

579

STAR DUST
National Capital Astronomers

January 1956 Vol. 13, No. 5

JANUARY CALENDAR

Jan. 7 "DESTINATION MOON" -- A full length technicolor (Sat.) sound movie of the first rocket trip to the Moon in 1975. Department of Commerce Auditorium, 8:15 P.M. (Seats will be reserved for NCA members arriving before 8:10 P. M.)

Jan. 13 GROUP OBSERVING at the NCA 5" at the Naval Observatory with Hoy Walls. Your NCA membership card will let you in the gate. Time: Beginning about 7:30 P.M. Take a raincheck in case of overcast sky.

Jan. 21 DISCUSSION GROUP with Leith Holloway on "Astronomy and the IGY". Commerce Department, Foyer, 8:00 P.M. (See story inside.)

Each Saturday morning: Telescope making class at Chevy Chase Community Center, 5600 block of Connecticut Avenue, 9-12 A.M. For more information contact Hoy Walls at Oliver 2-5395.

"DESTINATION MOON" presents in color and sound a reasonable story of what an expedition to the Moon in the near future may expect to discover. A capacity audience is expected for this meeting and it would be advisable to come a little early. Seats will be reserved for members of the N.C.A. and their families and guests.

-----Benjamin Adelman

NCA MEMBERS VOTE TO PARTICIPATE IN METROPOLITAN AREA SCIENCE PROMOTION. At the December 3 business meeting NCA members voted to provide speakers and advisors from area membership for local school and other group activities in astronomy. Dr. Arnold H. Scott of

SOME MESSIER OBJECTS THAT ARE VISIBLE THIS WINTER

No.	Description	Magn.	Constellation	R.A. h. m. (1950)	Dec. ° ' "
M 3	globular cluster	6	Canes Venatici	13 39.9	0 11
15	"	6	Pegasus	21 27.6	28 38
31	spiral galaxy	4	Andromeda	00 40.0	41 57
33	"	7	Triangulum	01 31.1	30 24
34	open cluster	6	Perseus	02 38.8	42 34
35	"	6	Gemini	06 05.8	24 21
36	"	6	Auriga	05 32.8	34 06
37	"	6	Auriga	05 49.1	32 32
38	"	7	Auriga	05 25.3	35 48
41	"	6	Canes Major	06 44.9	20 41
44	open cluster (Praesepe)	6	Cancer	08 37.2	20 10
50	open cluster	6	Monoceros	07 00.6	08 16
52	"	7	Cassiopeia	23 22.0	61 19
67	"	7	Cancer	08 48.5	12 00
103	"	7	Cassiopeia	01 29.9	60 26

-----A. L. White

Jewell Boling, 1717 P Street, N.W., Washington 6 NO 7-7963

1/3/56

the National Bureau of Standards stated at the business meeting that the greater Washington area Joint Board on Science Education will from time to time be sponsoring such activities.

CHANGE IN BY-LAWS REGARDING MEMBERSHIP APPLICATIONS OF JUNIORS UNDER 12 APPROVED BY MEMBERS. The proposed change in the By-laws set forth in the December 1955 issue of STAR DUST was approved by the members at the December 3 business meeting. This will authorize adult members sponsoring a neighborhood Junior Astronomy group to accept applications for NCA membership from Juniors under 12.

MR. PAUL DAVIS TO WORK WITH JUNIORS UNDER 12. Due to pressure of other work Mr. Ellis Marshall has found it necessary to give up his work with the Juniors over 12. Mr. Paul Davis has taken over the special activities for these Juniors. Mr. Benjamin Adelman coordinates the neighborhood activities for Juniors under 12.

--Dana K. Law, President

THE AMATEUR ASTRONOMER AND IGY. During 1957 and 1958, designated as the next International Geophysical Year (IGY), forty nations including the U. S. will participate in a program of intensive world-wide investigation in all branches of geophysics. The date of IGY is planned so as to coincide with a period of anticipated high solar activity. Among the scientific areas under study during IGY will be:

Aurora
Cosmic Rays
Geomagnetism
Glaciology
Gravity Measurements
Ionospheric Physics
Latitude and Longitude Determinations
Meteor Observation and Meteorology
Oceanography
Rocket and Satellite Exploration of
the Upper Atmosphere
Seismology
Solar Activity

LUNAR OCCULTATIONS FOR JANUARY

Date	Star	Mag.	Age	Phase	E. S. T.
2-3	e Leo	5.1	20.1	R	5:46.0 A. M.
22	22 H ¹ Tau	6.0	9.9	D	5:55.1 P. M.
22-23	BD/20° 669	7.0	10.1	D	12:44.8 A. M.
23	BD / 22° 776	7.4	11.0	D	10:39.3 P. M.
29	55 Leo	6.0	17.0	R	9:36.8 P. M.

OBSERVATIONAL DATA

Mercury reaches greatest eastern elongation on January 11 and may be seen low in the west just after sunset. Venus is an evening star visible low in the southwest just after sunset. Mars rises between 3:00 and 4:00 A. M. and is in conjunction with Saturn on the 14th at 3:30 A. M. Jupiter rises several hours before midnight and is visible for the rest of the night. Saturn is a morning star visible in the southwest for a few hours before sunrise. To date the maximum intensity for the QUADRANTID meteor shower is January 3. This shower averages 20 meteors per hour and the position of the radiant is alpha 232°; delta, plus 52°. On the 15th at 11:00 P. M. E.S.T., the Milky Way spans the heavens from north to south passing through Cassiopeia, Perseus, Auriga, and Monoceros.

---A. L. White

NEW MEMBERS

Robert F. Burns, 4701 So. 29th St., Arlington, Va. KI 8-8508
Barney Franklin, Jr., 909 Gist Ave., Silver Spring, Md.
JU 9-1267
RADm. & Mrs. A. I. Malstrom, 7838 Aberdeen Rd., Bethesda, Md.
OL 4-6805
Keith M. McLeod, 6135 31st Pl. N.W., Wash., D. C. EM 2-5027
Norman H. Smith, 9716 Montauk Avenue, Bethesda 14, Md.
OL 4-0172
*Joel Geoffrey, 19 Hill Top Road, Silver Spring, Md.
JU 9-8504
*Carol Riggs, 2910 Vista St., N. E., Wash. 18, D. C.

Add to Roster -- Left out by Mistake
Lott, George A., 220 Allison St., N.W. (11) TU 2-9347

A Happy New Year to everyone in the NCA.

---Tove Nevelle

At our discussion meeting we will discuss how the amateur astronomer may participate in and contribute to the IGY program.

---Leith Holloway, Jr.

SYNOPSIS OF THE DECEMBER LECTURE BY DR. JOHN S. HALL

The Image Converter Program - A Great Advance in Astronomy

By the application of electronics to the optical telescope and to telescopic spectroscopy many of the problems of astronomy can be resolved. Among the problems of considerable magnitude are those of lens size, exposure time in relation to sky brightness and spectroscopic analysis.

Using the efficiency of the photoelectric surface in a photocathode tube placed at the focus of a telescope, each photon of light energy is made to generate 100 electrons. By accelerating the electrons produced by an electrostatic field of a desired voltage and focusing the electrons on a photographic plate a picture may be obtained. By increasing the acceleration each electron can be made to produce a corresponding increase in developable grains in a photographic plate. Dr. Hall pointed out that using such a method results in obtaining points of light not revealed by other methods but not an area as is required for revealing positional relationships of these faint stars.

In the present image converter program the problem of area is being resolved by the using of fine grain, high speed photographic plates at the final registrations of the image in focus instead of a phosphorescent surface. It was pointed out that because of the great diffusion of light from a phosphorescent surface photography of a phosphorescent screen is less than that desired.

In using this method it is necessary to protect the photocathode by means of a thin film of aluminum which is one-half to one-tenth of a wave length of light and which functions as an electron filter excluding molecules from the photocathode. This thin film is maintained in a

vacuum and has to be inserted in the image converter not more than $1/4$ mm in front of the photographic plate because of the scattering effect of the film emulsion.

In using the image converter a gain of a factor of 50 is obtained in exposure time, thereby gaining in definition of the image and light sources 2-2 $\frac{1}{2}$ magnitudes fainter than the faintest now detected can be registered. This means that telescope engineering will become less concerned with lens size in the large telescope. In respect to telescopic spectroscopy where high resolution is not required, light analysis will be extended.

In another like phase of application of electronics to Astronomy an orthicon as is used in the television camera has been converted and used in conjunction with a photocathode tube to observe the live details on the planet Mars. Conversion of the orthicon tube has centered around increasing the contrast and engineering the tube to reduce its frequency of picture scanning to that most desired for photography. Slides showing explanatory diagrams and pictures of apparatus were shown.

Comments: It may be stated that the application of electronics to our actual telescopes will extend the range of Astronomy comparable to the extension electronics has brought to the field microscopy with its uses of electrostatic lenses.

----Claude G. Walker, M. D.

HOWARD WILKERSON, LO 5-2970, 2519 Mason Street, Silver Spring, Maryland, would like to swap a 5 hp OUTBOARD MOTOR for a 4" (no smaller) OBJECTIVE.

CHANGES IN ADDRESSES

David Lee Bower, 2110 Fairmont Blvd., Knoxville, Tenn.

Leith Holloway, Jr. Telephone change to EM 2-8167