

VIRGINIA JUNIORS (continued)

Eleanor Matter won the Grand Prize for her project on Jupiter, and Douglas Lind won the other Grand Prize for his mathematics project. Both will compete in the National Science Fair at Baltimore this May.

The Virginia Juniors would also like to thank the Maryland-DC group for the many observations submitted. True to our word, these will be published in full in the next issue of NOVA.

Douglas Lind
Virginia Junior Editor

A WORLD OF VARIABLE STARS (continued)

Occulting variable stars like R Coronae Borealis dim drastically at irregular intervals because of the formation of dark clouds of carbon gas in their atmospheres.

The most spectacular variables, novae, increase their energy output explosively within a few days and then slowly fade away over a period of months. The supernovae observed by the Chinese in 1054 was so bright it could be seen in the daytime. The remains of this star are believed to be the Crab Nebula in Taurus. In this century Nova Aquilae shone nearly as bright as Sirius. Some novae recur; for example, T Coronae Borealis flared up in 1866 and again in 1946. Nova-like SS Cygni type variables brighten three or four magnitudes every several months

When asked why he studies variable stars, Dr. Chou replies: "Because they are there."

DB
1
579
★

STAR DUST



May 1964

Vol. XXI No. 9

USING MAPS, GLOBES, AND CHARTS IN ASTRONOMY



Victor Schrader

To understand and use celestial maps, globes, and charts is conducive to being an amateur astronomer of some note. Victor Schrader, the May NCA Lecturer, has used these valuable aids during the years he spent in the Air Force as a pilot. He has studied navigation and still finds it as a part of his career. He has worked as an engineer for Dupont Company and recently for Farquhar Globe Company as designer, engineer, and cartographer.

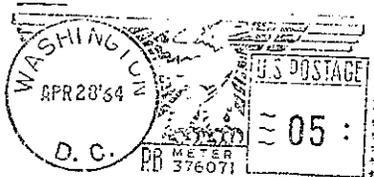
The fascinating problem of getting the most out of a celestial map, globe, or chart will be explained and demonstrated during the lecture. Mr. Schrader will be available for a question and answer period following the lecture to help you with your problems of map reading and use.

PLEASE NOTE!! THE MAY MEETING WILL BE HELD AT THE G.S.A. AUDITORIUM, 18th and F Streets, N. W.

CALENDAR FOR MAY

- 2 USING MAPS, GLOBES, AND CHARTS IN ASTRONOMY by Victor Schrader. G.S.A. Auditorium, 18th and F Streets, N.W. 8:15 P.M.
- * DINNER WITH THE SPEAKER at 6:30 P.M. at the All States Restaurant. All members invited. For reservations call Mrs. Noble at Lu 2-6721 before noon Saturday.
- * JUNIOR DIVISION General Meeting, 7:00 P.M. at the G.S.A. Auditorium, 18th and F Streets, N.W. Election of Officers.
- 9 MD-DC JUNIORS meeting at 2:00 P.M. at the Cleveland Park Branch Library, Connecticut and Macomb St., N.W. Mrs. Ellen Stolarik speaking on Cosmology.
- * OBSERVING at the FIVE INCH on the grounds of U.S. Naval Observatory with Larry White from 8:30 to 10:30.
- 16 DISCUSSION GROUP at 8:15 P.M., Dept. of Commerce, Room 2062, Astronomical Maps, Globes, and Charts - discussion led by Bob Wright.
- 17 EXPLORING AND PHOTOGRAPHING THE SKY at Fort Reno Park with Robert McCracken at 9:00 P.M.
- 1, 15 PRINCE GEORGES JUNIORS meeting at 7:30 P.M. at the District Hts. Elementary School, 801 County Line Rd., District Heights, Maryland.
- 8, 22 VIRGINIA JUNIORS meeting at the Westover Baptist Church, 1125 N. Patrick Henry Dr., Arlington, Va. 7:30 P.M.
- 1, 8, 15, 22 TELESCOPE MAKING CLASS at the Chevy Chase Community Center with Hoy Walls from 7:00 to 10:00 P.M.
- 6, 13, 20, 27 TELESCOPE MAKING CLASS in Eladensburg with William Isherwood from 7:00 to 9:30 P.M.

Published monthly except August by and for members of the NATIONAL CAPITAL ASTRONOMERS, INC., a non-profit, public-service organization promoting interest and education in astronomy and the related sciences. President, Mrs. John Solopri, RE 6-4821; Vice President, Mrs. Margaret C. Robert Wright, James J. Krebs, or Robert H. C. C. Mrs. John Solopri, Assistant Editor, Isabel Fine, Distribution, Norman Schurr. Photography and Production, Sam C. Feld, Jr. Deadline: Tenth of preceding month.



Library,
Naval Observatory
Washington 25, D.C.



Calendar continued

- * TELESCOPE MAKING CLASS at McLean High School with Grady Whitney
- * ADVANCED TELESCOPE MAKING CLASS at the Chevy Chase Community Center open to all those who have previously completed a telescope making either the mirror or lens. For more information, call Hoy Walls at 01 2-5395.

NCA RECEIVES NEW PROJECTOR

For some time it has been noted that the old NCA projector is not suitable for use with 35 mm slides. Several very fine lectures have lost some of their effectiveness when the slides could not be properly viewed and so the "Rich Bachelors" under the leadership of Leith Holloway came to our rescue. At the March meeting the NCA was presented a new - modern and efficient - projector. The "Rich Bachelors Committee" responsible for this gift includes Leith Holloway, Tom Wells, Jim Krebs, Henry Wilson, and Bob Bolster. The NCA is grateful to these gentlemen.

ELECTION TIME

At the April meeting the Nominating Committee composed of Bob Wright, Chairman; Mrs. Gertrude Dellar; and Mrs. Betty Lipscomb presented the following slate of candidates for office during 1964-65:

President:	Mrs. Margaret Noble
Vice President:	Arthur Etienne
Secretary:	Theodore Noble
Treasurer:	Frederick Cornelius
Trustee:	Mrs. Ellen Stolarik

Election will be held at the May meeting; at that time nominations will be accepted from the floor.

THE MAY MEETING WILL BE HELD AT THE G.S.A. AUDITORIUM, 18th & F, NW

A WORLD OF VARIABLE STARS

As of 1958, astronomers have 14,374 variable stars. Our April speaker, Dr. K. C. Chou of the U. S. Naval Observatory, described the many categories into which these thousands of variables can be divided.

In 1596, Fabricius discovered the first variable star, Mira Ceti, a long period variable (11 months) of the type observed by members of the AAVSO. Since Mira's light fluctuations result from processes inside the star, we call it an "intrinsic variable." Another type of intrinsic variable is the pulsating Cepheid star having periods from about one to fifty days. Cepheids are called the yardsticks of the Universe because their absolute magnitudes are uniquely related to their periods. Therefore, knowing the period of a Cepheid, we can determine the absolute magnitude from the period-luminosity relationship and thereby its distance from the difference between the apparent and absolute magnitudes. In fact, when it was discovered in 1952 that the classical Cepheids represented by delta Cephei and Polaris are 1.5 magnitudes brighter with the same period, the scale of the Universe had to be doubled.

An eclipsing variable such as Algol changes brightness periodically because a darker companion in a multiple system passes in front of a brighter star. Algol is now thought to be a quadruple star. Accurate timings of the minima of Algol over a number of years has enabled astronomers to determine the periods of revolution of the four components in this multiple star. (see p.4)

MD-DC JUNIORS

MD-DC Juniors were treated to an extensive slide quiz on April 11 by NCA Observing Chairman, Bob Wright. With eighty slides on the moon, the sun, the milky way, deep sky objects and the planets, he supervised a self-identification survey by which the juniors gauged their knowledge of basic visual astronomical subjects.

The May 9th Cleve Park lecture will be given by Mrs. Ellen Stolarik, NCA President, editor of Stardust, and assistant to Dr. Ernst Opik at the University of Maryland. Her topic, Cosmology, is one of modern astronomy's most important and rapidly developing fields, and attendance at this authoritative lecture will be a benefit to any junior.

Project World Night, with reports of the memorable December 30, 1963 lunar eclipse by sixteen juniors will be released at or shortly after the May meeting. To be included in the booklet is the complete set of photographs by jr. Bill Pala which brought so many favorable comments at the February meeting.

All one hundred Bureau of Standards Physical Constants Guides have been sold by the MD-DC Juniors to both members of NCA and students in area schools. An unqualified success, the project netted \$ 2.50.

The MD-DC Juniors have proposed to the trustees and to Eastman Kodak that whole (300 ft.) lots of the 103-A0 (blue sensitive) spectra-astrophotographic film be sold by the Region in 3 ft. (20 exposure) rolls at meetings and if necessary by mail. Full details are available from the Juniors.

Norman Sperling
Md-DC Junior Editor

PRINCE GEORGES JUNIORS

The Prince Georges Junior Astronomers sponsored a group of teachers from Washington on a bus trip to Philadelphia. We made \$53.00.

We stopped at Edmund Scientific which aroused interest amongst us. As we entered Philadelphia we went to the Fels Planetarium. We were instructed on the movements of the planets and learned some major constellations. We looked at many exhibits in the Franklin Institute, but unfortunately we could not go to the observatory on the roof because it was cloudy. At 5:10 P.M. we left for home. It was snowing heavily, so we arrived home late, at 9:45 P.M.

Rusty King
P. G. Junior Editor

VIRGINIA JUNIORS

The Virginia Juniors have been very active in the past months. Under the experienced leadership of Mr. Frank Hudson, lecturer for the National Aeronautics and Space Administration, this division has had a fine program of movies and lectures. We viewed films concerning astronomical topics, the rockets of Dr. Goddard, and the first flight of Cmdr. Shepard into space. Mr. Hudson also presented a very interesting talk on measurement as used in astronomy.

This division has just been granted a charter by the Virginia Junior Academy of Science, the statewide organization of science clubs. Highlight of this group is its May convention at Charlottesville, Va. Here the Virginia Juniors will present their hitherto "secret" project: an extension of the traditional Hertzsprung-Russell diagram into three dimensions along the mass axis. Best club exhibit at the meeting will receive a sizeable cash award from the Academy.

The Virginia Juniors took the top two spots at the Northern Virginia Regional Science Fair. (continued on page 4)