

WESTMINSTER ASTRONOMICAL SOCIETY
of Carroll County, Maryland

Newsletter for September 1985, Vol 2 No 9

September Meeting: 25th at WMC

The telescope is the astronomer's tool. There are a number of commercial telescopes available on the market (especially with Comet Halley on the loose). Despite the abundant choices, some amateurs choose to construct their own instruments. WAS member Tom Appier has assembled a 10" Newtonian reflector over the last year. Tom will display his telescope and discuss its making at the monthly meeting of the Westminster Astronomical Society, Wednesday September 25, in Rm. 111 Lewis Science Hall, Western Maryland College, Westminster. The meeting will begin at 8:00 p.m., one half hour later than usual.

President's Message

September and October are busy months for the WAS. There are two star parties in September. In October there is a field trip to the Space Telescope Science Institute in Baltimore, and another Astronomy Day in Carroll County. During the Fall semester WAS will be helping with the astronomy lab at Western Maryland College. Participants and volunteers are invited to attend all of these events.

Elsewhere around the area other amateur astronomical organizations are starting their meetings again after breaking for the summer. There are at least three other clubs in the area and each have something different to add to our enjoyment of astronomy.

Curt Roelle

WAS Welcome Wagon

We welcome the two newest members, Walter Richards and Russell Dick, of Westminster. Walter joined at the August star party, and Russell joined at the August meeting. We are glad to have Walter and Russell aboard.

September Star Party in Frederick

Steve Rice will be hosting the September star party at 8:00 p.m. Friday, September 13. Steve lives several miles north of Frederick at 8328 A. Walter Martz Road. If you have further questions, call Steve at 663-6054. See the enclosed map for directions.

Volunteers Again Needed to Assist Astronomy Students

Again this year Western Maryland College is offering an introductory course in astronomy. An evening lab is also offered with this course and WAS has been requested to supply volunteers to assist with telescopic observing. Two or three people are needed to operate telescopes starting around 7:30 on Tuesdays, beginning with the September 17 lab. The College has two

Celestron 8 telescopes; this provides an opportunity for members who have no telescope to get experience using one. Telescope owners are encouraged to bring instruments for display and observing. Last year WAS volunteers enjoyed sharing the heavens with eager students and found the experience to be rewarding. To volunteer call Curt Roelle (848-6384). There shall be about 12 labs, so check your calendar for the Tuesdays that you are free.

Observational Astronomy II now available

The second issue of Observational Astronomy, prepared by WAS Observing Chairman Mike Potter was available at the August meeting. The 8-page report has lots of information for September observing, including more on meteor showers, planets, and comets, featuring finder charts for P/Halley and P/Giacobini-Zinner. Mike has programmed his computer and printer to make monthly positional charts for Jupiter's satellites that have an uncanny resemblance to those found in Sky & Telescope. This month special emphasis is given to observing eclipses between Jupiter's tiny moons during the current "mutual event season". In the future Observational Astronomy shall be mailed directly to members. Until then, the best way to be sure of getting your issue on time is to come to the monthly meeting. OA-3 will be out soon.

Space Telescope Science Institute Tour

WAS has been invited to tour the facilities of the Space Telescope Science Institute on Saturday October 12. When the Hubble Space Telescope is launched (currently scheduled for August 1986), STScI shall become the "observatory" from which astronomers will control the orbiting telescope and make observations. Detailed information may be found in the April and May issues of Sky and Telescope magazine.

Those interested in participating in this exceptional field trip will meet at Lewis Hall for departure at 9:00 a.m. The tour shall be conducted by Mark Damashek of the institute and should last from around 10:00 to 12:00. Those closer to Baltimore may wish to meet the group at the Institute, 3700 San Martin, on the Johns Hopkins University campus. A map of the area is enclosed. Call Curt Roelle (848-6384) if you have any questions.

Fall Astronomy Day Set For October 19

WAS will present another Astronomy Day display on October 19, at the Eldersburg Branch of the Carroll County Public Library, at the intersection of MD Rt. 26 & Hemlock Drive, across from the Carrollton Shopping Center. Fall Astronomy Day (FAD) will feature many of the exhibits that were shown at the Spring Astronomy Day (SAD) June 8, and NASA Goddard will once again be loaning us a piece of the moon. The exhibits shall be indoors, while outdoors telescopic observing of the sun and moon will be provided to the public, weather permitting.

We need volunteers to meet guests, hand out information, sell Halley Comet books, answer questions, and protect the lunar sample. In particular those with interesting displays such as astrophotos, posters, or telescopes are asked to bring them. In short what is needed is a broad range of materials from all

levels. Let us show the public what non-professional astronomers are capable of doing. Please call Eugene Sterner, FAD Coordinator, 346-7725 for information or to volunteer.

AAAM invites WAS to a September Star Party

The Active Amateur Astronomers of Maryland invites interested WAS members to attend their monthly star parties, held on the Saturday of the new moon. The next AAAM star party will be on Saturday September 14 (night after WAS star party), near Hampstead. The address is 2201 Green Haven Way and begins as soon as it is dark. For more information call Mike Scallop at 239-3105. A map is enclosed in this issue.

Baltimore Astronomical Society

If you enjoy astronomy but cannot find enough activities, the Baltimore Astronomical Society meets on the second Tuesday of each month at the Maryland Science Center, at the Inner Harbor, in Baltimore. Single membership is \$18/year and includes membership in the Maryland Academy of Sciences. Though inactive during the summer, the new season begins Tuesday September 10 at 7:30 p.m. For more information call Dave Pessagno at 526-5128.

National Capital Astronomers, Washington

In Washington the local club is the National Capital Astronomers. NCA was inactive during the summer months, but began the new season of meetings/lectures on September 7. NCA meets at 8:30 p.m. on the first Saturday of the month, in the Department of Commerce Auditorium, 14th & Constitution, across the street from the Washington Monument and two blocks from the White House. Dues are \$26 a year and include a subscription to Sky & Telescope magazine.

WAS Members Observe Comet-Star Occultation

During the early morning hours of September 4, Blaine Roelke, Mike Potter, and Steve Rice gathered to observe the occultation of the sixth magnitude star SAO 58030 by Comet P/Giacobini-Zinner. They attached a Starlight 1 photometer to the Newtonian focus of the 17.5" reflector at Key Observatory, in Keymar. Later that night at the meeting they brought a strip-chart recording of their data. There appeared to be a small dip in the light of the star, possibly due to some part of the comet nucleus or coma passing in front of the star. The central path was 500 miles to the north. More analysis is needed before conclusive results can be obtained.

Skies Clear For August Star Party

Although thick grey clouds obscured the sky, the weatherman promised a night that would be "clear and cool". Unintimidated by the clouds, members began lugging equipment out of their vehicles at 8:30, August 23. The later it became, the clearer it got, and many objects were viewed by the dozen people who attended. The youngest member present was 8 year-old Josh Fortenbaugh and his 2.4" refractor. Another record was set at

the star party: It ran longer than any other before, ending at 6:00 a.m. Of special interest was the attempt to observe Halley's Comet. Observing through a 12.5" F/6 Newtonian, Steve Rice and Bob Sier reported spotting what appeared to be a faint non-stellar object in the medium power field where the comet was predicted to be. This observation could not be confirmed by other observers so it remains debatable. However, in the August Prairie Astronomer, newsletter of the Prairie Astronomy Club, it was reported that on the night of August 17 at the annual star party at a state park in dark Nebraska, seven PAC members remained all night to observe Halley. They "found a very faint object which they think was Halley's but...only comparing the same star field on another night will confirm whether they actually saw the comet or not."

USNO offers Comet Telephone Service

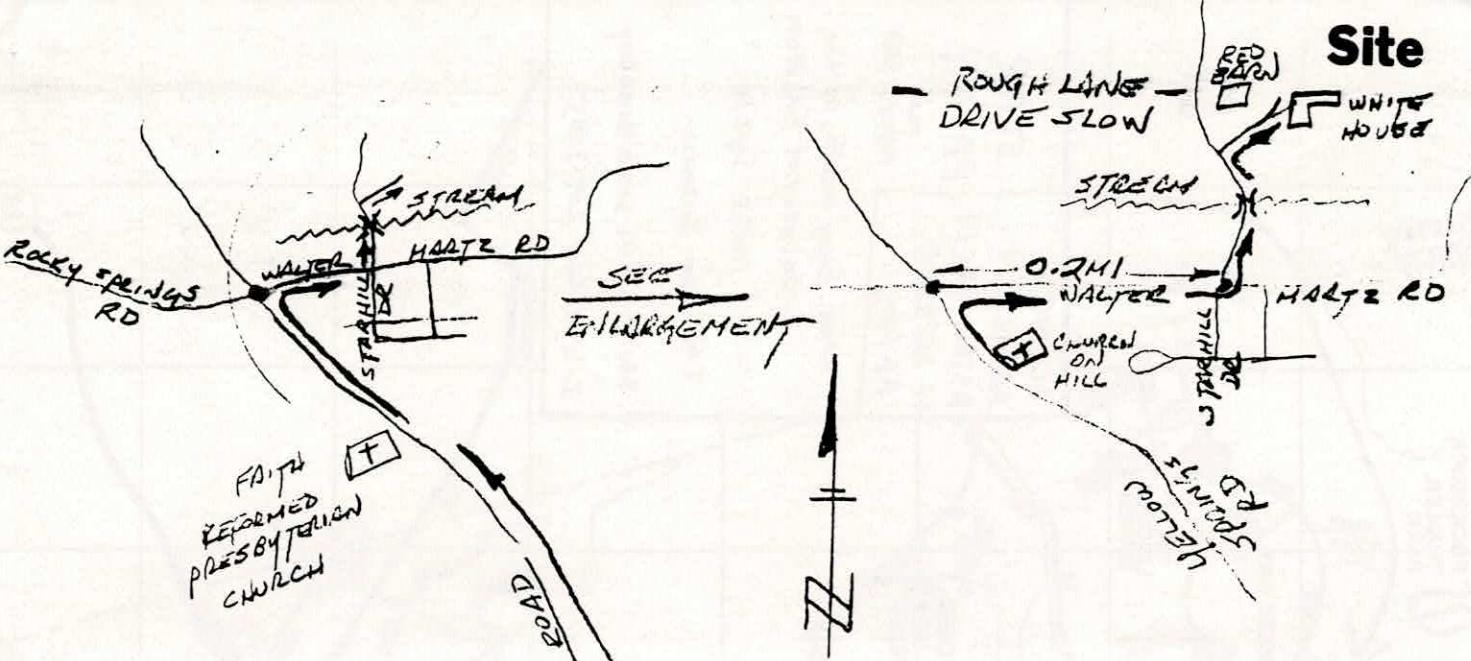
The United States Naval Observatory in Washington, D.C. has a telephone service which provides a recorded message about P/Halley's position, and general historical and other information concerning the comet. Callers are also treated to a piano rendition of the "Comet Halley Rag" (Harry Lincoln, 1910). The telephone number is 202-653-0285. The recording will be periodically updated as the comet brightens and changes position.

Smithsonian Telephone Service Too

The Smithsonian Institute provides a telephone service for observers of celestial objects and events. Dial-A-Phenomenon gives information that assists in moon and planet observing (and eventually Halley), and may be reached at 202-357-2000.

Maryland College of the Air

In cooperation with 24 colleges and universities across the state, Maryland Public Television is offering a telecourse on astronomy that can earn college credit hours for viewers. "Project Universe", is an "introductory course that acquaints students with the origin, characteristics and evolution of the solar system, the stars, the galaxies and the universe." Each lesson consists of two 30-minute broadcasts seen Sunday Mornings, 11:00 - 12:00, on MPT channels 22, 28, 31, 36, 52, and 67. The text book (which belongs in every amateur's library) is George O. Abell's Realm of the Universe, 3rd edition, New York, Holt, Rinehart & Winston, 1984.



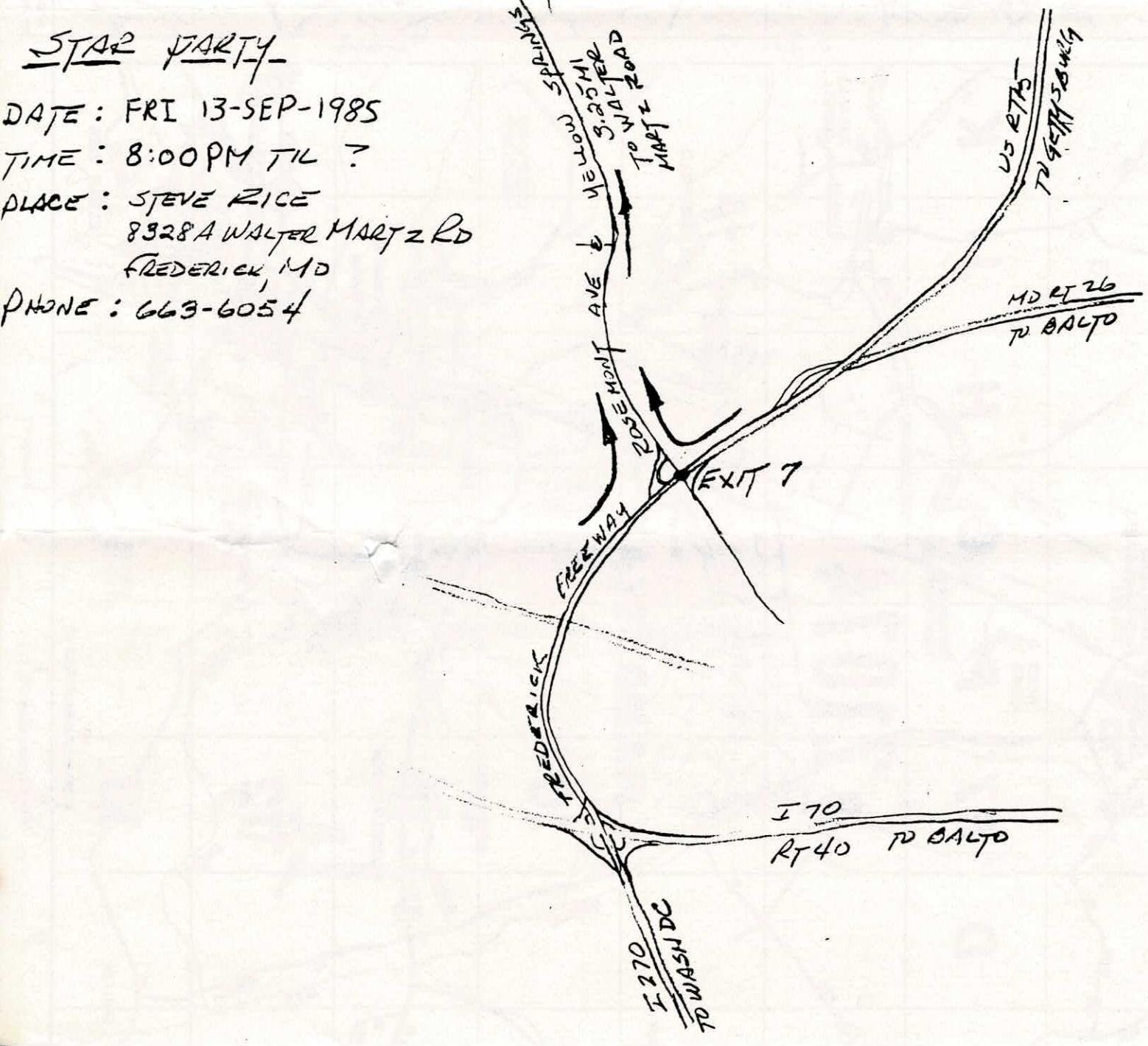
STAR PARTY

DATE : FRI 13-SEP-1985

TIME : 8:00 PM TIL ?

PLACE : STEVE RICE
8328A WALTER MARTZ RD
FREDERICK, MD

PHONE : 663-6054



Meeting Schedule

A schedule of meetings and topics for the remainder of the year follows, and are subject to change:

Date	Lecturer	Topic
Oct 25	Jim Trexler U.S. Naval Research Laboratory	Deep Sky Observing/ Cluster Validation
Dec 4	Fred Espenak NASA Goddard Space Flight Center	Solar Eclipses
Dec 18	Curtis Roelle WAS	Computer-Assisted Observation Planning

August Lecture

Dr. Richard Griffiths of the Space Telescope Science Institute presented a lecture on X-ray astronomy at the August meeting of the Westminster Astronomical Society. Dr. Griffiths received a Bachelor's in Physics from London University in 1968, and his Ph.D in X-ray astronomy from Leicester University in 1971. The European Space Agency (ESA) presented Dr. Griffiths with a fellowship in 1972 after which he held several post-doctoral positions at Leicester until 1976. During the following years until 1983, Dr. Griffiths analyzed data returned from the HEAO-I (High Energy Astronomy Observatory) and HEAO-II (a.k.a. Einstein) while working at the Smithsonian Center for Astrophysics in Cambridge, Mass. Since that time Dr. Griffiths has been an instrument scientist working with the Wide Field/Planetary camera for the Hubble Space Telescope.

The first X-ray observations were made following World War II. Using a captured V-2 German rocket, scientists of the U.S. Naval Research Laboratory exposed a piece of film launched aboard a rocket from the White Sands range in New Mexico. The film was returned exposed, leading to the conclusion that high energy X-rays from space were responsible for exposing the negative. Since X-rays are blocked by the protective atmosphere of earth, only space-based observations could successfully record X-rays.

The first fully-focusable X-ray telescope was used aboard Skylab in the mid 1970's (see Sky and Telescope July 1974 p. 15). With it astronauts observed and photographed the solar corona, a good emitter of X-rays at a temperature of approximately two million [Kelvin] degrees. The sun produces X-rays by a process called Bremsstrahlung [a.k.a. free-free radiation or soft X-ray radiation, from a plasma. This is produced when an electron's path is bent by the attraction of an ion causing the ion to absorb or emit a photon, accompanied by an increase or decrease in the kinetic energy of the electron -- ed].

Focusing of X-rays is performed by allowing the incoming image to experience a grazing reflection off of at least two surfaces. The first surface, a parabola, produces a reflection with an incidence angle of only about 1 degree. The radiation then strikes a second surface, a hyperbola where it is again reflected and comes to a focus onto any of an assortment of experiments or imaging devices. Gold is the metal used to coat

the reflective surfaces.

Dr. Griffiths showed slides of galactic X-ray sources in false color including supernova remnants, pulsars, stellar coronas, and black hole candidates. Pulsars such as that within the Crab nebula emit X-rays in a process called synchrotron radiation. In this process a charged particle spirals outward along magnetic field lines of force producing radiation. Black holes can only be seen in a binary star system in which the companion star becomes so large it exceeds its Roche limit. When this happens, excess mass spills over onto the black hole, creating a swirling accretion disk as the matter spirals down the drain. The matter becomes very hot and produces the prodigious amounts of X-rays observed by orbiting spacecraft.

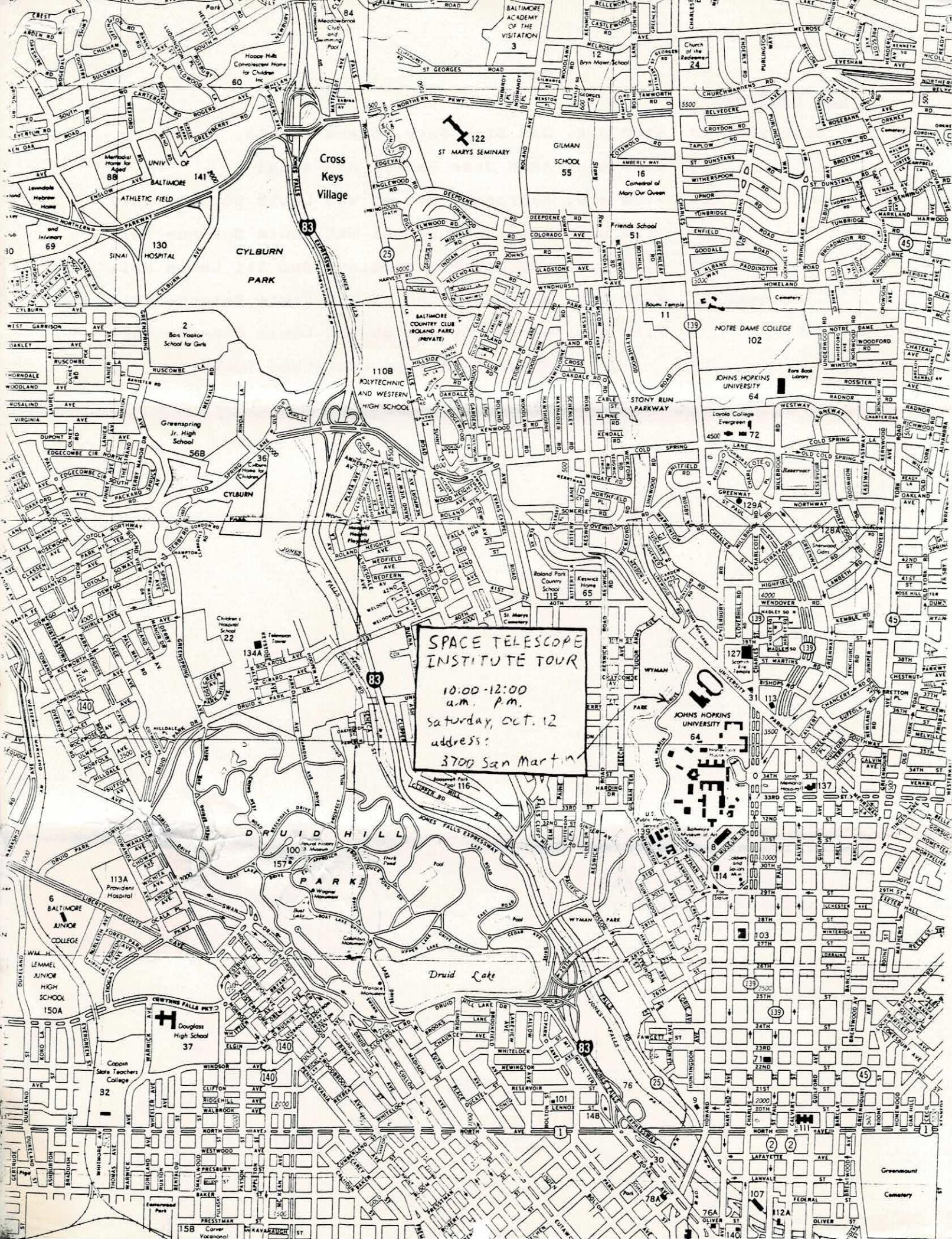
Extragalactic sources of X-rays have also been photographed. Surveys in X-ray have been made of the Abell galaxy clusters that in the presented slides show some clumping of X-ray emitting regions. Jets from objects such as the supergiant elliptical galaxy M87 and the quasar 3C273, which are difficult to observe visually, become the prominent feature of these objects when observed in X-ray "light".

Because of the low resolution of X-ray telescopes, an "error box" is plotted on an optical photograph in an effort to locate the object responsible for the emission. This does not always work as shown in a situation where the error boxes produced by two missions (American and European) overlapped, but both missed the Seyfert galaxy NGC4151 which was producing the observed X-rays. Dr. Griffiths recalled how one scientist shrugged it off, saying there is more space outside the box than within.

The next major step in X-ray astronomy will be the Advanced X-ray Astrophysical Facility (AXAF) scheduled for launch in the early 1990's. Europe's Exosat should also provide new data for X-ray astronomers to ponder.

For those wanting to learn more, consult the new book The X-Ray Universe, by Wallace Tucker and Riccardo Giacconi. Dr. Giacconi is Director of the Space Telescope Institute and like Dr. Griffiths is also an X-ray astronomer. The book was reviewed in this month's Astronomy magazine, p. 47.

Before becoming a professional astronomer, Dr. Griffiths was an amateur astronomer and remains an active member of the South Wales Astronomical Society. Those who ate dinner with Dr. Griffiths before the meeting heard him describe his discovery of a supernova, designated 1978e. "The problem with supernovae", says Dr. Griffiths, "is that unlike comets they are not named after their discoverer."



WAS CALENDAR

September 13 8:00 p.m. WAS Star Party, Steve Rice's, Frederick
14 8:00 p.m. AAAM Star Party, Hampstead
17 7:30 p.m. Astronomy Lab at WMC Lewis Science Hall
24 7:30 p.m. Astronomy Lab at WMC Lewis Science Hall
25 7:30 p.m. WAS monthly meeting, Rm. 111 Lewis Hall
October 1 7:30 p.m. Astronomy Lab at WMC Lewis Science Hall
8 7:30 p.m. Astronomy Lab at WMC Lewis Science Hall
12 Space Telescope Institute Tour

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Westminster Astronomical Society

3481 Salem Bottom Road
Westminster, Maryland 21157



But & Cheryl Roelle
3481 Salem Bottom Rd
Westminster, MD 21157