WESTMINSTER ASTRONOMICAL SOCIETY
of Carroll County, Maryland

Newsletter for April 1985, Vol 2 No 4

April Meeting

Dr. Rodger Doxsey will discuss the Hubble Space Telescope at the April meeting. Dr. Doxsey is an associate astronomer at the Space Telescope Science Institute in Baltimore. A schematic illustration of the telescope is enclosed with this newsletter to familiarize the reader with the instrument.

The meeting date is Wednesday, April 24. Dinner with Dr. Doxsey at Fan's Restraunt, 59 W. Main Street, will begin at 6:15. The meeting starts at 7:30, in rm. 111, Lewis Hall, on the campus of Western Maryland College.

President's Message

Out of 31 March nights, the heaviest rain fell on the night of our first Messier Marathon. Murphy's law is proportional to the ammount of positive effort; we could not have been more prepared. This is one problem the Hubble Space Telescope will not have to deal with. Orbiting high above earth, it will allow astronomers to view around the clock in any weather. This month's lecture deals with this instrument and should not be missed. By the way, **Sky and Telescope** magazine features the Space Telescope and the institute in this month's issue.

As for us earthly observers, we will just wait until next year for the second annual Messier Marathon. Or if you are impatient to observe then read on and find out about Astronomy day and our next star party on April 20.

Curt Roelle

WAS Welcome Wagon

We welcome our newest member Robert Sier Jr. of Walkersville. Robert joined WAS at the March meeting.

Astronomy Day May 4th

Volunteers are needed to operate the Astronomy Day booth on May 4. AD activities will be held either at Western Maryland College or in the courtyard of the Carroll County Public Library, in Westminster. The location will be identified by the time of the next meeting. Volunteers will work approximately 3 hour shifts.

Exhibits will include safe solar observing with telescopes, a computer quiz, and a Comet Halley information display.

April Star Party

The April star party will begin at 7:00 p.m., Saturday April 20, at the home of Steve Rice. With the weather turning warmer it will be easier to stay outside longer. Steve lives near Frederick and two maps are enclosed in this issue.

Gettysburg Planetarium

On Sunday April 21 Hatter Planetarium in Gettysburg presents the final show of the season. "Mysteries of the Sun" will be shown twice, at 1:00 p.m. and 3:00 p.m. Those wishing to attend the 3:00 show are asked to meet in the parking lot behind Lewis Hall before 2:15.

Space Telescope Mirror: Shining Example of Engineering

At an altitude of 310 miles the Space Telescope will be free from atmospheric turbulence. Although smaller than several ground-based instruments, Space Telescope's resolution will be ten times that of the largest of these.

For Earth-based telescopes atmospheric turbulence degrades an image before reaching the "diffraction limit". The 94 inch space-based mirror on the other hand is limited only by mirror diameter and wavelength of light before imperfections in the mirror affect viewing, meaning the mirror must be nearly perfect.

Besides observing in visible light and infrared, the Space Telescope collects ultraviolet (UV) light. UV light has a shorter wavelength than visible light, so the figure of the mirror must be correct to a quarter UV wavelength or 300 angstroms. (ed: 1 anstrom is approx. 0.000000004 inches.)

How is such a shine obtained? Normally polishing is done by hand. After 10 years of development Perkin Elmer has developed a computer-controlled polishing process. Tolerance testing and generation of polishing parameters are automatically and continuously performed.

Perkin Elmer is now working on a mirror with even tighter tolerances for the Advanced X-Ray Astrophysical Facility (AXAF). Because of the short X-ray wavelength, the mirror will have a tolerance of only 10 Angstroms, or 39 hundred-billionths of an inch!

(condensed from "Shaving angstroms off the Space Telescope's mirror by computer", Aerospace America, March, 1984)

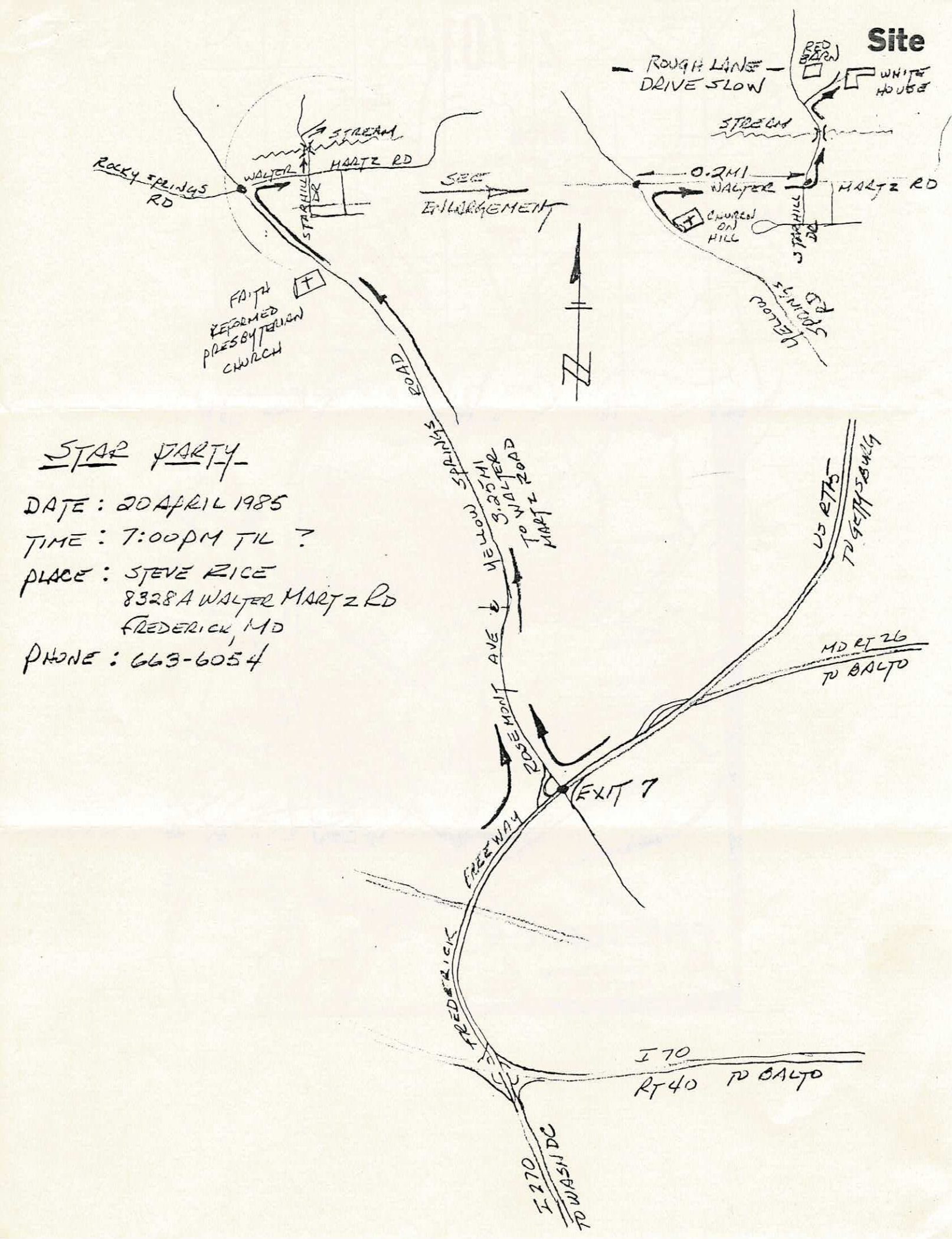
Summary of March Program

An interesting talk on rebuilding a 17.5" telescope was given by Mike Potter at the March 27 meeting at Lewis Hall. Those who attended learned the history and future of the telescope, from finding it in the first place, to determining the major uses of this large instrument. After months of hard work Mike, and Blaine Roelke, hope to have the telescope operational by early May. Blaine is the owner of a domed observatory in Carroll County that will house the instrument.

The telescope tube will feature open construction largely built of heavy plywood painted flat black. It will have an equatorial mounting with stepper motors on both axes. The worm gear for the ingenious clock drive will be made from a round table top with a smooth metal band around it. Instead of a worm a small wheel will turn the big wheel, fitting flush against it, eliminating the inherent tracking error of toothed gears. The telescope will be used for photometry and can also be used for observing objects such as galaxies and quasars because the limiting magnitude is fainter than 14. Eventually, Blaine and Mike hope to use the Commodore 64 computer to find and track objects, and peform automatic photometry. -- Tom Prall

WAS Calendar

APR 20	12:22 a.m.	New Moon
	07:00 p.m.	Star Party at Steve Rice home
21	02:15 p.m.	Hatter Planetarium - meet at Lewis Hall
24	06:15 p.m.	Dinner with speaker, Fan's Rest.
	07:30 p.m.	WAS April meeting - Lewis Hall, WMC
28	02:00 a.m.	Begin Daylight Savings Time (add 1 hour)
MAY 4	12:00 a.m.	WAS Astronomy Day



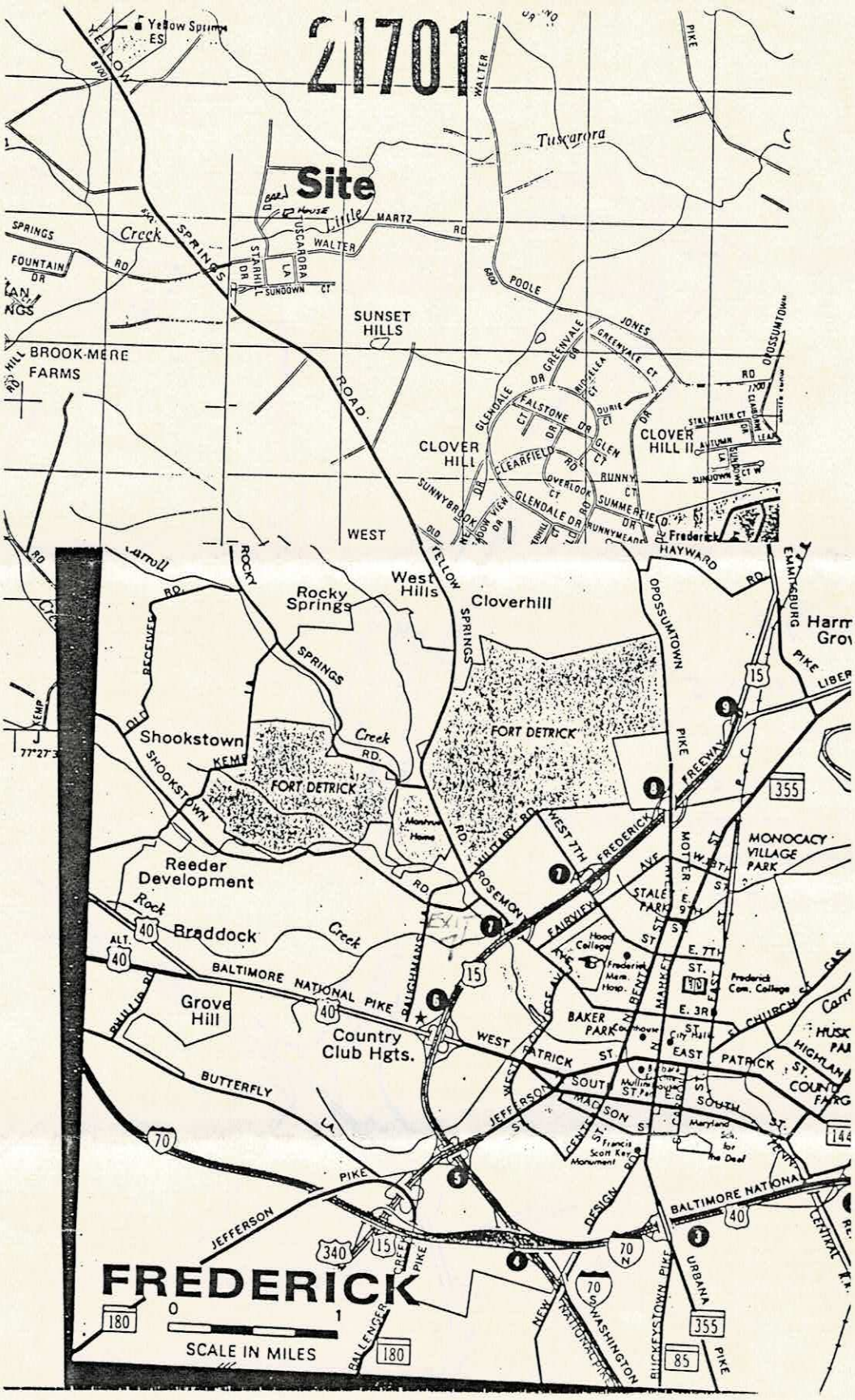
STAR PARTY

DATE : 20 APRIL 1985

TIME : 7:00 PM TIL ?

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

PHONE : 663-6054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Site
Tuscarora
Little
MARTZ
RD
WALTER
POOLE
SUNSET HILLS
BROOK-MERE FARMS
CLOVER HILL
CLOVER HILL II
WEST
Frederick
HAYWARD
RD
Rocky Springs
West Hills
Cloverhill
OPOSSUMTOWN
PIKE
FREEWAY
FORT DETRICK
Shookstown
Reeder Development
Braddock
Creek
Grove Hill
Country Club Hgts.
BALTIMORE NATIONAL PIKE
BUTTERFLY LA.
MONOCACY VILLAGE PARK
FREDERICK
SCALE IN MILES
0
1
355
15
40
70
340
180
85

SPACE TELESCOPE

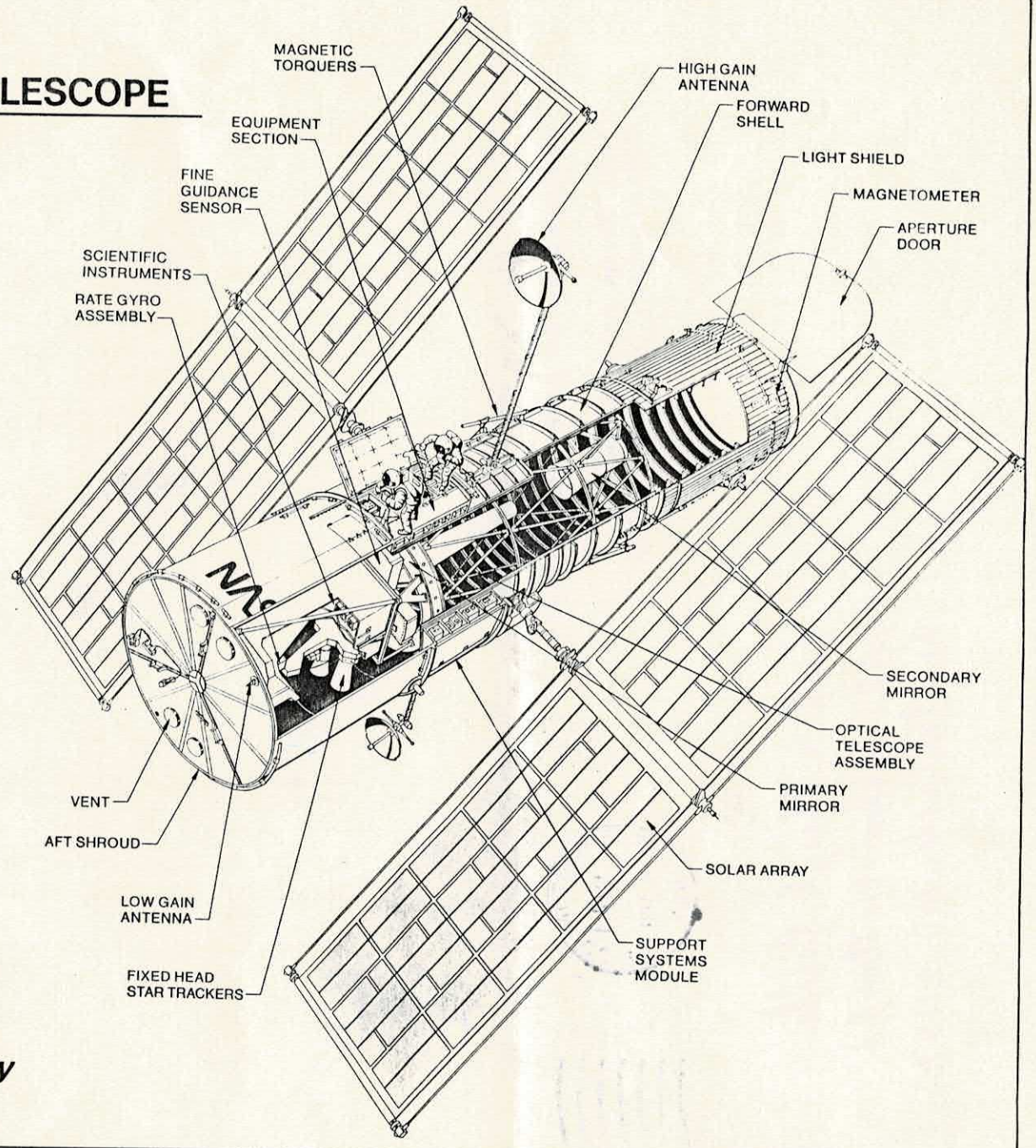
Operating well above the Earth's turbulent atmosphere, the Space Telescope will look 7 times more deeply into space, detect objects 50 times fainter, and view them with 10 times better clarity than ground-based observatories. This capability will expand the universe visible to man by 350 times and enable him to see objects an estimated 14 billion light years away.

The Space Shuttle will launch the Space Telescope into Orbit and serve as a base from which astronauts may make repairs to the Telescope by replacing modular components, including new instrument packages.

The Space Telescope, comprised of three major systems (the Support Systems Module, five modular Scientific Instruments, and the Optical Telescope Assembly), will orbit the Earth at an altitude of 320 nautical miles.

SPECIFICATIONS:

- 43 feet (13.1 meters) long
- 14 feet (4.25 meters) diameter
- 25,000 pounds (11,250 kilograms) weight
- 94-inch (2.4 meters) primary mirror



Lockheed
Missiles & Space Company

Westminster Astronomical Society

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WASHINGTON, D.C. PM
15 APR 1985

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