VIRGINAI JUNIORS

The Virginia Juniors are delighted to announce that Ed Lusby, Coordinator of the Virginia Junior chapter, has won 1st place for the best project in the Northern Virginia Science Fair. His project, The Atmosphere of Jupiter, won him an invitation to the National Science Fair in Kansas City next month. He also received an award for this work from the American Meteorlogical Society. Ed is 16 and a Junior at Madison High School. All NCAers congratulate him.

On April 14th at 8:30 the Virginia Juniors gave an astronomy program at the Denis J. O'Connel High School in Arlington. With Ed Cragg as lecturer, the group presented Bob Wright's slides and a group of color slides from Palomar. The program was very popular with the interested students and the Virginia group hopes to stimulate interest in astronomy by presenting it at other area schools.

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NEW MEMBERS

Regular		
G. C. Schleter	4633 Davenport St., NW	EM 3-0381
Junior		
Guy Blair, Jr.	6946 Braddock Rd., Alex., Va.	CL 6-3168
Barry Griffing	8306 Whitman Dr., Beth., Md.	EM 5-5685
Don Oberbeck	3719 Nellie Custis, Arl., Va.	JA 4-8581

* * * * *

"..... through the stars
I preached the greatness of man,
Who is none the less a part of the scheme of things
As the distance of Spica or the Spiral Nebulae;
Nor any the less a part of the question
Of what the drama means."

Edgar Lee Masters
Spoon River Anthology

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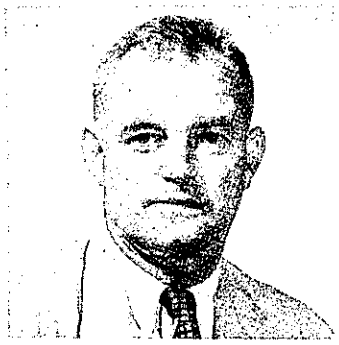
☆ STAR DUST
Washington, D. C.

Published monthly except August by and for members of the NATIONAL CAPITAL ASTRONOMERS, INCORPORATED, a non-profit, public-service organization promoting interest and education in astronomy and the related sciences. President, Henry I. Metz; Vice President, Thomas E. Wells; Secretary, Mrs. John Stolarik; Treasurer, William Lipscomb. Trustees: Sam C. Feild, Jr., Mrs. William Lipscomb, Glen E. Neville, Leo W. Scott. Editor, Mrs. Paul H. Griffith, OI 4-6904; Assistant Editor, Mrs. Worthington Talcott; Junior Division Editors, Chris Walker and June LoGuirato; Astronomy, Alexander White; Publicity, Mrs. William Lipscomb; Photography and Production, Sam C. Feild, Jr; Distribution, Morton Schiff. Deadline tenth of each month.

☆ STAR DUST

May, 1961 Vol XVIII, No. 8

ASTRONOMY AND THE EARTH'S GRAVITY FIELD



Donald A. Rice

Since early times astronomy has played a vital role in the study of the size and shape of the earth. Refinements in geodetic science have depended in large measure on the understanding of the ways in which astronomic position and the direction observations are effected by irregularities of the earth's gravity field. Mr. Rice will outline these factors in the light of present and future trends in geodesy. Also he will discuss special aspects of the astro-gravimetric dependency, such as the operation of various new inertial devices and the evolution of precise ground based test facilities.

Mr. Rice, Supervisory Geodicist at the U. S. Coast and Geodetic Survey, was born in New York and studied at MIT, Clarkson College and George Washington University. In 1941, after 10 years with the Corps of Engineers, he transferred to the USCGS as a mathematician. In 195? he was awarded the Colbert Medal for his important contributions to the Department of Defense in the field of gravimetric and topigraphic-isostatic reductions of the deflection of the vertical and gravity. He has contributed to the reduction of astronomical datum, astronomic data to geodetic data, by the applications of gravity observations and by consideration of topography and isostasy. Mr. Rice is President of the Gravimetry Section of the International Association of Geodesy.

MAY MEETINGS

6 - ASTRONOMY AND THE EARTH'S GRAVITY FIELD by Donald A. Rice. Meeting follows in Dept. of Commerce Aud. 8:15 PM.
12, 26 - VIRGINIA JUNIORS MEETINGS at Westover Baptist Church, 1125 N. Patrick Henry Dr., Arl., Va. Rm. 234, 8 PM.
13 - MD-DC JUNIORS MEETING - Chevy Chase Community Building, 5601 Conn. Ave., NW, 2:00 PM. Discussion will be "Astro-Photography".
19 - OBSERVING AT THE 5" - 8 PM at Naval Observatory with Larry White. NCA card will admit you.
20 - DISCUSSION GROUP - Ellen Stolarik will lead a discussion on "Cosmology". Dept. of Comm. foyer, 8 PM.

TELESCOPE MAKING CLASSES
Mondays - Chevy Chase Comm. Bldg., 5601 Conn. Ave. with Hoy Walls.
Wednesdays - Fairfax High School with Grady Whitney
Thursdays - Bladensburg Mat.Ctr., 4600 Varnum with Bill Isherwood.

NCA WILL MISS . . . . . .

Miss Salome Betts is resigning her position as research analyst in the Department of Defense and returning to her home town, Atlanta, as childrer's librarian in the Carnegie Library.

Salome received an award pin as a member of the Springfield Moonwatch Team. She served as leader of the Virginia Juniors during the past year. Good luck, Salome.

AND . . . . . .

Another most distinguished member of the NCA, U. S. Lyons, has left our city and he and his wife are heading for the lovely, pure skies and balmy,pleasant breezes of Florida. Mr. Lyons helped to form the NCA in 1937 and has since been elected an honorary life member. He made telescopes at the first telescope-making classes. He has served as our president and has taught several astronomy courses for the membership. He also has worked closely on all NCA projects and was a never failing early arrival at all meetings.

As virtual life-time membership chairman, Mr. Lyons has welcomed most of the present members, helped us each fill out those forms and has always made newcomers feel at home.

Mr. Lyons, his wife and daughter have spent the past 36 years in Washington where he has been employed as an astronomer at the U. S. Naval Observatory. Although this will be a serious loss for the NCA, we know he is headed for a delightful retirement full of brilliant stars and one lovely sun at 8035 Ridge Road, N., Largo, Florida.

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APRIL LECTURE

At the April meeting of NCA Dr. Raymond J. Seegar, Deputy Assistant Director, National Science Foundation, spoke on the topic "World Without End".

Dr. Seegar began with an explanation of the beginning of the earth from a gaseous cloud surrounding the sun. He showed that it is impossible for man to blow up the earth with nuclear bombs therefore the end of the earth depends on the sun. As the sun uses up its hydrogen it will expand and engulf the earth before it explodes and finally becomes a black dwarf.

The probable end of the universe depends on the theory of the universe you choose. Hoyle's steady state theory says that as the universe expands new galaxies are continuously being created thus the universe will always appear the same. Radio astronomy will one day be able to answer whether or not the necessary hydrogen is now being created. Gamow's theory says the universe began with a giant explosion and after a period of expansion will contract again. Or, possibly the universe will just keep on expanding until our galaxy is alone in observable space with all else moving away with speeds greater than the speed of light.

"You never have to get bored with astronomical text books because every few years they have a new set of theories."

----- Ellen Stolarik

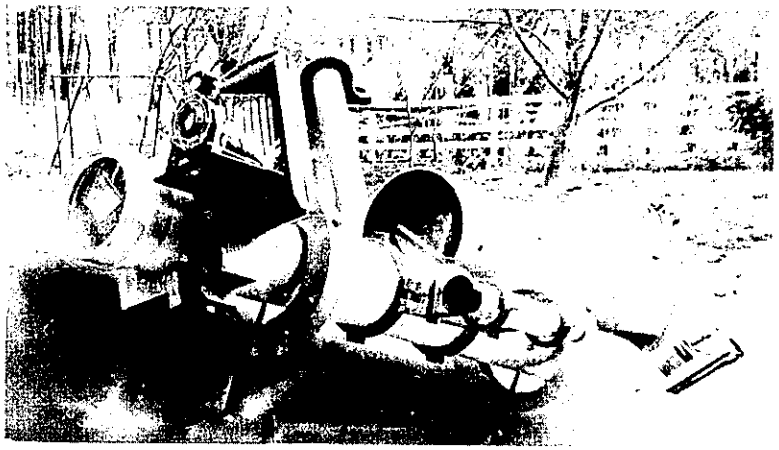

Figure 1 - The Kodak bellows camera on its mount. The finder and guide telescope are mounted on the main tube near it. In the background is the aerial camera, of 24" focal length, with a yellow filter and cloth backing. The polar shaft can be seen beyond it.

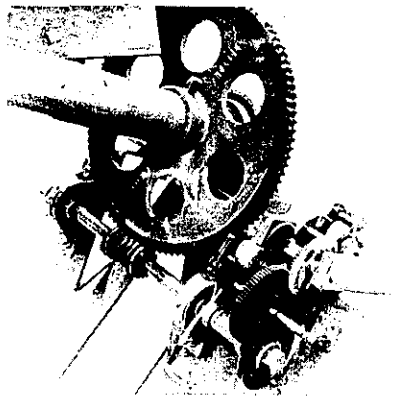

Figure 2 - The drive assembly for the polar axis. Near the large gear is the differential motor which turns a set of gears adding to the speed of the drive itself. On the back is the 4 watt motor for the main set of gears. The gear in the foreground can be disengaged (as it is shown) to permit the manual turning on the right ascension axis. The two motors are hooked up to switches which are held in the hand while observing.

ELECTIONS

The nominating committee composed of Leo Scott, U. S. Lyons, and Dr. Krebs presented the following slate of officers:

President	James Krebs
Vice-President	R. Adm. A. I. Malstrom
Secretary	Ellen Stolarik
Treasurer	Mrs. Ellis Marshall
	Mr. Duane A. Baugher
Trustee	Robert McCracken

Elections will take place at the May meeting so be sure to turn out and vote.

* * * * *

CONVENTION TIME AGAIN

Get ready to attend the Astronomical League Convention to be held this year in Detroit, Michigan on July 1, 2 and 3. An interesting program has already been published which includes a lecture by Dr. Helen Hogg of the David Dunlap Observatory and Fred T. Haddock, Jr. of the University of Michigan.

The committee invites any amateur who is interested in reading a paper at the convention to submit the manuscript to the program chairman, E. C. Balch, 96 Farrand Park, Highland Park, Mich.

Convention registrations prior to June 1 will be accepted at $1.00 each or $2.50 for a family by Mr. George Meyerson, 19777 Cheyene, Detroit 35, Michigan. You can make reservations directly with the Henrose Hotel in Detroit which will be convention headquarters.

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THE REVIEW OF POPULAR ASTRONOMY

In order that all of our members may become acquainted with the new magazine THE REVIEW OF POPULAR ASTRONOMY (formerly SKY MAP) the publishers will be mailing all the members a free copy.

This magazine is presently issued every two months and is mailed on the 20th of the month preceeding the date of issue. It offers interesting reading and observing information to the amateur, plus complete sky and planet charts.

Individual members of recognized astronomical societies may subscribe to THE REVIEW OF POPULAR ASTRONOMY at the reduced price of $2.50 per year (regular rate, $3.00).

MD-DC JUNIORS

A description of our astrophotography project is as follows:

The basic instrument used is Lewis Acker's 8' cross-axis mounted equatorial, a very convenient all around telescope for our purposes. Mounted on a large frame made of welded steel, it is extremely stable and yet can be wheeled around caster bearings. In addition, its large size allows the assition of various other essential instruments without upsetting the balance too much. The slow motions on right ascension are electric, but the declination axis is moved by a rather crude turnbuckle arrangement.

The differing objects in the sky can be divided into classes according to the area they cover. For wide constellation areas, I use either an old Kodak bellows camera, of 6.3" focal length, with black and white film, or else a German Contina for direct transparencies using color film. There has been available for three months now an improved type of Tri-X Pan film, with A.S.A. rating 400, while fast color film has speeds of over 100. Thus exposure times may be cut down to less than ten minutes. The cameras are mounted on a frame on the top of the guide telescope in order to have a clear field of view.

For smaller groups, such as the Plieades and star clusters, a camera of somewhat longer focal length is needed. This need is met by the aerial camera mounted on the side of the telescope. Its focal length is 24" and the high quality lens of 4" aperature provides excellently detailed pictures. 5 x 4 film is used, Kodak Royal-x Pan (rating 1600). The exposures range from 15 minutes to an hour.

In the case of compact stellar clusters and nebulae, the magnification and light-gathering requirements mean that the main mirror must be used, with the effective focal length from 85" to about 200" (with the Barlow). This setup has not been much used, due to the difficulty of guiding and the length of exposure needed.

For diminutive objects such as planets, eyepiece projection is required. For this purpose I have built a camera consisting of simply a plate-holder and an eyepiece in one end. This apparatus is satisfactory, but much better results arrive from mounting a 35mm camera with removable lens in front of the focused eyepiece. For this purpose we have built a camera support, but it has not been tested due to the lack of suitable planets in the night sky.

In addition, I have just finished construction of a solar filter to be placed over the objective of the guide telescope. By varying the neutral density gelatin filters, the right amount of sunlight can be admitted to the optical components of the telescope.

All the films are developed and printed ourselves. The only expenses are for the film and chemicals themselves. By doing this, we can actually obtain better final results,through experimenting.

The guiding is done with the main telescope,except with prime focus and eyepiece projection work, when the 3" guide telescope is used. The guide eyepiece is mounted with cross-hair illumination to light the recticle, rheostat-controlled to the right brightness for a particular guide star.

Next month we shall show some results of the work.

------- Chris Walker
Junior Editor