VIRGINIA JUNIORS

At the December 9 meeting,Mr. Everette Neville, the Virginia Juniors leader, will speak on the subject: "The Optics and Design and Optics in General".

The first issue of TIPS was distributed to the NCA members at the November 5th meeting. It was well received. Mr. Lyle Johnson complimented the editor, Edward Cragg on his fine job. TIPS contains information about the appearance of double stars, nebulae, etc. in various sizes of telescopes. In addition, a section on the position and time for observing the planets is included. It is planned to present a monthly issue of TIPS.

Several detailed sketches of the November 7th transit of Mercury were shown and discussed at the November meeting. Eddie Lusby had films of the transit he had taken using green and red filters.

Several copies of the first article of the Book of the Sky will be available at the December NCA meeting.

June LoGuarito
VA Jr. Editor

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MD-DC JUNIORS

The November 7th transit of Mercury was viewed by several amateurs in this area. Doug Richstone and Ken Prestwitch viewed the event with small reflectors, and I saw the event with a 3" Unitron, although most phases of it were clouded out. Rick Falwell used his 12" reflector to good advantage as he made over 20 drawings by solar projection with the sunspots already represented. From these drawings he hopes to calculate the approximate diameter of Mercury and the inclination of its orbit to the plane of the ecliptic. Unlike the others, he was fortunate enough to see the ingress.

At the November 12 meeting the inner planets were discussed. Venus especially is appropriate, since it is rapidly coming into a favorable position in the night sky. Pictures of Venus, although somewhat difficult, will be tried. Also there will be a special lookout for the rare phenomenon of the ashen light, which many of us saw three years ago.

Christopher Walker
MD-DC Jr. Editor

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Washington, D. C.

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December, 1960 Vol XVIII, No. 4

ORBITING ASTRONOMICAL OBSERVATORIES

DR. NANCY G. ROMAN

We are fortunate to have as our guest speaker next month, Dr. Nancy G. Roman, Chief of the Astronomy and Astrophysics Satellite and Sounding Rocket Program at NASA.

The atmosphere of the earth is a most formidable obstacle to the observation of the outside universe. It dims the light of the stars; blurs telescopic images; causes scintillation of the stars; in addition to other distortions. For these reasons astronomers have long tried to get above as much of the atmosphere as possible. Towards this end they have built their observatories on the top of high mountains and even put telescopes in balloons. Since the advent of artificial satellites a way of getting above the atmosphere exists. NASA is working on plans to put astronomical observatories in satellites. Dr. Roman will discuss tentative designs of some astronomical satellites and the equipment they will carry, as well as astronomical observations they plan to carry out.

Dr. Roman was born in Nashville, Tennessee and obtained her BA from Swarthmore College and her PhD in Astronomy from the University of Chicago. Before coming to NASA, Dr. Roman was a research associate and an instructor in astronomy at the U. of Chicago. Some of her other specialties are the determination of stellar motion and the spectral classification of stars.

DECEMBER DATES

3 - ORBITING ASTRONOMICAL OBSERVATORIES by Dr. Nancy G. Roman followed by monthly meeting in Dept. of Commerce Auditorium, 8:15 PM

9 - VIRGINIA JUNIORS MEETING -"Telescope Optics"by Everette Neville. Westover Baptist Church, 1125 N. Patrick Henry Dr., Arl., Va. Room 234, 8 PM.

10 - MD-DC JUNIORS MEETING -"Sunspots" by Jim Krebs. Chevy Chase Community Bldg., 5601 Conn. Ave., NW. 2:00 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

* NO CLASSES THE LAST WEEK OF DECEMBER

DR. ÖPIK SPEAKS ON COMETS

At the November meeting of NOA we were privilegad to hear Dr. Ernst J. Öpik, visiting professor of Astrophysics, U. of Md. and research associate (on leave), Armath Observatory, Northern Ireland, speak on comets.

Comets have been observed since earliest time and are best known for their sometime spectacular tails which always point away from the sun. The comet consists of 3 parts: a head, a tail, and a nucleus, however, a comet may be considered as a point of mass since the nucleus containing most of the mass may be only 2-4 miles in diameter, while the head is actually thousands of miles across. In its orbit the nucleus obeys Kepler's Laws. This orbit is a conic section that can be predicted by means of triangulation using three points on the earth's orbit as a base line.

Comets are described as being periodic or non-periodic. The periodic comets have eliptical orbits and move counter-clockwise as do the planets and in a plane at only a slight angle to that of the planets. Most comets, however, are classified as non-periodic having near parabolic orbits and, no doubt, belonging to our solar system with the greatest number coming from a distance of 50,000 to 150,000 astronomical units. Some comets described as non-periodical, however, have periods of thousands or millions of years. Not a single hyperbolic orbit has been observed. Non-periodic comets may come in from any direction and any angle. If a comet passes near Jupiter,or any other large body, its orbit will be greatly changed and its direction of motion may be reversed.

Take, for example, a comet at 10,000 AU. Its period is proportional to $D^{\frac{3}{2}}$ or 10^6 years. The probability that it will come within an observable distance of the earth is $1/10^4$, thus $1/10^6 \times 1/10^4 = 1/10^{10}$. Comets will be seen each year from this given distance of 10,000 AU. Calculations of this kind can be made for all distances from such probabilities. Dr. Oort has calculated that our solar system contains at least 10^{11} comets above an observable size of about 1 mile.

99.9% of the light from a comet is reflected from its gaseous portion - the head and the tail. Only 0.1% comes from the nucleus. A comet's brightness is proportional to $1/D^2R^4$ where R is its distance from the sun and D is its distance from the earth.

Comets are living remnants of a remote past dating from the origin of the solar system. Their study may lead to information about the formation of the solar system. In collision with the earth, comet nucleii may have exerted a fatal influence on the development of light on the remote past and over millions of years may endanger life in the future.

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We would like to call the membership's attention to the book written by Dr. Ernst J. Öpik. It is called THE OSCILLATING UNIVERSE and is now available in a paper-back edition. Don't miss it.

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QUICK NOTES

We finally tracked down Leith Holloway who writes that he is busy, busy, busy! His new address, however, is:

Leith Holloway
UCLA, Dept. of Meteorology
405 Hilgard Avenue
Los Angeles, California

Please note that telescope making classes at Bladensburg are now meeting on Thursday nights and the group at Fairfax will meet on Wednesday nights.

The NOA usually has a dinner for the speaker prior to the meeting. All members are welcome to join the group. If interested, call Tom Wells, WO 6-7255.

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NEW MEMBERS

Regular

Mrs. Mardell Dumke	933 S 22nd St., Arl., Va.	OT 4-6997
Irving S. Friedman	5512 Brite Dr., Beth., Md.	OL 2-7103
Richard Perry Leclercq	8243 14th Ave., Hyatts., Md.	HE 4-3630
L. K. MacMillan	911 Manor Rd., Falls Church,Va.	JE 4-4570
Curtis W. McCracken	9508 Pinoak Dr., S.S., Md.	JU 5-8618
E. H. Rietzke	"Beaufort", McLean, Va.	EL 6-3808

Juniors

Eric J. Euhr	700 Mass. Ave., Wash., D.C.	
Christopher C. Kawakimi	5727 Moreland St., NW, Wash.	EM 3-6918
David McLean	1706 Tucker Ave., McLean, Va.	KE 6-5867

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The Editors join in sending their best wishes for a New Year filled with new members, new satellites, new stars, and, most of all, new joy.

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MEMBERSHIP

We are about to inaugurate a membership campaign! First, however, many of the present members have not renewed their memberships -- so don't forget -- DUES ARE PAST DUE!

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