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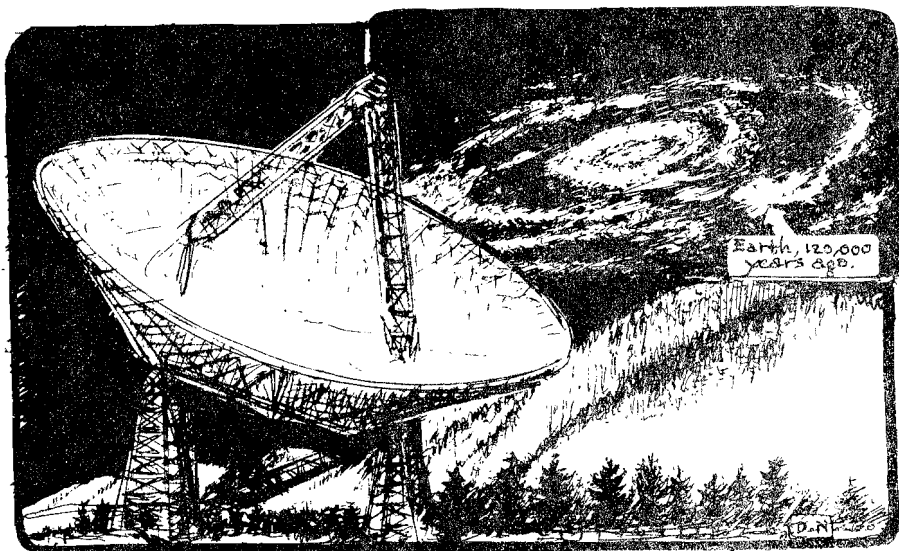
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1970

STAR DUST



April, 1970 - Vol. XXVII - No. 8



The National Radio Astronomy Observatory 300-foot transit telescope. (Top): Our galaxy, from drawing by Palomar staff. [Story on p. 2: "Our galaxy's..."]



Academy Elects NCA. Short Notes - - - from the president

Success at last. We have been elected into the Washington Academy of Sciences as its 37th member society.

Every member should know that a real hand of thank-yous should go to Worth Crowley in particular. It was Worth who carried the ball in getting the name changed, the constitution brought up to date,

Continued

and finally in getting the application into the Academy offices. Our Thank You also extends to the gracious hospitality of Mrs. Crowley, who brewed the best coffee, tea, cookies, and other 'vittals' during our many deliberations at their home.

If you haven't sent your donations in towards the cost of the Academy's mailing for their membership (on our petition), please bring it into this Saturday's meeting and give it to Jerry Schnall or George Gould. We need to collect another one hundred dollars to make up the bill of \$157.00.

ALEXIOU NAMED EDUCATION COMMITTEE CHAIRMAN

John Alexiou has been named Chairman of the Educational Committee. Norm Sperling, Margaret Noble, and Bill Winkler are members of this committee. John will meet with his group to arrange an educational program to start shortly and continue through the summer to avoid the lack of activities that happened last summer. I talked to John about a beginners course of lens design and how computers are now used in this field. (John is an IBM computer expert). Also a real program of planned sky observing in addition to our Park Program, that would be operating at least 4 nights a week during the spring and summer months, weather permitting, all around the metropolitan area.

If you have any particular ideas or programs that you would like to see put into action, come to the meeting, and talk to John Alexiou. If you were at our March meeting you heard the ambitious program that Norm Sperling is setting up in Harford County, Md. Well, we ought to do the same thing here in the metropolitan area of Wash. DC.

George E. Gould, president



Our Galaxy's Spiral Structure Poses Problems

NOTE: Dr. Gert Westenhout will be the speaker for the Sat., April 4, meeting; his subject will be: The Maryland-Greenbank Neutral Hydrogen Survey of the Milky Way." (See calendar, Page 7, for details.)

Our galaxy is a spiral galaxy, like many others. In the investigation of its origin and structure we face the same difficulties that we encounter with other spiral galaxies. Among these are the origin of the spiral arms as well as how they maintain their regular shape. The investigation of our own galaxy is seriously hampered by the location of the solar system in the perimeter of the galactic disc, within layers of galactic dust. This material, opaque to the optical

Continued, see p.7

Washington Academy of Sciences

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9650 ROCKVILLE PIKE (BETHESDA)
WASHINGTON, D. C. 20014

COPY OF
ACADEMY LETTER

March 23, 1970

Mr. George Gould
National Capital Astronomers
5308 29th Place
Hillcrest Heights, Maryland 20031

Dear Mr. Gould:

The proposal for affiliation of the National Capital Astronomers with the Washington Academy of Sciences was submitted to the membership of the Academy by special post card ballot on January 19. At a meeting of the Academy's Board of Managers on March 19 the Tellers Committee reported that the proposal for affiliation had been approved and it is my pleasure to welcome the National Capital Astronomers as the 37th Washington area scientific organization to affiliate with the Academy.

The next meeting of the Board of Managers of the Academy will be held at 5:00 p.m. Thursday April 16 at the Cosmos Club. As you may know, affiliated organizations may appoint one delegate to act as their representative on the Academy Board of Managers. The appropriate officers in your organization should inform either myself or President Irving of the name of the individual your group has selected to fill this position. I hope that we will be able to welcome him at the next meeting of the Board of Managers.

If you have any questions, please feel free to contact me at George Washington University, 331-6535, or call Miss Ostaggi at the Academy office.

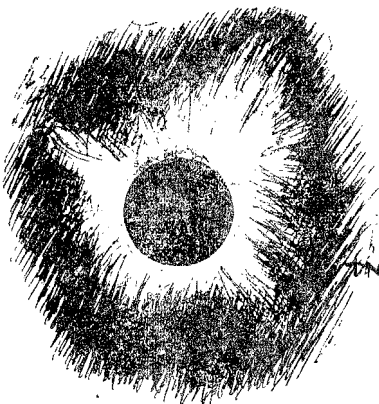
Sincerely yours,

Mary Louise Robbins

Mary Louise Robbins
Secretary
Washington Academy of Sciences

MLR/eo

cc: Dr. George Irving
Miss Elizabeth Ostaggi



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March, 1970, Solar Eclipse

Part I

The NCA group at Chesapeake, Va., congregated at Southeastern Elementary School with many individuals and groups from the east; Astronomical League groups were present, among the over 250 persons in the playfield, from Baltimore, Harrisburg and Pittsburgh.

Bob Wright had his usual large array of instruments in a roped-off area. One of his most noteworthy projects was a photometric curve reading. Russel Blake, formerly of the Chesapeake Planetarium, now with the Fitchburg, Mass. planetarium, was using, along with other equipment, a very sensitive chemical thermometer. It looked insignificant enough; like a pocket watch with a small tube dropping about six inches below. He said it is similar in principle to those used in refrigeration plants. "I called the university and asked them for the best," he said. "This is what they gave us." It showed a drop from 70 degrees to 45 degrees at totality; the largest change we've encountered so far.

Our vice-president, Bill Winkler, was making zenith-sky-brightness measurements showing a range from 1,500 foot candles down to an estimated zero. He used a movie camera and a tape recorder to preserve his and friend Steve Flood's impressions, as some of us heard at the last meeting. He also was observing with a four-inch reflector with a pre-totally chromium objective filter, giving a beautiful orange image of the sun, showing the sunspots in living detail. Your associate editor (and printer's devil) was standing nearby, but in the excitement and attempt to sketch his impressions of the corona at totality, he forgot to steal a glimpse through Winkler's 'scope, contenting himself with field glasses and naked-eye viewing. Of particular interest to his (hopefully) artistic eye was the intense pinkish orange of the prominences and the peculiar direction of the coronal rays, showing clearly the lines of magnetic force; quite awe-inspiring and extending upward at the highest point to one-and-a-half solar diameters. The shadow bands seemed to us (but not to all) to be moving about ten knots and spaced about eight to ten inches apart.

Leo Scott was projecting an image on white cardboard, using a small refractor. (Bob Wright tells us that Leo was a member of the National Geographic Expedition to observe the eclipse in South America in 1947. At that time, he resigned as president in order to accompany the expedition and Mable Stern filled out the remaining term.)

We are grateful to the science department of the Chesapeake school system for their generous cooperation, co-ordination and for furnishing us with electricity, refreshments and an excellent viewing area. It was a great day!

P. Nordim

New Members

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Carl and Valerie F. Jardine (Family)
4800 Berwyn House Road
College Park, Maryland 20740
345-3466

Robert Lee Brodsky, Junior
2100 Prichard Road
Silver Spring, Maryland 20902
949-8314

Steve Kocourek, Junior
7309 Fox Place
Springfield, Va. 22151
256-2394

ADDRESS CHANGES

Harry A. Kline
281 Buena Vista Drive
Santa Rosa, California 95404

Susan M. Gissler
5 Wendell Street, Apt. 1
Cambridge, Mass. 02135
617-354-3835

FOR SALE: A Four-inch photo equatorial unitron with weight drive, slow motions, super uni-hex etc. For information contact Darral Freund, 423-6259

THE MARCH SPEAKER

Dr. Vera Rubin of the Carnegie Institute of Washington spoke on spectroscopy of the Andromeda Galaxy at the March Meeting. From optical spectra, velocity curves (rotation velocity vs. distance from the nucleus) of the galaxy, spiral arms can be calculated. Development of the electronic-image tubes, greatly amplifying the light output from major telescopes, has made practical that which once required prohibitively long exposures of the heavily-scheduled optical giants. Airglow and man-made emission lines in the earth's night sky are prominent on these galaxy spectra. There are a number of problems to be solved in reconciling radio and optical spectral-velocity curves, some of which have been solved by Dr. Rubin in her studies of the Andromeda galaxy.

JUNIORS' REPORT

On Saturday, March 14th, the Md.-D.C. Juniors discussed their observations of the solar eclipse. Several had photographs or slides. The next meeting will take place on April 11th at the Chevy Chase Public Library, 8004 Connecticut Avenue, Chevy Chase, Maryland. We are planning to have an observing session on Saturday, April 25th. We will meet at 7:30 P.M. at Chevy Chase Public Library. Our observing site is located at Travilah Elementary School, near Gaithersburg. Please call me at 933-0945 to check on the weather condition. All members - Juniors, Seniors and guests are invited to join us. Ray Finkleman

TREASURER'S REPORT

INCOME

Dues	10.50
Handbooks (5)	7.50
Timetables (2)	70
Book Sales	3.00
Total Income, Feb.	<u>21.70</u>
Balance, Feb 1, '70	614.74
Total	<u>636.44</u>
Less Outgo, Feb.	<u>92.82</u>
Balance, Feb. 28, '70	

\$ 543.62

OUTGO

Sky and Telescope	4.66
Star Dust	4 6.85
Speaker's Dinner	7.51
Books to be Sold	32.80
Recorder of Deeds	1.00
Total	<u>92.82</u>

Jerry Schnall, Treasurer

NOMINATION COMMITTEE ACTIVITIES

The nomination committee for this year consists of John Legowik, chairman and John Alexio and Bill Pala. A meeting was held on Monday before the meeting. I would like to remind all that an additional candidate may be proposed for any office by the submission of a petition bearing the names of ten members in good standing and their signatures to this committee or to the president before the next meeting. J.L.

telescope is transparent to the 21-centimeter radio emission line of neutral hydrogen. For the past seven years, the speaker has been engaged in the survey of the hydrogen distribution in our galaxy, using the 300-foot radio telescope at Green Bank. A film will be shown representing some of the data gathered and the problem of interpretation will be discussed.

Dr. Gart Westerhout was born in the Netherlands in 1927, doing all of his graduate work at the University of Leiden, where he earned his Ph.D. in 1954. From 1956 until 1962 he was Chief Scientific Officer of Leiden Observatory. He was appointed a NATO fellow in 1959 and Director of the Astronomy Program at Maryland in 1962. He is currently a member of the National Research Council and the National Academy of Science. Dr. Westerhout's major interests are Galactic structure and Radio Astronomy.

Bill Winkler

CALENDAR

Saturday, April 4th, 6:15 P.M.: Dinner with the speaker at Bassin's Restaurant, 14th and Penna. Ave., N.W. Call John Legowik at 946-8996 or Bill Winkler at 762-5135 before noon for reservations.

8:15 P.M. Dr. Westerhout speaks on the spiral structure of our galaxy. Following the speaker, further slides and movies of the NCA eclipse expeditions will be shown. The meeting will be held in the Department of Commerce Auditorium at 14th and E Street, N.W.

Friday, April 3, 10, 17 and 24: Telescope-making classes at the Palisades community center by Jerry Schnall.

Friday, April 3 and Thursday April 9; Observing at the 5-inch Clark refractor at the Naval Observatory.

Saturday, April 11, Juniors' meeting, Md.-D.C. Juniors, at the Chevy Chase Public Library, 8004 Conn. Ave., Chevy Chase.

Saturday, April 18th, 8:15 P.M.: Discussion group at the Department of Commerce Auditorium. 1. Observation and Value of the May transit of Mercury. 2. How to make the best use of your eclipse photography.

Saturday, April 25, Star Party, organized by the Juniors, will meet at the Chevy Chase Public Library at 7:30 PM. Call Ray Finkleman, for the weather at 933-0945.



THE SOMBRERO NEBULA... M104

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NATIONAL CAPITAL ASTRONOMERS, Inc. of
 WASHINGTON, D. C. ♦ George E. Gould, pres.
 5308 29th Pl. Hillcrest Hts., Md.: ASTRONOMICA
 LEAGUE OF WASHINGTON, D. C., Inc. STAR DUST
 editor: John Legowik, 3513 Randolph Rd., Wheaton,
 Md. 20702; Assoc. Ed.: David Nordin, 1225 Quincey
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