

## MD - DC JUNIORS

At the October 13 meeting of the MD - DC NCJA fourteen members were present, some of whom delivered interesting and well prepared reports on the members of the solar system. A discussion of these reports was moderated by Leith Holloway.

We also plan to undertake a specific project of tracking some of the brighter asteroids.

Our group is planning to have two meetings a month. One a lecture, discussion, or business meeting and the other an observing session using one or more of the members equipment. The first such star party was held on October 19, where twelve people attended.

We are also revising the Special Phenomena Alerting Network consisting of some of the members of the NCA.

Ernest Goodwin, Junior Editor

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## VIRGINIA JUNIORS

In the September issue of Stardust the date keeper was listed incorrectly named as Ed Cragg; the name should have been John Geweke.

The Virginia Juniors meet on the second and fourth Fridays of the month at the Westover Baptist Church in Arlington. At the past meetings we have had color slides of nebulae and we have also observed with the NCA 5 inch refractor out at the Naval Observatory.

On Sunday, October 7th, our president, Doug Lind appeared on the program "Youth Wants to Know", along with Shelly Berman. Before the show Doug was talking with Mr. Berman who has a Questar telescope. The Virginia Juniors are happy to announce their newest member, Mr. Shelly Berman.

Eleanor Matter, Virginia Junior Editor

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## PRESIDENT'S MESSAGE

At the October meeting we had many interesting comments by members on observing they had done, this was a good start, but let's have wider participation. Come to the November meeting prepared to share your observations and comments. If you have some photographs remember the bulletin board.

We had a very good turn out for the Discussion Group, and lots of participation by all those present. Dr. Opik presented some of his own views on the formation of lunar surface.

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## PLANETARIUM TRIP

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On Thursday, November 8, we are planning a trip to the Davis Planetarium, Maryland Academy of Science in the Enoch Pratt Library building at 400 Cathedral St. in Baltimore. The planetarium show will begin at 9:00 PM. At 8:00 PM we will have an opportunity to preview two films of the National Academy of Science "Planet Earth" film series: "Force of Gravity" and "Inconstant Air." Come early and visit their very worthwhile Museum of Natural History.

It is requested that all members make their own arrangements for transportation, however, if you need a ride come to the November meeting and we will try to help you.

The planetarium can hold about forty people, so let's have a good turn out and fill it up.

QB1. S79

# ★ STARDUST



NOVEMBER 1962

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## EXPLORING THE MAGNETOSPHERE ... AND BEYOND

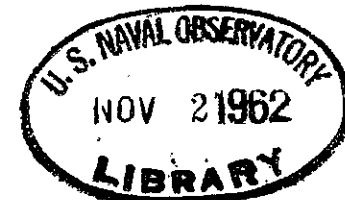
This film is a scientific report to the community of recent finds in the exploration of the magnetosphere, also known as the Van Allen Belt. It shows highlights of the NASA S-3 Program with implications for manned spacecraft and communication satellites.

The film opens with a graphic demonstration of the nature of magnetic fields which trap protons, ions and electrons in belts of concentration around the earth. Since the discovery of these radiation belts by Dr. Van Allen in 1958, a series of scientific satellites has probed deeper and more extensively; Explorer XII in the S-3 Program is the first concentrated long period study of the magnetosphere.

The film shows the spectrum of energy and intensity of particles to be measured. From their laboratories, key scientists explain the purpose and functioning of each experiment: - proton analyzer from NASA Ames Research Center; - trapped radiation instruments from State University of Iowa; - magnetometer from the University of New Hampshire; - ion electron experiment, cosmic ray package and solar cell damage experiment from Goddard SFC.

This S-3 spacecraft is one of the first to be assembled, tested and evaluated in the environmental facilities at Goddard. At Cape Canaveral, the payload is mated to the Delta vehicle and launched. Complex orbit-injection sequence is shown in Douglas Supplied animation. Other animated diagrams and three dimensional models show the unusual orbit of Explorer XII, swinging every 26 hours to distances of 80,000 kilometers and return. Goddard's tracking, telemetry and data reduction are shown, handling almost 6000 tapes -- more data than all previously-earth satellites combined.

Models and animation are used to visualize results, as experimenters discuss; the findings in the great trapping region and its sub-belts; the abrupt "chop-off" at the outer edge of the magnetosphere, probably caused by variations in the solar plasma wind; the measurement of cosmic rays and low-energy proton bombardment near 5 earth radii, where stationary satellites for communication and weather observation must hover.



The film demonstrates the tremendous amount of scientific information which can be derived from one satellite, in a coordinated program of space-science research for the advancement of knowledge and the determination of factors which influence Apollo (manned flight to the moon) -- information which must be obtained before man penetrates the magnetosphere and beyond.

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ORIGIN OF LUNAR CRATERS

At the October NCA meeting Mr. Ray Benton of Melpar Inc. compared the arguments for and against the three possible crater-forming processes on the moon. Mr. Benton believes that most lunar craters resulted from volcanic action but admits that meteor impact probably caused a number of the larger and deeper craters on the moon. Thus in this very controversial field he is more closely allied with the so-called volcanists such as Dr. Jack Green of North American Aviation, who spoke to the NCA in November 1959. However, Mr. Benton advocates a moratorium on theoretical papers concerning the origin of the moon's craters until geologists land on the moon later in this decade.

The enormous diameters of lunar craters, such as Copernicus and Bailly, the great ray systems, and the widely-scattered debris flung radially out from some craters support the meteoric hypothesis. On the other hand, contemporaneous chains of similar sized craters, especially those aligned along meridians, central peaks in craters, systems of two and three perfectly concentric craters, and overlapping craters without wall breakage strongly favor the volcanic theory. Furthermore, Meteor Crater in Arizona, a well-known impact crater on the earth, does not exhibit the terracing found on the inside of many lunar craters whereas the volcanic theory easily explains this phenomenon. The bubble theory, a modification of the volcanic theory, has the one serious deficiency that no known terrestrial material (and probably no lunar substance also) is sufficiently strong or plastic to adhere in the molten state long enough to form bubbles creating even the smallest craters on the moon visible from the earth.

At the end of the lecture Mr. Benton displayed a beautiful 22-inch diameter model of the moon which required over 5200 hours for him to construct. Members took turns examining the uv-lighted fluorescent model at close range and through a telescope at the far end of the auditorium.

Leith Holloway

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Your dues must be paid by the November meeting or your name will not appear in the NCA Directory. Send your dues to the treasurer Roger Harvey, 517 Valley Lane, Ravenwood, Falls Church, Va. **IF YOU HAVE NOT PAID YOUR DUES THIS IS THE LAST ISSUE OF STARDUST YOU WILL RECEIVE.**

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CALENDAR FOR NOVEMBER

- 3 EXPLORING THE MAGNETOSPHERE .. AND BEYOND a film to be presented at the Dept. of Commerce Auditorium 8:15 PM followed by the business meeting.
- 8 DAVIS PLANETARIUM at the Maryland Academy of Science in Baltimore. Film preview of tow National Academy of Science Planet Earth Film Series. "Force of Gravity" and "Inconstant Air." at 8:00 PM. Planetarium show at 9:00 PM.
- 9 VIRGINIA JUNIORS MEETING at the Westover Baptist Church.
- 10 MD - DC JUNIORS meeting at 2 PM at the Chevy Chase Community Center, 5601 Connecticut Avenue, N.W. Presentation of Junior reports on the Solar System continued.
- 17 DISCUSSION GROUP Dept. of Commerce Room 1951 at 8:15 P.M.
- 23 VIRGINIA JUNIORS MEETING at the Westover Baptist Church.
- 24 OBSERVING AT THE FIVE INCH 7:30 to 9:30 at the Naval Observatory with Larry White. NCA card will admit you.
- 6,15,20,27 TELESCOPE MAKING CLASS at the Chevy Chase Community Center 7:30 to 10:00 PM with Hoy Walls.
- 2,9,16,23,30 MAKUTOV CLUB at the Chevy Chase Community Center 7:30 to 10:00 PM with Hoy Walls.

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NEW MEMBERS

REGULAR NEW MEMBERS

JUNIOR MEMBERS

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\* S T A R D U S T

Washington, D. C.

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