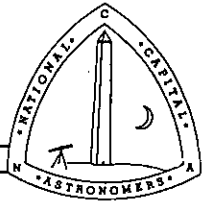


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★ STARDUST



FEBRUARY 1963

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VIRGINIA JUNIORS

From 9:00 AM to 3:30 PM on Friday, December 28, a group of nine Virginia Juniors and two adults were treated to a special tour of the U.S. Army Map Service in place of their regular meeting. Major Hines, the tour director, and a specialist from each department visited, gave the visitors an excellent insight into the work and accomplishments of the Map Service.

Some of the more interesting aspects of the tour included the Honeywell 800 Computer, the two million map library, and an exhibit of maps which were plastic, pliable, indestructable, and dissolvable in water. They also observed the complete process of topographic map production from the aerial photographs to the finished product. A highlight of the tour was their visit to the Department of Cartography where they received an interesting briefing on the current moon-mapping project.

The Virginia Juniors express their appreciation to all those who made this tour possible.

Guy Blair Jr.
Vc. Junior Editor

USE OF THE FIVE INCH

Enclosed with this issue of Stardust is a copy of the procedure to be followed by all NCA members and their guests when visiting the Naval Observatory to use the five inch. It is most important that you be familiar with and follow these regulations in order that we may continue to enjoy the privilege of having our telescope on the Observatory grounds.

★ STARDUST



Washington, D. C.

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Sam C. Feild, Jr., G. Robert Wright, and James Krebs. Editor, Mrs. John Stolarik. Assistant Editor, Mrs. Ellis Marshall. Junior Division Editor, Ernest Goodwin, WO-6 4058. Astronomy Editor, Alexander L. White. Publicity, Mrs. William Lipscomb. Publicity Distribution, Morton Schiff. Photography and Production, Sam C. Feild, Jr. Deadline: Tenth of each month.

STELLAR MULTIPLICITY



Official U.S. Navy Photograph

At the February meeting Charles Worley will speak on Stellar Multiplicity.

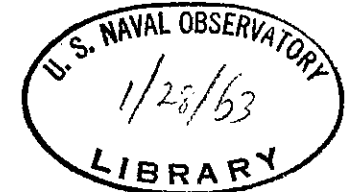
There are two major reasons why we study the phenomenon of stellar multiplicity, first in order to obtain the masses of stars and second because multiple stars are inherently important in the hierarchy of our Milky Way system.

Mr. Worley will first consider the problem of determining stellar masses with particular emphasis on the errors involved. He will then discuss the problems of detecting stellar multiples with emphasis on the limitations of our present techniques. Finally he will consider the necessity of accounting for large numbers of multiple stars in theories of star formation and evolution.

Mr. Worley first became interested in astronomy at the age of nine. As an amateur his first observational work was plotting and recording more than 10,000 meteors for the American Meteor Society.

He attended Swathmore College for two years where he took part in their parallax program. He then went to Lick Observatory where he did photoelectric photometry and later began observations of visual double stars. He obtained a B.S. in math at San Jose State College in 1959, after which he returned to Lick under an Office of Naval Research grant to continue double star work. In 1961 he came to the U.S. Naval Observatory where he is doing research on multiple stars.

Mr. Worley is a member of the American Astronomical Society and a Fellow in the Royal Astronomical Society. His work has appeared in the standard astronomical journals.



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COSMOLOGY Dr. E. J. Öpik

At the January meeting of the NCA, Dr. Ernst J. Öpik, professor of astrophysics at the University of Maryland, spoke on cosmology-the study of the structure, laws and evolution of the observable universe.

He pointed out that it is desirable to adhere to the "principle of minimum hypotheses." That is, the only assumptions which should be introduced into cosmological theory are those which explain facts which the available theories cannot cope with. As an example he mentioned the various hypotheses put forward to explain Olber's paradox-the fact that the sky is not uniformly as bright as the sun. This fact is easily explained in a universe built on a hierarchical principle even if it is infinite in extent. Thus starting with a planet we have the solar system, clusters of stars, globular clusters (10 stars), galaxies (10 stars), clusters of galaxies and finally even clusters of such clusters. This observed hierarchy explains the darkness of the night sky.

Dr. Öpik explained that the observed departure from linearity in the red shift vs. distance curve shows that the distant galaxies-which are seen as they were a billion years ago-were moving faster than expected, thus suggesting that the rate of expansion is slowing down-an oscillating universe. Present estimates show that the mass of the universe exceeds somewhat the critical mass required to make the present expansion reverse.

In addition, radio astronomy results indicate that at distances of 4-5 billion light years, the density of galaxies is higher than at closer distances-again suggesting a more compact universe in the distant past. This observational evidence seems opposed to the steady-state theories of Hoyle, Bondi and Gold and while it does not prove the existence of an oscillating universe, it is completely consistent with such a theory.

Jim Krebs

CALENDAR FOR FEBRUARY

- 2 STELLAR MULTIPLICITY by Charles E. Worley, Dept. of Commerce Auditorium 8:15 PM. Business meeting follows. Dinner with the speaker at 6:15 P.M. Occidental Restaurant.
- 8,22 VIRGINIA JUNIORS meeting at the Westover Baptist Church (Room 234), 1125 N. Patrick Henry Drive, Arlington, Va. 8 P.M.
- 9 MD--DC JUNIORS meeting at 2:00 PM at St. Paul's Lutheran Church, 4900 Conneticut Ave. at Everett St. (entrance at the rear) Subject: Astrophysics (continued). For additional information call Leith Holloway 362-1961.
- 16 DISCUSSION GROUP at 8:15 PM in the Dept. of Commerce Room 1861. Topic to be announced.
- 23 OBSERVING AT THE FIVE INCH with Larry White, at the U. S. Naval Observatory 7:30 to 10:00 PM.
- 5,12,19,26 ASTRONOMY REVIEW CLASS at the Naval Observatory Building 59 at 8:00 P.M.
- 6,13,20,27 TELESCOPING MAKING CLASS at the Chevy Chase Community Center with Hoy Walls from 7:30 to 10:00PM.
- 6,13,20,27 TELESCOPE MAKING CLASS in Bladensburg from 7PM to 9PM with William Isherwood.
- 1,8,15,22 MAKSUTOV CLUB at the Chevy Chase Community Center with Hoy Walls from 7:30 to 10:00 PM.

NCA ASTRONOMY REVIEW COURSE

It is back to school for thirty-one NCA members. NCA is indeed fortunate in having members willing to share their knowledge and enthusiasm of astronomy. Dr. James Krebs, immediate past president of NCA, gave the course a wonderful start on January 8. He presented "Radio Astronomy" a sophisticated subject in an understandable way to a varied junior and adult audience. Radio astronomy, its basic principles and use will certainly be more meaningful to those who heard this informative lecture.

During the course lecturers presenting various topics will be Mr. Leith Holloway, Col. M. Booth, Mr. George Gould, Mr. Hoy Walls, Mr. Sam Feild, Mr. Ellis Marshall, Mr. Robert McCracken and Mrs. Margaret Noble.

At the first meeting Mr. Hoy Walls conducted the class to the "5 inch" telescope to view a nebulae in Orion. Class members are aiming to qualify for a pass to use the "NCA" five inch telescope.

If you want to join the class report at the Naval Observatory any Tuesday in February at 8 PM. Present your NCA membership card at the main entrance gate and go immediately to building 59. Try to come.

Educational Committee

