



DR. CLYDE COWAN: ANTIMATTER METEORS?



DR. COWAN

On September 9, Dr. Clyde L. Cowan of the Catholic University of America, Washington, D. C. will speak to the National Capital Astronomers on possible explanations of the Tunguska meteor of 1908. This event released an energy of about 20 megatons of TNT, and calls for a careful explanation. Theories that have been considered include meteors of very large initial mass, very large initial velocity, and compositions leading to violent chemical reactions or even nuclear explosions.

However, Clyde Cowan suggests that there are reasons to favor a meteor of antimatter, and will discuss a recent experiment investigating this. The results were reported in *Nature*, Vol. 206, No. 4987, pp. 861-865. An earlier discussion can be found in *Sky and Telescope*, Vol. XXVI, No. 5, pp. 268-269, 1963.

Clyde Cowan aided in the development of radar, and was the senior scientist for a number of large-scale AEC experiments. A particularly notable accomplishment was his codiscovery, with Frederick Reines in 1956, of the (anti-) neutrino. He is now involved in neutral-particle cosmic-ray astronomy, and in a new approach to plasma fission.

SEPTEMBER CALENDAR

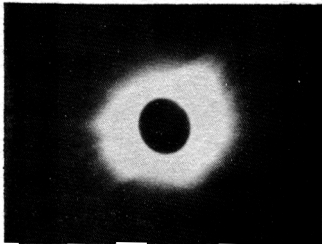
- Friday, September 1, 8, 15, 22, 29, 7:30 PM — Telescope-making classes at American University, McKinley Hall basement. Information: Jerry Schnall, 362-8872.
- Monday, September 4, 11, 18, 25, 7:30 PM — Telescope-making classes at the Chevy Chase Community Center, Connecticut Avenue and McKinley Street, NW. Information: Jerry Schnall, 362-8872.
- Saturday, September 9, 6:15 PM — Dinner with the speaker at Bassin's Restaurant, 14th Street and Pennsylvania Avenue, NW. No reservations needed.
- Saturday, September 9, 8:15 PM — NCA monthly meeting at the Department of Commerce Auditorium, 14th and E Streets, NW. Dr. Clyde Cowan speaks.
- Saturday, September 16, 8:00 PM — "Exploring the Sky," produced jointly by NCA and the National Park Service. South of Military Road on Glover Road, NW, near Rock Creek Nature Center. Planetarium program if cloudy. Information: Bob McCracken, 229-8321.
- Saturday, September 23, 8:00 PM — Discussion group at the Department of Commerce Building, 14th and E Streets, NW, room 2062. Results from the July 10 solar eclipse, and the summer's conventions. Share your experiences with other members.
- Saturday, September 30, 5:30 PM — NCA picnic at Manassas Battlefield Park, if partly cloudy or better. Beltway exit 9, west 18 miles on 66 to 234, north about 2 miles to park on left.

MORE NCA SOLAR ECLIPSE RESULTS

According to the *New York Times* of July 30, 1972, "I've been to six eclipses since I watched the 1925 eclipse at the age of 11," said Morton Schiff of Washington, a past secretary of the National Capital Astronomers, "and I was more nervous this time than ever before. But this was one of the most beautiful and pearly coronas I ever saw, comparable only to the one in Wells, Me., in 1932."



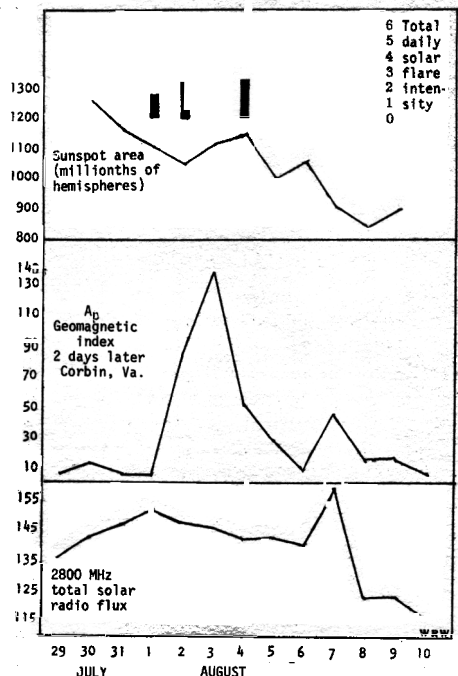
Mort photographed the July 10, 1972 total eclipse from the TSS *Olympia*, stationed at 41° N, 55° W in the Atlantic Ocean. All the ship's engines and its air conditioning system were shut down to reduce vibration. Mort used Kodacolor-X film and an 80-mm lens to make the above photo of the inner corona, enlarged 25 times in this reproduction.



On board the *Olympia* with Mort was Claude Hasson, husband of former NCA member Betty Lipseomb, now living in New Jersey. Claude used a telephoto lens to photograph the outer corona. His photo is reproduced here (left) from a rather contrasty print.

THE GREAT SOLAR FLARES OF AUGUST 1972

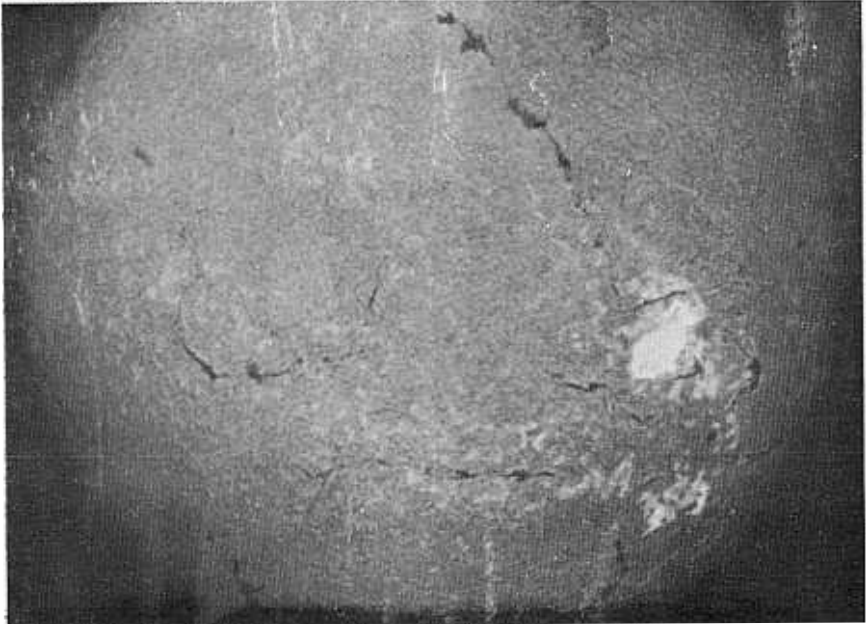
A large sunspot group, number 331, was visible in the northern hemisphere of the sun between July 29 and August 11, 1972. Complex umbras were contained within a single penumbra. The graph summarizes the solar-terrestrial events of this period based on preliminary NOAA data. We note that the largest geomagnetic variations in Virginia followed the two class-1 and one class-2 flares of August 2, rather than the two class-1 and one class-3 solar flares of August 7. Early results from Orbiting Solar Observatory 7 indicate that the class-3 flare released the highest energy solar radiation ever observed; it occurred while the associated sunspot group was declining in area and general solar activity (total sun 2800-MHz flux) reached a peak. All flares during this period were associated with sunspot group 331.



The photo on page 3 shows the class-3+ flare of August 7 as seen by NOAA at Boulder, Colorado. On page 4 is shown the class-2+ solar flare of August 2 as seen from Big Bear Solar Observatory of the California Institute of Technology. Both were taken in hydrogen-alpha light (red, 6563Å). Photos courtesy Dick Horwitz.

PICTURES OF THE MONTH — *The Hydrogen-alpha sun*

Story on page 2, See also page 4. NOAA photo.



MAN AND COSMOS

This fall the National Air and Space Museum and the Smithsonian Astrophysical Observatory will sponsor a 9-lecture series on man's past, present, and future concepts of the solar system. This series, for the area academic and professional community, is strongly recommended for NCA members. The initial lectures, each at the Museum of History and Technology Auditorium, 12th Street and Constitution Avenue, 7:30 PM, are as follows:

September 20 — History of the Solar System

Owen Gingerich, Smithsonian Astrophysical Observatory

September 27 — The Sun

A. G. W. Cameron, Yeshiva University

October 4 — The Planets

Carl Sagan, Cornell University

October 12 — Planetary Atmospheres

I. Rasool, Goddard Institute for Space Studies

October 18 — The Moon

John Wood, Smithsonian Astrophysical Observatory

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INNER-CITY TEENAGERS INTRODUCED TO THE SKY

About 50 Washington, D. C. youths who were camping for the week at Greenbelt Park were given a telescopic guided tour of the heavens on August 16 by Bob McCracken and Bill Winkler. Jupiter and the moon made a big hit. Only about three had ever seen the milky way; most had never heard of it.



Large solar flare in hydrogen-alpha. Story on page 2. Big Bear Solar Observatory.
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S T A R D U S T



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 (1978-1983), Star Dust production, William Winkler and Robert McCrosken, Deadline: 15th