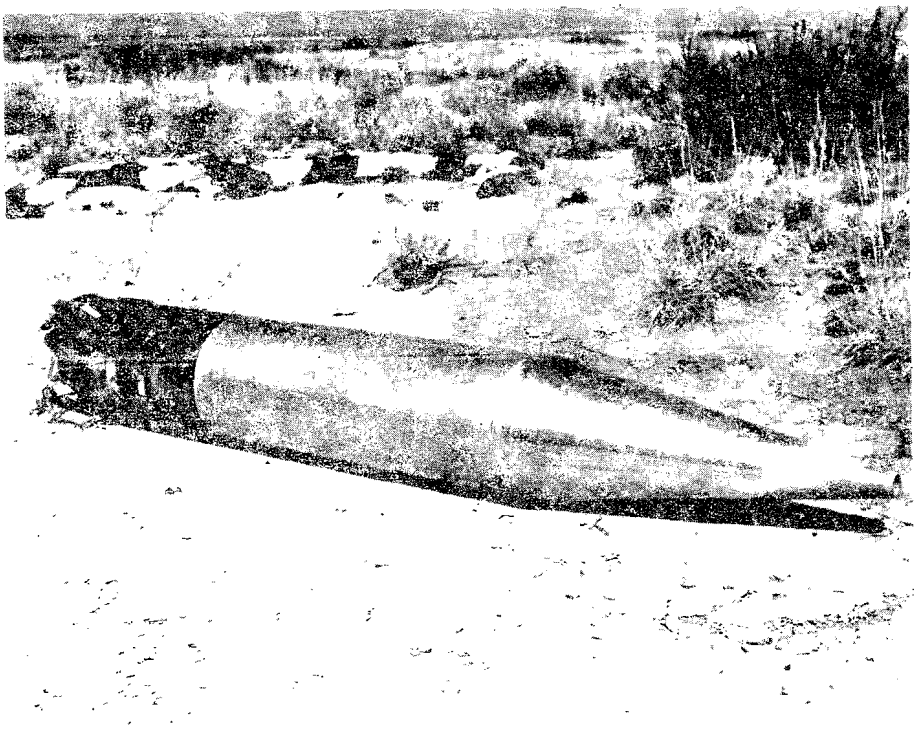
STAR DUST

DECEMBER 1, 1970 .. VOLUME XXVII .. NUMBER 4 ..

EXTRAGALACTIC X-RAYS DISCUSSED BY DR. BOLDT ...

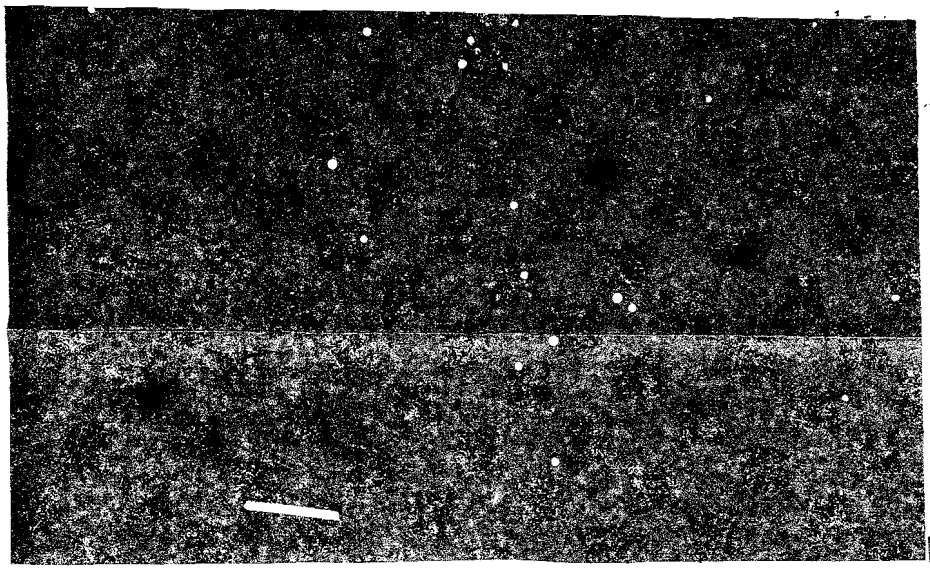
The X-ray sky appears to be dominated by an isotropic diffuse flux of hard X-rays. Recent results from experiments flown from balloons, rockets and satellites, indicate that more X-rays impinge on earth from extragalactic space than from the combined contributions of all sources within our galactic disk. Observations of this radiation will be discussed and described and some astrophyisical implications will be discussed. E. Boldt



The photo shows a nose-cone of a rocket used for X-ray astronomy at White Sands Proving Grounds. This is one of the instruments used by Dr. Boldt.

Dr. Boldt was born in New Brunswick, New Jersey. He studied at M.I.T. as an undergraduate and as a graduate where he worked with Professor Bruno Rossi's Cosmic Ray Group studying newley identified particles in cosmic rays. Dr. Boldt 's Ph.D. thesis was concerend with the examination of "strange" particles produced under controlled conditions with the high energy proton accelerator, the Cosmotron. He continued his postgraduate training in this area at Ecole Polytechnique in Paris, France, using the bubble chamber associated with the synchrotron, the "Saturne". He then taught at Rutger's University in New Brunswick till 1964 when he joined the Goddard Space Flight Center with Dr. Frank McDonald working in cosmic rays. He is now responsible for the laboratory's research in X-ray astronomy.

Happy Holidays and a Successful New Year



The original photos of Orion were taken with a 50mm lens on 35mm film, high speed Ektachrome. The camera was guided by Miss Radoan's criterion telescope drive for approximately 1/2 hour. The prints were made from a high contrast intermediate negative developed in Kodalith developer and the negative printed on #5 paper. Of interest, more from the negative side of seeing in the area is the bright patch at the bottom, a mercury vapor light, and the streak caused by the passage of an aircraft. For optimal printing photos should be of reasonably high contrast on glossy paper. Photos can be about 5 x 7 inches or smaller for publications. If any detail is desired, such as a moon shot or planetary photos, a larger print, say 8 x10 should be sent to allow screening of the print before it can be reproduced.

SPACE AGE SUN-DIAL SHOWN AT DISCUSSION GROUP IN NOVEMBER

Dr. John Eisele gave an inspired demonstration and lecture on sun dials and their construction last month. Beginning by tying in the close correlation of the solar cycle and the orbital mechanics of an artificial satellite Dr. Eisele quietly slid into the subject of the sun dial. He discussed the equasion of time lucidly by spliting it into two major cycles; the function of obliquity to the sun with a four fold repetition and the function of eccentricity having a two fold repetition. Combination of these two functions giving the typical sinuous non symetrical curve of the equasion of time. He then demonstrated his space age sun dial. The sun dial is composed of a face divided into 24 equal quadrants marked in the usual two cycles of twelve hours each. The gnomen consists of a rod perpendicular to the disc's surface and supporting the disc at an angle corresponding to the latitude of the dial's use. The rear of the dial is also constructed and marked into the 24 quadrants. The dial is oriented to the true North. In operation the shadow of the gnomen moves uniformly over the dial so that it would be easy in a 12 inch disc to estimate to the minute. A second movable scale is also incorporated so that the time can be corrected for standard or daylight savings time and to read true clock (mean solar time) time for the particular longitude at which it is set up.

J. Legowik

FROM THE PRESIDENT ...

Photographic halftones will play a major roll in Star Dust illustrations this year. This is your bulletin, and your contributions of photographic prints will make it better. This is an excellent opportunity to get your best astronomical photographs published. They should be as high a contrast as pos ible.

Don't overlook the great opportunity to meet the scientists personally who are on the frontiers of astronomical research, offered by the NCA "dinner with the speaker" at Bassin's each month. Eighteen attended the November dinner.

The June issue of "Icarus", the journal of solar system studies, has an excellent article on the world wide network of six observatories with nearly identical instrumentation, which keep the major planets under continuous photographic observation. In this article a sequence showing Mars' appearance during a single rotation is shown, using photographs from five of the observatories.

Bill Winkler, President

MEMBERSHIPS, ETC.!!

The new directory should be mailed out within the next fifteen days. Any changes from now on will have to be done via your own pencil. Membership cards will be available at the next meeting. Those not picked up will be mailed with the new directory. We had hoped to put the lunar occultation supplement into this issue, but the Naval Observatory didnot send the list. Considering that only two persons contributed to this issue, Dr. Eisele and Bill Winkler, the material came in before the 15th. What would be nice is if someone else would bother to take an interest. By the way, what ever happened to the Optics Class that had been intimated last year. I know of a number of persons who would gladly support such a class if it could ever get off the ground. I also understand that it may be possible to have access to machine tools at our new telescope making facility. Bravo! for the persons instrumental in the move to the American U. campus. I would like to apologise for the fact that some of you will get your Star Dust late. Third class mail is slow but the treasury could not stand 1st class at the present postal rates.

John Legowik

The NCA November Speaker

Dr. Thomas VanFlandern of the U.S. Naval Observatory, an old friend of the society, spoke on the application of results of total and grazing lunar occultations of stars to astronomy. This work makes it possible to determine the limb profile and orbit of the Moon with an accuracy unattainable by other methods, including those observations taken from spacecraft. Particularly in a time of budgetary restrictions amateur astronomy plays an important part in occultation work. Dr. VanFlandern emphasized the difficulty of getting all the parts of a grazing occultation expidition coordinates properly, making this work one of the amateur's greatest challenges. After the regular meeting, Drs. Espenshied and VanFlandern held a meeting with interested members to discuss cooperation between the Naval Observatory and NCA in occultation observation. Bill Winkler

CALENDAR...

Saturday, December 5, 6:15 P.M. Dinner with the Speaker at Bassin's 14th and Pennsylvania Ave., N.W., Call Legowik 946-8996 or Winkler 762-5135 by noon Saturday - reservations are not strictly required however.

Saturday, December 5, 8:15 P.M. December meeting at the Department of Commerce Auditorium, 14th and E Street, N.W., Dr. Elihu Boldt will discuss X-Rays from Scorpius X-1.

Saturday, December 19, 8:15 P.M. "Highlights of the 1970 AAVSO Meeting" discussion group, room 2062, Department of Commerce 14th and E Streets, N.W.

Friday, every week in December except the 25th and the 1st of January. For additional information contact Jerry Schnall EM2-8872. The classes will be held at the McKinley Building of the American University campus, in the basement of the Physics building.

Saturday, December 12th, 2:00 P.M. at the Chevy Chase Library. For additional information call Jean Radoan 434-0443.

Friday, December 4th, 8 to 10 P.M., observing at the Five Inch on the the Naval Observatory grounds with Larry White. For additional information call461-9681.

DECEMBER DISCUSSION GROUP*** STERLING ANDERSON

Former NCA President, Sterling Anderson, attended the 1970 AAVSO meeting on Nantucket, and returned with six hours of tape recordings!! He has edited these to produce about an hour of highlights of the best papers given at the meeting. The latest amateur developments with photoelectric devices and photometry will be included. Don't miss the AAVSO meeting highlights, Saturday, December 19th.

B. Winkler.

FOR SALE: 10 inch Astrola Cassegrain Telescope, 5 eyepieces, two finder scopes, zoom eyepiece, clock drive, pier mount, for $1500, for information call "John" at 462-9000 on weekdays.

MARYLAND OBSERVATORY

The Maryland Observatory has an open house on the 5th and 20th of each month, through June, from 8:30 P.M. through 10:30 P.M. For additional information call 454-3001. The observatory is located on Metzerott Road off of New Hampshire.

J. Radoan

NATIONAL CAPITAL ASTRONOMERS, Inc. of Washington, D.C., STAR DUST
President: William Winkler, 1001 Rockville Pk., Rockville, Md. 20852, Editor: John Legowik, 3513 Randolph Rd., Wheato[n] Maryland, 20902.

Jerome Schnall
2801 Quebec St.
Washington
DC 200[illegible]

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