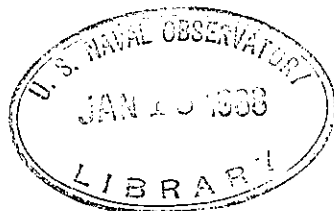


January 1968

Vol. XXV No. 5

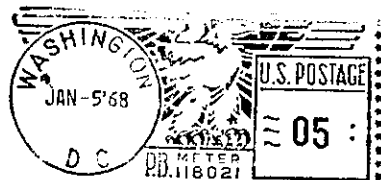
ROCKETS, ASTRONOMY, AND AERONOMY



Mr. Charles Y. Johnson, who heads the Astronomy Section of the Hulbert Center for Space Research, Naval Research Laboratory, is guest speaker for our January meeting. Mr. Johnson has been with N.R.L. since 1942, when he was stationed there as a Naval officer. Following the war, he transferred to a scientific position in a civilian capacity. Mr. Johnson is a native of Washington, D. C. and was educated at the University of Virginia, where he received a B.S.E.E. degree. His interests turned skyward in 1953, when he began doing work in astronomy. His primary interest has been the ion composition of the earth's ionosphere, which is being studied primarily with rocket-borne instrumentation. An abstract of his talk follows:

Visible and radio windows in the earth's atmosphere permit astronomical measurements to be made in two narrow bands of the electromagnetic spectrum. To see ultraviolet and X-radiation from the sun and stars, instruments must be taken above the absorbing atmosphere by sounding rockets and artificial satellites. Some of the new rocket techniques for ultraviolet and X-ray astronomy and their results will be described.

When ultraviolet and X-radiation, primarily from the sun, interact with the tenuous upper atmosphere, dissociation and ionization occur. The discipline which studies these phenomena is called aeronomy. The basic processes which produce, sustain, and destroy the ionosphere are known. The lower ionosphere is different in both composition and structure from the atmosphere in which it is immersed, and from which it was produced. Ionic processes are responsible for this condition in our planetary atmosphere.



CALENDAR

- JANUARY6 6:00 P.M. Dinner with the speaker. Bassin's at Corner of 14th & Pennsylvania Ave., NW. Call Jerry Hudson 948-2809 to make reservations.
- 7:30 P.M. Meeting of the Officers and Board of Trustees. Dept. of Commerce Auditorium.
- 8:15 P.M. ROCKETS, ASTRONOMY, AND AERONOMY, a talk by Mr. Charles Johnson, N.R.L. Dept. of Commerce auditorium. To be followed by the regular business meeting.
- 6 GENERAL MEETING OF JUNIOR DIVISION, 7:15 P.M. in Dept. of Commerce Auditorium. All Juniors are urged to attend.
- 13 MD-DC JUNIORS MEETING at 2 PM at the Chevy Chase Library, 8005 Connecticut Ave., Chevy Chase, Md. Program to be announced.
- 13 DISCUSSION GROUP. Dept. of Commerce. (upstairs) Rm. 2062. Topic will be Stellafane, the annual convention of amateur telescope makers held in Springfield, Vt. Slides of past conventions will be shown, and amateur telescopes which were entered in competition will be shown and described. It should prove a stimulating evening for those interested in telescope making.
- 14 Most probable date for secondclass in Junior Div. Astronomy Course. Time: 3 PM in Planetarium of Montgomery Jr. Col. Call Mark Goldberg 933-0823 or Leith Holloway 362-1961 for exact date.
- 5 OBSERVING AT THE FIVE INCH on the grounds of the U.S. Naval Observatory with Larry White.
- 5,19 TELESCOPE MAKING CLASS at McLean High School, McLean Va., 8:30-10:00 with Grady Whitney.
- 21 FRINCE GEORGES' JUNIORS MEETING. Home of Ted Noble 2:00 P.M.
- 5,12,19,26 TELESCOPE MAKING CLASSES. Chevy Chase Com. Centr. with Hoy Walls 7:30-10:00 P.M.
- 2,9,16,23,30 TELESCOPE MAKING CLASS in Bladensburg with Ted Noble.

Library,
Naval Observatory
Washington 25, D.C.

DECEMBER LECTURE - PLANETARY DISCOVERY

The English astronomer William Herschel discovered the planet Uranus on March 13, 1781 using a 6-inch reflector. Our December speaker, Mr. Dennis Rawlins, of the College of Notre Dame in Baltimore, reminded us of this great event in astronomical history and went on to relate other fascinating facts in the annals of planetary discovery.

Uranus had been observed and its position recorded no less than 23 times over a period of nearly a century prior to Herschel's discovery. Herschel recognized Uranus as a non-stellar celestial body by using up to 1,000 power and observing its pale greenish disk. Actually at first he thought he had discovered a comet. The first to sight Uranus was John Flamsteed, the first Astronomer Royal of Britain, who recorded the planet as a star in Taurus in December 1690. Flamsteed was engaged in a 30-year program of cataloging the positions of 3,000 naked-eye stars. He observed and charted Uranus several other times later in Leo and Virgo.

Bode's Law predicted a planet with a mean distance from the sun between that of Mars and Jupiter, namely, 2.8 astronomical units. Since Uranus had a mean distance in satisfactory agreement with Bode's Law extended, credibility in this law increased after this planet's discovery, and astronomers searched for a planet beyond Mars with renewed enthusiasm.

On the first night of the nineteenth century the Sicilian astronomer, Piazzi, discovered the minor planet Ceres and observed it for two months early in 1801 until it faded in the western twilight. There was danger that Ceres would be lost because of the short period of observation, but the German mathematician Gauss developed the powerful "least squares" method of fitting data and predicted the future position of Ceres to within a quarter of a degree nearly one year in advance thus making its rediscovery possible.

Olbers discovered the second minor planet Pallas in March 1802 and the fourth, Vesta, in 1807. Harding discovered the third, Juno, in 1804. No more asteroids were discovered until 1845 when Astraea was sighted. Thereafter discovery came fast and by 1868 the known minor planets numbered one hundred. By this date these bodies had become somewhat of a nuisance since astronomers had to track them all as modern space scientists now have to keep track of space junk circling the earth.

- Leith Holloway

FROM HERE & THERE...

The November-December issue of the Review of Popular Astronomy carries an article on the Sterling Anderson Observatory.

Mrs. Noble and her mother attended the 10th Anniversary dinner of the Lehigh Valley Astronomical Society in Allentown. Their society is in an expansion program having recently been donated a completed observatory and acreage on the top of a hill a few miles west of Allentown. Also in attendance were several from the Naval Observatory's Grazing Occultation group.

The Harrisburg group is working on an astronomical Park several miles south of Harrisburg. The building is nearly complete and they expect their mirror shortly from having it aluminized. Mr. Walls of the NCA finished the mirror for them. Their publication is called STARDUST.

A Bulletin from the Midland Empire Astronomy Club of St. Joseph, Mo. tells of their recent participation in a successful Grazing Occultation in Kansas. Several members of the Naval Observatory team drove to Missouri for this event. Mr. Russ Maag, President of the group attended the National Convention in Washington this past summer and was appointed to chair a committee to make plans for the Astronomical League's participation in the 1970 eclipse of the sun in Florida in 1970.

--- Continued p. 7

FROM HERE & THERE - Cont'd. from p.2

The DAS bulletin has been carrying a series of articles on their trip to South America to see the eclipse last year. (DAS, Detroit Astronomical Society.)

Bob Wright attended the Fall meeting of the AAVSO held in Springfield, Mass.

The Messenger from the Sky is the publication of the URSA MAJOR ASTRONOMICAL SOCIETY. This is the very active Junior group of the Lehigh Valley Astronomical Society.

Bob Bolster had a hearing with the City Fathers and they have given their blessing to his new Observatory. We hope it is clear skies from here on.

NEXT MONTH.....We will be fortunate in having as a guest speaker for February Dr. Joseph Weber from the University of Maryland, who will describe experiments now in progress for detection of gravity waves.

NEW MEMBERS.....

Applications Received at the December Meeting

REGULAR

Major Jimmy D. Akers
14009 Adkins Road
Laurel, Maryland 20810

JUNIOR

Peter Fiekowsky
5425 39th St. N.W.
Washington, D. C. 20015

Robert Hicks
3200 24th Road S. #1126
Arlington, Virginia 22206

John Spiegel
21-61 Evans Corner Road
Falls Church, Virginia

LUNAR OCCULTATIONS COMPUTED FOR WASHINGTON
 (LAT 38.920 LONG 77.265) FOR 1968 (DISTANCE FROM STANDARD STATION = 0 MILES)
 STANDARD STATION AT LAT 38.920 LONG 77.065

DATE	TIME (UT)	ACC.	V D Z L C	USNO	S.A.O.D.	MAG	SP	PH	PERCENT	ELG PA	MOON	SUN AA	LIBRATION MIN.			
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JAN 14	9 36 36	8	9	4	10134	78517	7.8	GC	D	98 WAX 164 156	425 99	23 287	152	-5.1	-5.8	
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JAN 17	2 30 39	6	9	1	205339	80695	8.1	G0	R	97 WAX 161 259	755 316	35 90	242	-4.6	-5.9	
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JAN 25	6 44 24	15	7	9	2466	215712	184415	8.9	A2	D	22 WAX 55 184	176 16	16 16	176	1.6	5.4
JAN 25	10 11 44	15	9	9	2366	215712	184415	8.9	A2	R	22 WAX 55 225	313 659	11 138	215	1.5	6.5
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