

The September meeting of the Md.-DC Juniors consisted of a discussion of junior plans, projects, and lecture topics for the coming year. Plans call for a revised aurora-reporting network, possible correspondence with overseas amateurs, and field trips to nearby scientific institutions. Projects will be carried on by individuals and include night-by-night observation of Jupiter, astrophotography, and telescope making. Interest was expressed in a wide variety of discussion subjects from planetary analysis to cosmology. Next month a talk will be given on Meteorology for Astronomers, again by Leith Holloway. His new address is Apt. 201, 2030 Fort Davis St. S.E., Washington 20, D. C. and his phone number is 581-7870. In conclusion, I can say that this year looks like a very exciting one for the NCJA. With the continued participation of most of our members, it should be a success.

The last Junior Convention of the year will be held Saturday October 14, at 8:00 P. M. in the Dept. of Commerce foyer. As there is very little actual business to be covered, most of the meeting will be taken up with reports by the project heads. After the meeting a short observing session will be held. **BRING YOUR TELESCOPE.** Include also any observations, pictures, and drawings that you have done with your instrument. This meeting is planned primarily to bring out the interests and activities of the NCJA individuals. Therefore, come - but come prepared to add something to the convention!

Chris Walker, Md.-DC Junior Editor

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AUDIT REPORT

This is to certify that pursuant to Article V, Section 3, of the Bylaws of the National Capital Astronomers, Incorporated, we have examined the books of the NCA Treasury and have found them to be in good order, showing a balance of \$410.97 on the date of transfer, August 31, 1961.

Deposits subsequent to transfer, made by Mr. Duane Baugher on August 31, 1961, increased the balance to \$738.27.

We wish to commend the Treasurer, Mr. William Lipscomb, on the excellent clarity and condition of the records.

Respectfully submitted,

Robert H. McCracken :
Leo W. Scott : Auditors

★ STAR DUST



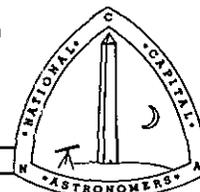
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★ STAR DUST

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PHOTOINTERPRETATION AND LUNAR GEOLOGY



Mr. Robert J. Hackman of the U. S. Geological Survey will speak at the October meeting on Photointerpretation of the Moon.

Photographs of the Moon taken at different libration positions have an angular difference of perspective, and hence stereoscopic photointerpretive methods may be applied to studies of the lunar surface. The common interpretation elements of shape, size, texture, pattern, position, and shadow are important criteria in the study of the Moon, just as they are in the study of the Earth's surface, although the photointerpreter must adapt to the novelty of extremely

small-scale photography and must modify certain of the procedures and instruments used for conventional aerial photographs.

The dominant features of the lunar landscape are nearly circular craters, thought to be the result of meteoroid impact, and great lowland areas now flooded with dark material believed by many to be lava fields. Relative ages of lunar features may be determined from the degree of dissection of crater rims, and from the relative positions of craters with respect to the lowland and highland areas. In places the lunar surface is cut by conspicuous faults more than a hundred miles long. Many of these features, which bear on an understanding of the Moon's surface and its development, have been compiled on generalized geologic and physiographic maps at a scale of 1:3,800,000. More detailed studies are being made and maps compiled at a scale of 1:1,000,000 for target areas for future lunar probes.

Mr. Hackman is a native of Omaha, Nebraska. He attended Stanford University, George Washington University, Department of Agriculture Graduate School, and is now attending American University. Mr. Hackman served in the U. S. Navy in World War II and has been employed as a geologist with the U. S. Geological Survey since 1951. From 1951 to 1959, Mr. Hackman was engaged in aerial geologic mapping of areas in Alaska and the western United States. His work emphasized the use of aerial photographs for geologic purposes. In 1959, he joined the U. S. Geological Survey's cooperative program with the U. S. Army Corps of Engineers, to map the lunar surface geologically. He completed a generalized photogeologic map of the moon and cooperated in the preparation of a physiographic map of the moon.



SURFACE CONDITIONS OF VENUS

At our opening meeting NCA was once again privileged to have as its guest lecturer Professor Ernst J. Opik, Professor of Astrophysics at the University of Maryland and research associate at Armagh Observatory, Northern Ireland. In his interesting and informative talk on Venus the speaker presented a picture of the neighboring planet which is quite striking in its contrast to the more conventional and romantic thought widely held until quite recently which depict Venus not only as our sister planet but indeed its twin.

As pointed out by the speaker, Venus is similar to the Earth in the following physical characteristics: its diameter, mass, mean density, and surface gravity giving his recently revised figures of 0.961, 0.814, 0.916, and 0.881 respectively, of the corresponding terrestrial values. From this point a critical evaluation of modern observational data leads Professor Opik to a new and very different conclusion regarding the surface conditions of the planet.

Venus receives 91% more solar radiation but is far less efficient in its use, absorbing 24% less. Its visual, bolometric, and violet albedo are 0.76, 0.77, and 0.15 respectively against 0.29, 0.42, and 0.63 respectively for the Earth. Water vapor in the clouds of Venus has been experimentally determined to be about 2.6% of saturation, oxygen is absent in observable quantities, and huge amounts of carbon dioxide are present. Professor Opik concludes that these data "point to Venus as a borderless desert, leveled by winds during millions of centuries, with choking dust filling the atmosphere and forming the clouds of Venus." Should we ever visit Venus we would bask in total darkness at an ambient temperature of about 500°F.

At the Jet Propulsion Laboratory in California after recently making radar observations of Venus it was assumed that Venus has a surface roughness of 7% equal to that of the Moon (an extremely rough body) and concluded that Venus has a period of rotation of 200 - 400 days. Professor Opik believes that the surface of Venus undisturbed by rain or rivers is comparable to terrestrial plains with about 0.5% roughness thus giving a period of about 15 - 40 days, a figure similar to that obtained from a study of the ultra-violet pictures of Venus.

Additional information on this topic can be found in the article "Surface Conditions on the Nearest Planets" by Ernst J. Opik in the American Journal of Physics, Vol. 28 pp 618, and in other articles listed in the bibliography of the above.

John Stolarik

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TELESCOPE MAKING CLASS

The telescope making class at the Chevy Chase Community Center has changed its meeting night. The class will now meet every Tuesday from 7:30 to 10:00 P.M. Hoy Walls reports that he has on hand plenty of glass and abrasives. These classes are a wonderful opportunity for you to have a good time, save money, and build yourself a telescope. Remember every amateur astronomer should have a telescope.

Concurrent with his work in aerial geologic mapping, he conducted research into the development of instruments designed to facilitate measurement of geologic features from aerial photography. His inventions include; The Stereoslope Comparator - a device for measuring slopes on aerial photographs; the Isopachometer - a device for measuring thicknesses of rock units from aerial photographs; and the Flying Carpet - a device for introducing a horizontal field of reference into stereoscopic models of aerial photographs.

Mr. Hackman is a member of and has served on numerous committees of the American Society of Photogrammetry and the National Speleological Society. He is also a member of the Geological Society of Washington.

Mr. Hackman is currently affiliated with the Astrogeologic Branch of the U. S. Geological Survey and is engaged in a program of 1:1,000,000 scale geologic mapping of lunar quadrangles. This program is being undertaken in cooperation with the National Space Agency.

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CALENDAR FOR OCTOBER

- 7 PHOTINTERPRETATION AND LUNAR GEOLOGY BY Mr. Robert J. Hackman. Dept. of Commerce Auditorium, 8:15P.M. Business meeting follows.
- 14 MARYLAND - DC JUNIORS MEETING at the Chevy Chase Community building, 5601 Connecticut Ave., N.W., 2:00 P. M. Leith Holloway will lead a discussion on Meteorology for Astronomers.
- 14 JUNIOR CONVENTION Dept. of Commerce Foyer, 8:00 P.M.
- 21 DISCUSSION GROUP 8:15 P.M. Department of Commerce Foyer. Topic to be announced. Meeting of Executive Board and Trustees to follow.

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