brahe 16th & 17th centuries (1546-1601)
  - c. Thales of Miletus (640-546 B. C.)
  - d. Percival Lowell 19th & 20th centuries (1855-1916)
  - e. Henry Draper 19th century (1837-1882)
  - f. Harlow Shapley 19th & 20th centuries (1885- )
15. Which of the nine planets was discovered last, by whom, and in what year?

Pluto was the last planet to be discovered, in 1938, by C. Tombaugh at the Lowell Observatory.
16. Albedo means the ratio of light reflected from a surface to the light received.
17. The absolute magnitude of the sun is 4.84 and the apparent magnitude is -26.73.
18. The absolute magnitude of Sirius is 1.45 and the apparent magnitude is -1.42.
19. "Nadir" is the point opposite the zenith.
20. Halley's comet will next be seen in 1984.

G. D. K.

\* \* \* \*