



SATELLITES, ROCKETS AND THE NEW ASTRONOMY

Dr. Louis C. Green, Professor of Astronomy at Haverford College outside of Philadelphia, Pennsylvania, is to be our speaker for the March 4th meeting. His topic will be "Satellites, Rockets and the New Astronomy".

Why is the astronomer so interested in obtaining observations which are made at elevations from a few tens of miles to a few tens of thousands of miles? What are some of the more significant results which have recently been derived from these observations? These questions will come under discussion in the lecture by Dr. Green.

Satellites offer the opportunity to observe above most of the earth's atmosphere which is transparent only from 4000-7000 angstrom units and in part of the radio wave band. Particle radiation arrives at the surface of the earth in its secondary form. To study the entire electromagnetic spectrum and all the primary particles radiation, it is necessary to get above the atmosphere. This is one type of observation available from satellites. Dr. Green will discuss others as well as some results already obtained.

Our speaker received his degrees, AB, MA, and PhD from Princeton. He has been at Haverford College since 1941 having taught previously at Rutgers, Allegheny College, Bryn Mawr and Swarthmore. His particular field of interest is astrophysics and he has carried on research in numerous observatories and universities. Currently, his research is directed toward an attempt to develop methods of obtaining atomic wave functions of high accuracy to be used in the computation of atomic constants, primarily those of astrophysical interests.

In 1955-56 he held a Guggenheim Fellowship and for one quarter in 1959 was visiting professor at the Max Planck Institute for Physics and Astrophysics in Munich.

MARCH MEMOS

- 4 - SATELLITES, ROCKETS AND NEW ASTRONOMY by Dr. Louis C. Green followed by monthly meeting in Dept. of Commerce Auditorium, 8:15 PM
- 10 - OBSERVING AT THE 5^h - 7:30 PM at Naval Observatory with Larry White. NCA card will admit you.
- 10, 24 - VIRGINIA JUNIORS MEETINGS at Westover Baptist Church, 1125 N. Patrick Henry Dr., Arl., Va. Rm. 234, 8 PM.
- 11 - MD-DC JUNIORS MEETING - Chevy Chase Community Building, 5601 Conn. Ave., NW, 2:00 P.M. Discussion will be "Radio Astronomy; Advantages and Disadvantages".
- 18 - DISCUSSION GROUP - "THE ICE AGES OF THE EARTH" - discussion led by Charles Morton. 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

The following is a review of the December lecture which we were unable to include last month in our abbreviated STARDUST. The January movie night was also a great success. The films included "Cosmic Ray" which is one of the Planet Earth Series put out by the National Academy of Sciences and also a group of films on astronomy put out by the Encyclopedia Britannica and loaned to us by the Naval Observatory.

At the December meeting of National Capital Astronomers Dr. Nancy G. Roman, Chief of the Astronomy and Astrophysics Satellite and Sounding Rocket Program at NASA spoke on "Orbiting Astronomical Observatories".

Electromagnetic waves are emitted over a wide range from the very short to the very long radio waves. From the earth we can "see" only a small portion of the electromagnetic spectrum, due to absorption by the atmosphere. There is a window in the visible, a fairly wide window in the radio region, and various other scattered windows, the rest of the spectrum is blocked. The great amount of knowledge gained from the addition of the radio region to our seeing demonstrates the vast amount of information that would be available could we observe the entire spectrum. This will be possible from above the earth's atmosphere. In the region of Gamma rays we could observe the disturbed sun and the galactic halo; in the infra red - comets, sun spots, planets, and distant galaxies; in the visible - emission nebululae and interstellar atoms; in the ultra violet - solar corona, molecules, hot stars, and the abundance of elements; and in the radio - solar corona, the disturbed sun, and the galactic halo. Both ends of the spectra require high energy so the same things would be studied both places.

The satellite, Transit Two, will study the sun in the hydrogen Lyman line and measure the light of the galaxies at very long wave lengths. The first satellite exclusively for astronomy will not come till next year. It will have a gamma ray telescope and a spectrograph, it will study short waves between gamma and the ultra violet, gamma waves in several wave lengths, x-rays, blue light, and geophysical efforts.

Any orbiting observatory should have solar cells for power, sun seeker for location, a finder telescope that will transmit a television picture, a star tracker, telemetry, a shield to keep the sun from getting into the telescope tube, and data storage. The first observatory will map the sky in several ultra violet lengths and measure the brightness of stars in the ultra violet. The second will have a spectrograph to study brightness vs. color. The third will study in more detail the material between the stars, its amount and composition.

Orbiting observatories will open up a whole new range of astronomy and certainly bring answers to many of the old perplexing problems of the universe.

---- Ellen Stolarik

NEW MEMBERS

Richard A. Collins, Jr.	2411 Coventry Rd., Alex,Va.	SO 5-7227
William F. Cox	2224 S. Dinwiddie St.Arl.	OR 1-9023
Dr. Charles E. Dills	925 25th St., NW	FE 7-6857
Thomas Garnett	3748 McKinley St., NW	EM 2-0841
Hilliard H. & Carmen Goodman	3700 Mass. Ave., NW	FE 8-0722
William T. Jarvis	9 East Melrose St. CC,Md.	OL 2-2725
Dr. Ernst J. Opik	Dept. of Physics U of M, College Pk., Md.	
Michael Squires	2556 Gallows Rd., Falls Ch.	JE 2-4498
Denis A. Whittaker	11921 Bluhill Rd.,Wheaton	WH 2-4927

FEBRUARY LECTURE

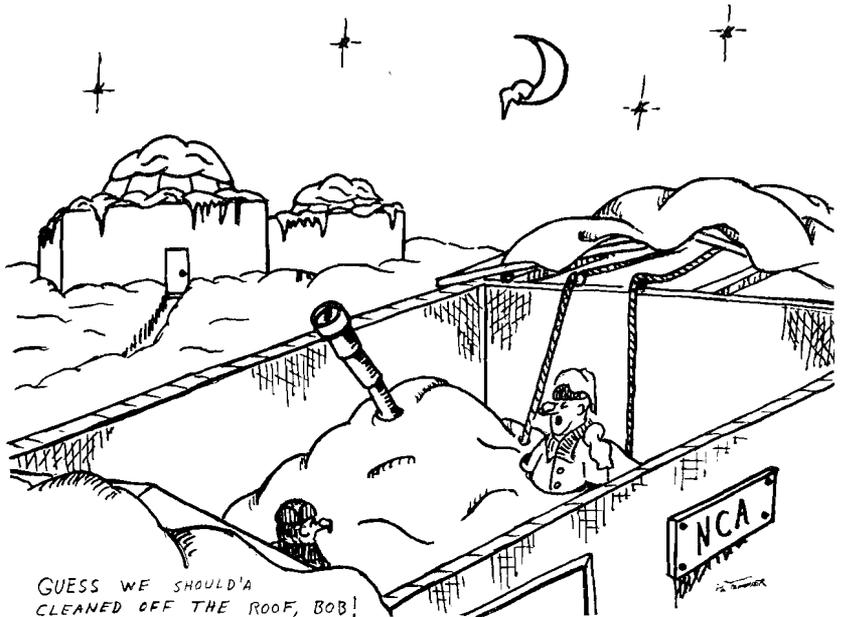
At the February meeting of the NCA about 20 people braved the snow and ice to hear Mr. James M. Kendall of the Naval Ordnance Lab speak on "The Atmosphere of the Planets".

The composition of atmospheres possessed by the planets depends mainly on the gravitational field and their temperatures. The atmosphere of a planet has a very great effect on the visual appearance of the planet. Generally, the absence of an atmosphere is associated with a very dark color (low reflectivity) while moderate to great atmospheres have a very light color (high reflectivity).

Mercury, being a small, hot planet, has lost its atmosphere which is evident by its perfect half circle crescent that can be observed. Venus, on the other hand, has a crescent with the arms meeting due to the diffused light from its clouds. The atmosphere on Mars is hazy with dust storms and high winds. Jupiter, being a large, relatively cool planet, has been able to hold its atmosphere. Jupiter has a central, rocky core covered with a thick, icy ring surrounded by clouds of Hydrogen, Ammonia and Methane. Saturn is very much like Jupiter and its rings are probably composed of snowflakes. Uranus appears green due to an atmosphere of Methane, Hydrogen, Helium, Neon and Argon. Neptune is completely covered by an ocean of Methane. Pluto, with a temperature of - 348 F, has no atmosphere since everything is frozen.

Mars is a has-been planet. Earth is at its prime and Venus is the planet with a future.

----- Ellen Stolarik



MD-DC JUNIORS

The Junior Convention came to some important conclusions at its three-hour meeting on January 14. Over 20 were present, including some non-members from area science clubs and schools. Following a short introductory speech, the business was discussed (the major conclusions are printed below).

Afterwards several Juniors gave short talks on their projects and refreshments were served. Astronomical slides (courtesy of Bob Wright) were shown and then the session was adjourned. Many thanks to Jim Krebs and Bob Wright who helped make this meeting a success.

On February 18 at 15 hours U.T. there will be an interesting and close (12' of arc apart) conjunction of Jupiter and Saturn. Such occurrences are rare and should afford a good subject for photography. It is hoped that several persons might try both 35mm shots and close-ups through telescopes.

Chris Walker
MD-DC Jr. Editor

MAJOR CONCLUSIONS OF THE SIXTH GENERAL CONVENTION, JANUARY 14, 1961

1. The \$16 check of the Junior Astronomers was decided, by an overwhelming vote, to be used for a "Telescopic" Barlow lens, to be sent for by Jim Krebs and to stay at the 5" except when some Junior or Senior wants to borrow it for a period of not exceeding two days (contact Jim Krebs for special circumstance).
2. World Nights will be continued. Christopher Walker will be corresponding secretary in charge of contacting other groups about the program. One more concerted, all-out effort will be made to obtain other groups' support in this most valuable of Junior projects. Nights not decided.
3. The next Convention will be held on May 13 (Saturday) in the Dept. of Commerce foyer, 8:00 PM.
4. By an 8-7 vote the convention decided to hold two conventions per year, one before World Nights (May or June) and one after World Nights (September or October).
5. The Junior Astronomers as a group will try to get the clock-drive fixed with the aid of the NCA.
6. The two project heads, one for each section, will be retained in order to facilitate collection of drawings and to preserve personal contact between project head and contributors. Donate all drawings to project heads. (MD-DC Group - Jupiter, Falwell; Venus, Milkey; Saturn, Griffen).
7. Formal relations between the two groups will be continued in respect to conventions, projects and such activities as World Nights.

★ S T A R D U S T

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