

STAR DUST
National Capital Astronomers

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DECEMBER CALENDAR

Dec. 3 "THE IMAGE CONVERTER PROGRAM (for extending the (Sat.) range of our telescopes) - A GREAT ADVANCE IN ASTRONOMY." Dr. John S. Hall, Head of the Equatorial Division, U. S. Naval Observatory, Department of Commerce Auditorium, 8:15 P. M.

Dec. 9 GROUP OBSERVING at the NCA 5", Navy Observatory. (Fri.) With Hoy Walls. 7:30 P. M.

Dec. 17 DISCUSSION GROUP with DANA LAW on "PHILOSOPHICAL (Sat.) IMPLICATIONS OF OUR KNOWLEDGE OF ASTRONOMY." This discussion might well relate our knowledge of astronomy to such ponderables as matter, time, space, beginnings and endings, consciousness, and reality. Gather your thoughts and come prepared for a development of ideas.

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

"THE IMAGE-CONVERTER PROGRAM - A GREAT ADVANCE IN ASTRONOMY" - An exciting research program with the aim of tremendously increasing the capabilities of present day telescopes is now under way. Dr. Hall and the other experts working on this project hope to increase the light-gathering power of the Hall telescope among other things, so that it will be able to detect objects that are now too faint to be photographed, and so vastly extend our knowledge of the universe. They are confident that they will be able to solve the troublesome problem of the effect of our atmosphere on "seeing" which makes it extremely difficult to take sharp photographs of the planets. By

cutting down exposure time with this device from about one second to about one hundredth of a second, the astronomers will be able to take advantage of the brief instants of good seeing and so obtain much clearer pictures. This summer, this new technique will be used to photograph Mars when it passes closer to the earth than it has in many years.

The image converter program is an effort to adapt the techniques of television to the telescope. It may well represent the greatest advance in astronomy since Galileo turned his first telescope on the heavens back in 1609. Dr. Hall received his Ph. D. degree in astronomy from Yale University. He has done research in astronomy at Columbia, Swarthmore, Amherst and the U. S. Naval Observatory. During World War II, he worked on the development of radar at the Massachusetts Institute of Technology.

---Benjamin Adelman

PROPOSED CHANGE IN BY-LAWS TO BE VOTED ON AT DECEMBER 3
meeting. The proposed addition to Section 2 of the by-laws is underscored: Section 2. Applications for membership shall be in written form, properly endorsed by one full member and accompanied by the dues for one year, and shall be submitted to the Membership Committee by the applicant in person, except for applications submitted by children under 12 years of age, which may be submitted either to the membership committee or to an adult member sponsoring a neighborhood junior astronomy group. If approved by the Membership Committee, or, in the case of children under 12, by an adult member sponsoring a neighborhood Junior astronomy group. The application shall be brought before the corporation at a duly assembled meeting. Unless there is objection from the floor, a voice vote shall be taken and a majority vote shall constitute election to membership. If objection from the floor is voiced, a majority vote by secret ballot shall be required for election to membership.

CHRIS WALKER, Oliver 4-3572 is interested in buying a refractor or a good reflector with objective of from 2 $\frac{3}{8}$ " to 4 $\frac{1}{2}$ ". Will pay up to \$150.

THE NIGHT SKY

I look up in the night sky and what do I see?
Jupiter moving eastwards, an old friend to me.
Then there's Orion, the Hunter, brave and strong,
And Pegasus, the winged horse, prancing along.
There's Auriga, the Charioteer, riding above,
Leo, the Lion, and Columbia, the Dove.
Hydra and Cetus are ready to fight,
While Castor and Pollux are giving twin light.
When I look at the night sky, there's so much to see,
I keep looking and looking for things new to me.

---Saul Adelman

OBSERVATIONAL DATA

Mercury is too close to the sun for observation, superior conjunction being on December 4. Venus is an evening star easily seen low in the southwest just after sunset. Mars is in Libra, visible in the southeast for a few hours before sunrise. Jupiter rises before midnight and is visible for the rest of the night. Saturn is a morning star rising in the southeast about an hour before the sun. The date of maximum intensity for the GEMINID meteor shower is December 12. This shower averages 30 meteors per hour. This winter will be a good time to identify LEPUS, the Hare. It is a small group of fairly bright stars just below Orion.

---A. L. White

HOY WALLS ELECTED to fill Regional Council post: At the November business meeting Mr. Hoy Walls was elected to fill the vacancy in the three year term, expiring September 1957, of NCA member on the Middle East Regional Council. Miss Betty Fazekas is Chairman of the Council and the NCA president is also an ex-officio NCA representative on the council.

NEW MEMBERS-- the Group Observing on December 9 is a good opportunity for you to see the Club's telescope. Your NCA membership card will let you in the gate. Remember to take a raincheck in case of overcast sky.

SIRIUS was born about 100,000,000 years ago. The earth is about fifty times as old as Sirius.

THE ELECTRO-MAGNETIC SPECTRUM IN ASTRONOMY FROM COSMIC WAVES TO RADIO WAVES (November lecture by Dr. H.E.Lilley)
- One of the principal problems associated with cosmic rays -- at one end of the spectrum -- is the question of the source of their energy and the mechanism by which this energy is imparted to them. Calculation has shown that they possess more energy than is required to destroy the particles themselves. This presupposes that they must be brought up to this high energy state by a continuous process -- carefully!

Assuming cosmic rays were distributed throughout space, a summation of the energy they have would indicate that it would be equivalent to the total of all the kinetic and mass equivalent energy in the cosmos. Astronomers have been thus led to the conclusion that cosmic rays are confined to the local galaxy. After a fairly comprehensive review of the work in progress in the middle of the spectrum with which we are more familiar -- such as optical astronomy and microwave radio astronomy -- Dr. Lilley briefly touched on work in progress at the far end of the spectrum, i.e., 10 cycles to 1 kilocycle. At present the work is in too early a stage to draw conclusions.

Among recent astronomical events commented upon by Dr. Lilley was the discovery of the Lyman alpha line of hydrogen in the sun and the communication of this to the aging Dr. Lyman. In addition it was announced at Jodrell Bank by Soviet astronomers that they had detected radiation from Deuterium at 91.6 cm. This fact will cause a revision on the estimate of the cosmic abundance of Deuterium.

Dr. Lilley concluded his very interesting talk with numerous black and white slides -- many dealing with the new 250 foot radio telescope, others dealing with people well known in the astronomical world who were attending the Jodrell Bank symposium, and finally a special bonus in the form of slides of the new quarters for Greenwich Observatory and the quarters of the Astronomer Royal and his co-workers.

---Ellis Marshall

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Jewell Boling, Editor, 1717 P Street, N. W. (6) NO 7-7693

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December 1, 1955.

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(The membership list includes all members in good standing as of December 1, 1955.)

For any corrections please contact the secretary:
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