

OCTOBER LECTURE—X-RAY AND ROCKET ASTRONOMY

Many stars shine more than 50 times brighter in the far ultraviolet than in visible light. Dr. Talbot A. Chubb of the Naval Research Laboratory, our Oct. speaker, revealed that a sky map in the ultraviolet looks much simpler than a conventional one. Most familiar stars with the exception of Rigel are missing or dim on these charts, and some type C and B stars while inconspicuous in the sky appear as first magnitude on the u.v. maps. Furthermore the stars plotted tend to cluster along the plane of the Milky Way.

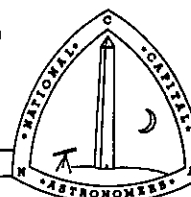
These hot (30,000 °K and more) blue stars emit most of their light in the ultraviolet to which our atmosphere is opaque. Therefore they can be "seen" only by special instruments mounted on rockets flying above the atmosphere. Since 1946 N.R.L. has flown many V2 and Aerobee rockets to these heights. Ion chambers replace the photomultiplier tube as a radiation detector at u.v. wave lengths. Even the windows of the u. v. sensors must consist of special crystals transparent to these frequencies. N.R.L. astronomers pinpoint star locations corresponding to strong u.v. emissions by signals from rocket borne magnetometers and horizon sensors telemetered to earth along with the radiation intensity data.

These investigations have also uncovered strong sources of X-rays which theoretically have surface temperatures in the millions of degrees. Such sources are probably the end products of supernovae as in the case of the X-ray-emitting Crab nebula. Some astronomers have speculated that these X-rays come from neutron stars — compact, collapsed matter a dozen or so miles across, but a lunar occultation of the Crab nebula indicated that this is an extended source of X-rays.

Leith Holloway

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★ S T A R D U S T



November, 1964

Vol. XXII No. 3

RADIO TELESCOPES AROUND THE WORLD



Dr. Everett H. Hurlburt

Dr. Everett H. Hurlburt, Program Director, Radio Astronomy Program, Division of Mathematical and Physical Sciences of the National Science Foundation will show his excellent collection of slides and speak on "Radio Telescopes around the World" at the November meeting of the NCA.

Dr. Hurlburt graduated with a B. A. in Physics from Western Reserve University in 1933, earned an M.A. at Harvard University, and a Ph.D. in Physics at Ohio State University. He is a member of Phi Beta Kappa, Sigma Xi, Sigma Pi Sigma, American Physical Society, American Astronomical Society, American Astronautical Society, Washington Philosophical Society, and a Senior Member of the Institute of Elec-

trical and Electronic Engineers.

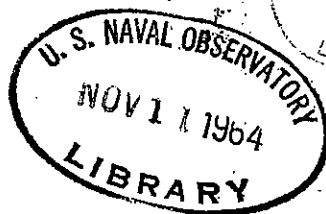
Prior to his present assignment he held positions as Physicist, Electronics Branch, Office of Naval Research; Physicist, Electromagnetic Section, U. S. Naval Ordnance Laboratory; Physicist, Microwave Standard Section, National Bureau of Standards; Electronic Engineer, Vacuum Tube Section, U. S. Naval Research Laboratory; and Instructor of mathematics and physics, Fenn College, Cleveland, Ohio. Dr. Hurlburt has also authored a number of articles.

CALENDAR FOR NOVEMBER.

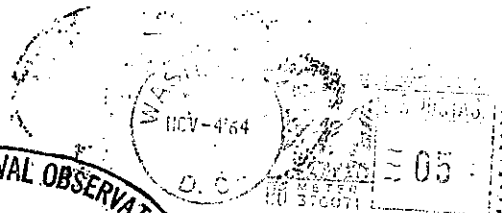
- 6 Observing at the 5 inch on the grounds of the U. S. Naval Observatory, with Larry White, 8-10 p.m.
- 7 Dr. Everett Hurlburt of National Science Foundation will present an illustrated lecture on "Radio Astronomy", at the Commerce Department Auditorium, 8:15 p.m. Business meeting follows lecture.
- 13 Virginia Juniors meet at Westover Baptist Church, Patrick Henry Drive and Washington Blvd., Arlington. Contact John Geweke, 538-5148 for further information.
- 14 Md.-D.C. Junior Meeting at the Silver Spring Library at 2 p.m. Speaker will be Mr. Hendrik Hudson.
- 21 Discussion Group, leaders Mr. Hoy Walls, Mr. William Isherwood and Mr. Grady Whitney, Room 2062, at 8:15 p.m. Commerce Dept. Topic and exhibit "Making and Using Telescopes" EVERYONE URGED TO COME.
- 13,27 Virginia Telescope Making Classes to be held in the McLean High School, under the instruction of Mr. Grady Whitney.
- 2,9,16,23,30 Textbook Astronomy Course for NCA members meet at the Naval Observatory promptly 8 p.m., Mr. John Stolarik, instructor. Plan to join the class.
- 6,13,20 Advanced Telescope Making class at the Chevy Chase Community Center with Mr. Hoy Walls 7:30-10 p.m.
- 3,10,17,24 Regular Telescope Making Class at Chevy Chase Community Center with Mr. Hoy Walls, 7:30 - 10 p.m.

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Library,
Naval Observatory
Washington 25, D.C.



CALENDAR FOR NOVEMBER - Concluded

4,11,18, 25 Telescope Making Class at Materials Center, Bladensburg, Md. with Mr. Wm. Isherwood. 7:30 -9:30 p.m.

WELCOME.....Vice President..... Hendrik R. Hudson

Mr. Hendrik R. Hudson was appointed in October by the Trustees of NCA to the office of Vice-President. Mr. Hudson has served NCA as a Junior Leader and Discussion Group Leader. He is employed by NASA with the Spacemobile project. NCA Officers and Members welcome Mr. Hendrik R. Hudson as Vice-President.

WILLIAM T. JARVIS

The Officers and Members of the National Capital Astronomers wish to express their sympathy to Mrs. Edith C. Jarvis on the death of her husband, William T. Jarvis, in July 1964. Mr. Jarvis had been a loyal NCA member for many years enjoying the fellowship and contact with people with astronomy as a hobby.

MEMBERSHIP CARDS FOR 1964-65

N.C.A. members may pick up their current membership cards at the November meeting or send the Treasurer a self addressed, stamped envelope if you wish the card mailed to you. Send this request to:

Mr. Frederick Cornelius
115 - Chichester Lane
Fairfax, Virginia

Applying for NCA MembershipEight Juniors

The following Juniors applied for NCA membership at the October meeting. Under the new procedure, persons applying for membership will be listed in STARDUST for the consideration of all members. Members are voted on at the next regular meeting. If you have any comments about the applicants, please contact a Trustee or an Officer of NCA before the night of the meeting.

James R. Adcock 8 Irene Court Woodbridge, Virginia	Sheila Duck 5617 Seminole St. Berwyn Heights, Maryland	William J. Irwin 4512 N. 33rd St. Arlington, Va. 22207
Aaron Addington 8566 Treyman Drive Chevy Chase, 15, Md.	Mark S. Goldberg 2706 Jennings Road Kensington, Maryland	Mike Pique 1921 Gaither St. S.E. Hillcrest Heights Washington, D. C. 20031
Charles Biggio 6411 N. 22nd St. Arlington, Virginia	Geoffrey Hornseth 1917 Gaither St. S. E. Hillcrest Heights Washington, D.C. 20031	

CAN YOU IDENTIFY THE CRATERS?



This photograph of the moon was taken September 15, 1964, at 2:00 U.T. by Douglas Richstone, using a homemade 4" telescope and a Minolta SR-1 camera. Eyepiece projector system was used with the camera on a tripod next to the telescope at an equivalent focal length of 120 inches. The exposure was approximately $\frac{1}{2}$ sec. on Panatomic X film, developed in Microdol X.

VIRGINIA JUNIORS

Mr. Hendrik Hudson, lecturer with the National Aeronautics and Space Administration, spoke to the Virginia Juniors on September 25 about the recent Ranger photographs of the Moon. He displayed fine pictures and spoke on future American space probes: Prospector, Surveyor, and Apollo. He also considered some of the theories concerning the nature of the lunar surface and its possible effects on lunar probes.

At their October 9 meeting, the Virginia Juniors organized committees for this year and discussed their project for the 1965 Virginia Junior Academy of Science convention in May at Richmond, Virginia. Mr. Leith Holloway, director of the N.C.A.'s junior division, gave an informative lecture on the use of coordinate systems in astronomy at the October 23 meeting of the Virginia Jrs. This meeting was well attended, as have been all the meetings of the Virginia Juniors this year.

John Geweke
Virginia Junior Editor

MD - DC JUNIORS

Mr. William Isherwood of the Prince Georges Telescope Making Class spoke to an interested group of Maryland-DC Juniors on October 10. His topic, Measuring Cosmic Distances, covered the history of measuring distances, first by parallax then by variables, and finally by the red shift, each with increasing margins of uncertainty.

Our November speaker will be Mr. Henry Hudson, of NASA, who will discuss Rocket Astronomy. Mr. Hudson comes to MD-DC highly recommended as a speaker, so all Juniors should attend for an enjoyable and informative lecture.

MD-DC is in the midst of several projects, including sales of 103a film and Project World Night; publicity; and the proposed Junior convention and Federation. Progress reports on all phases of MD-DC activity will be given at the November business meeting.

Norman Sperling
MD-DC Junior Editor

NCA JUNIOR DIVISION SPONSORING A TRIP

Make a real effort to join the group going to Barrington, (Edmund Scientific) New Jersey and Fels Planetarium in Philadelphia.

Date.....Saturday, December 12
Departure Time.....8:15 a.m. sharp, from Commerce Dept., 14th St.
Destination.....Barrington, N. J. and Philadelphia, Pa.
Arrival Home.....near 10 p.m.
Cost.....\$7.00 round trip including entrance to the planetarium.

The roster is now being made so bring your check or money order to the November 7 meeting or mail it to:

Travis Taylor
President of Junior Division
706 - North Frederick Street
Arlington, Virginia

You may want to bring a bag lunch or you can eat at the counter at the Franklin Institute. For dinner, we will stop at a Hot Shoppe type restaurant on the turnpike, where regular dinners or snack type dinners are available. Adults as well as Juniors will enjoy the new exhibits and especially the Planetarium presentation for December, THE CHRISTMAS STAR. The stop at Edmund Scientific is always exciting and fun in finding astronomical bargains. Plan to join the group on December 12, but make your reservation early with Travis Taylor, support the Junior Division effort.
