

Citizen-Scientists and the Dawn of the Space Age

W. Patrick McCray

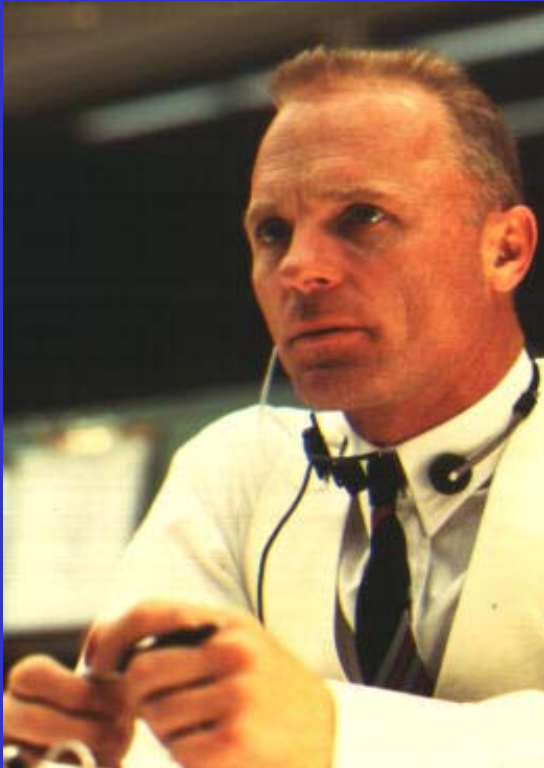
January 2008 - KITP Public Lecture



How do we remember the start of the Space Age?



The Professional's Space Race?



Ed Harris in *Apollo 13*



The original Mercury astronauts



How did the citizen-scientists see the dawn of the Space Age?

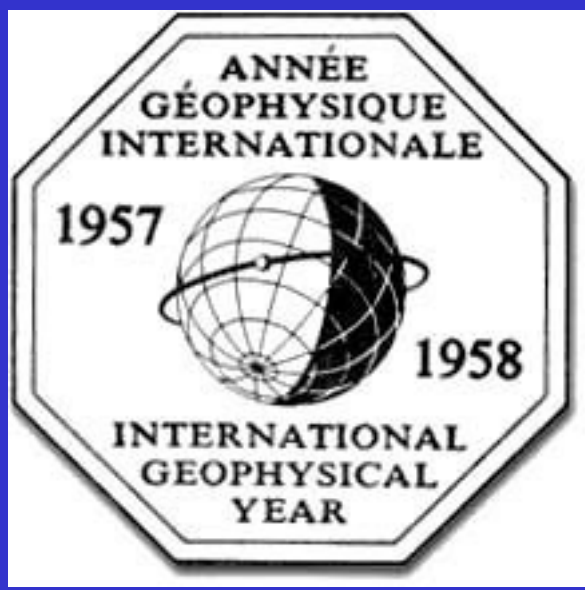


Revealing a "Bottom Up" History



Mrs. Lloyd Isenhour, housewife volunteer, sought sputnik too

The International Geophysical Year, 1957-1958



Operation Moonwatch





Safe

because some
American
looked to the
SKY!

WHERE AND HOW TO ENROLL
IN THE
GROUND OBSERVER CORPS

You can enroll at your nearest Civil Defense Office or you may contact a U. S. Air Force Filter Center or Observation Post near your home. Just make known your willingness to serve.

Join Today

Contact your local Civil Defense Director
or write to
GROUND OBSERVER CORPS
U. S. Air Force, Washington 25, D. C.



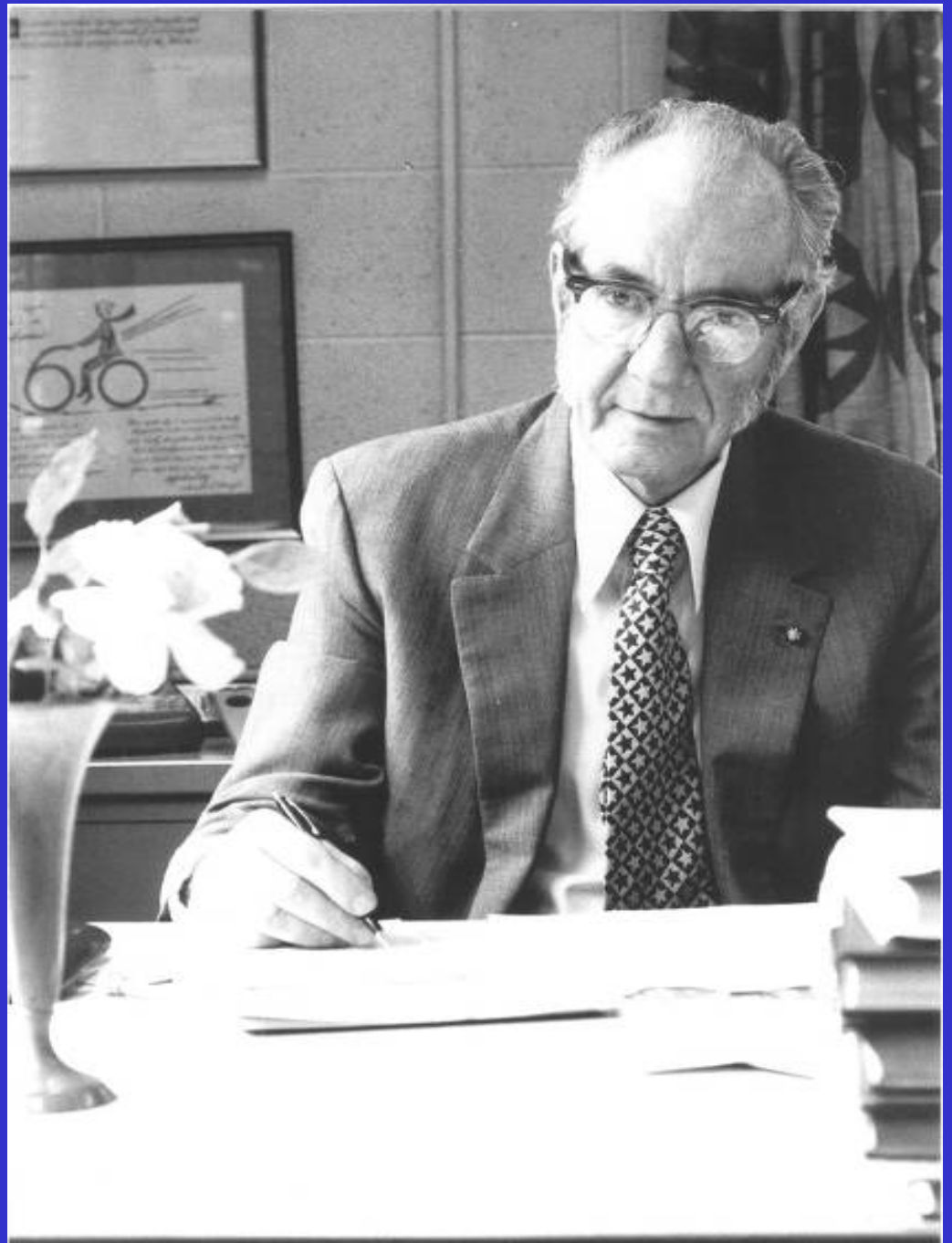
Ground Observer Corps
advertisement, c. 1953

Amateur astronomy club, c. 1950





Fred L. Whipple;
Director, Smithsonian
Astrophysical
Observatory (1955-72)



LIFE

WHAT 'EXPLORER' IS TELLING US

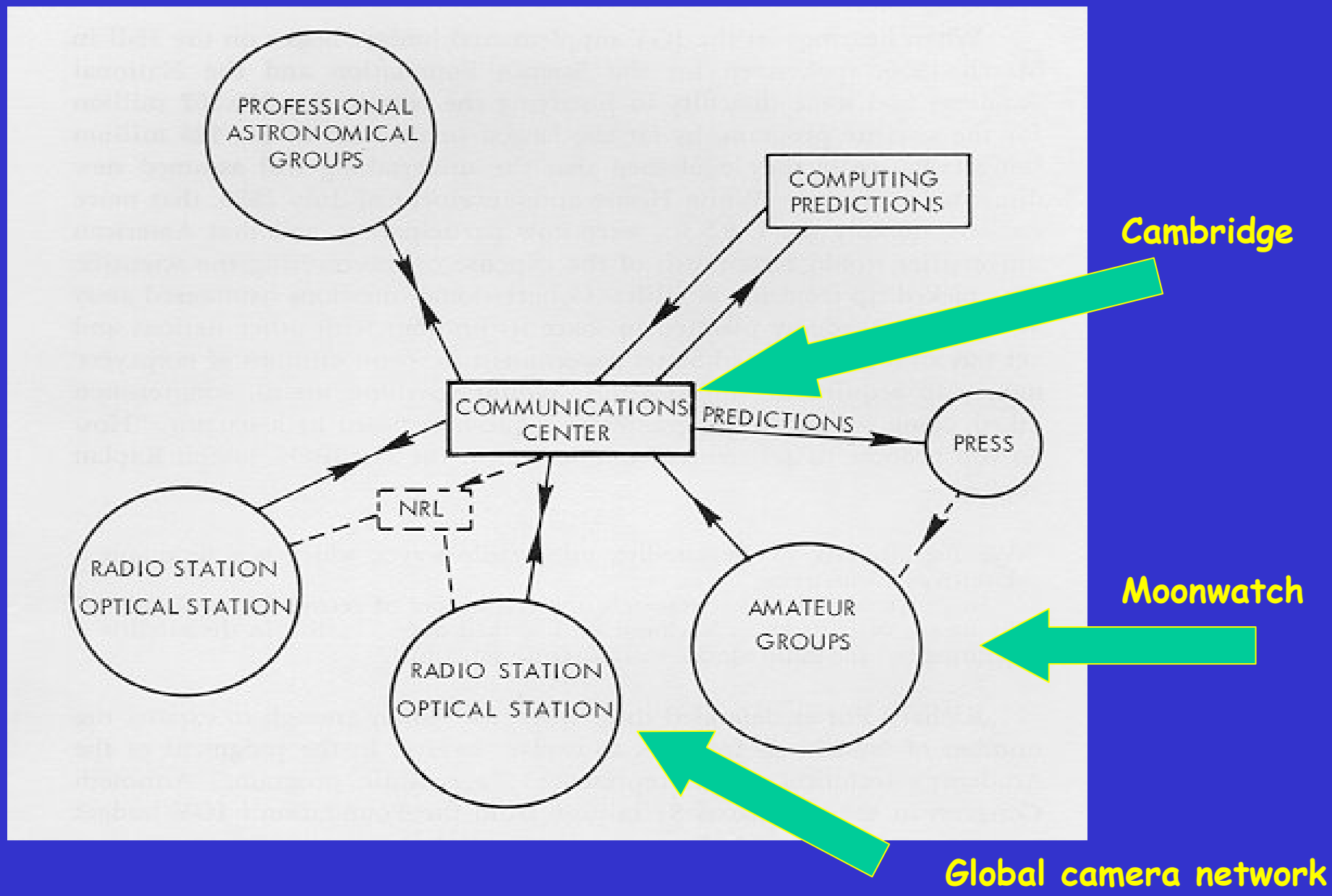
SHARP COMMENTS FROM COLLEGE SENIORS
THE 'UNSILENT GENERATION' SPEAKS

CAMERA SCANS SKY
FOR U.S. SATELLITE

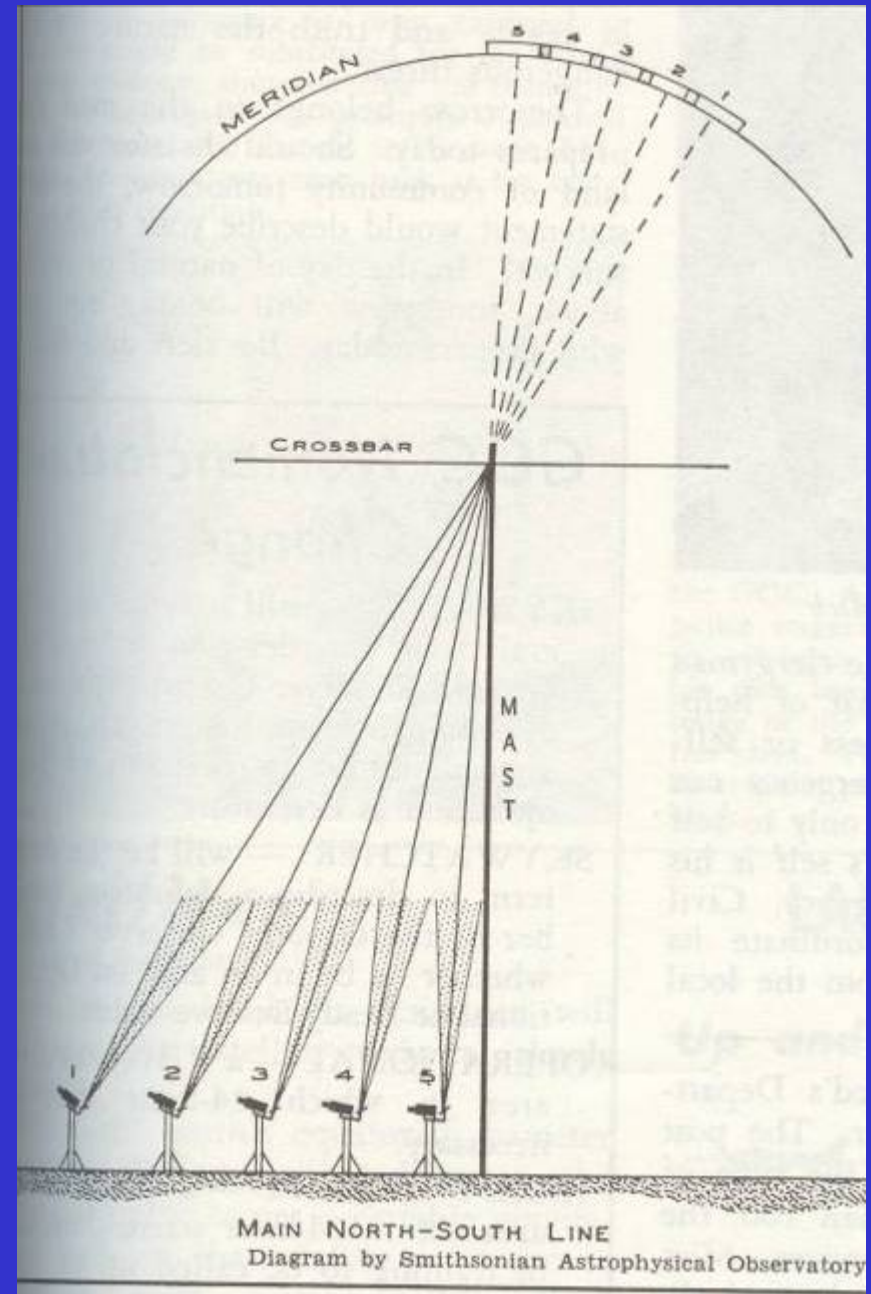
FEBRUARY 17, 1958 **25** CENTS

One of SAO's
wide-angle
"Baker-Nunn"
cameras

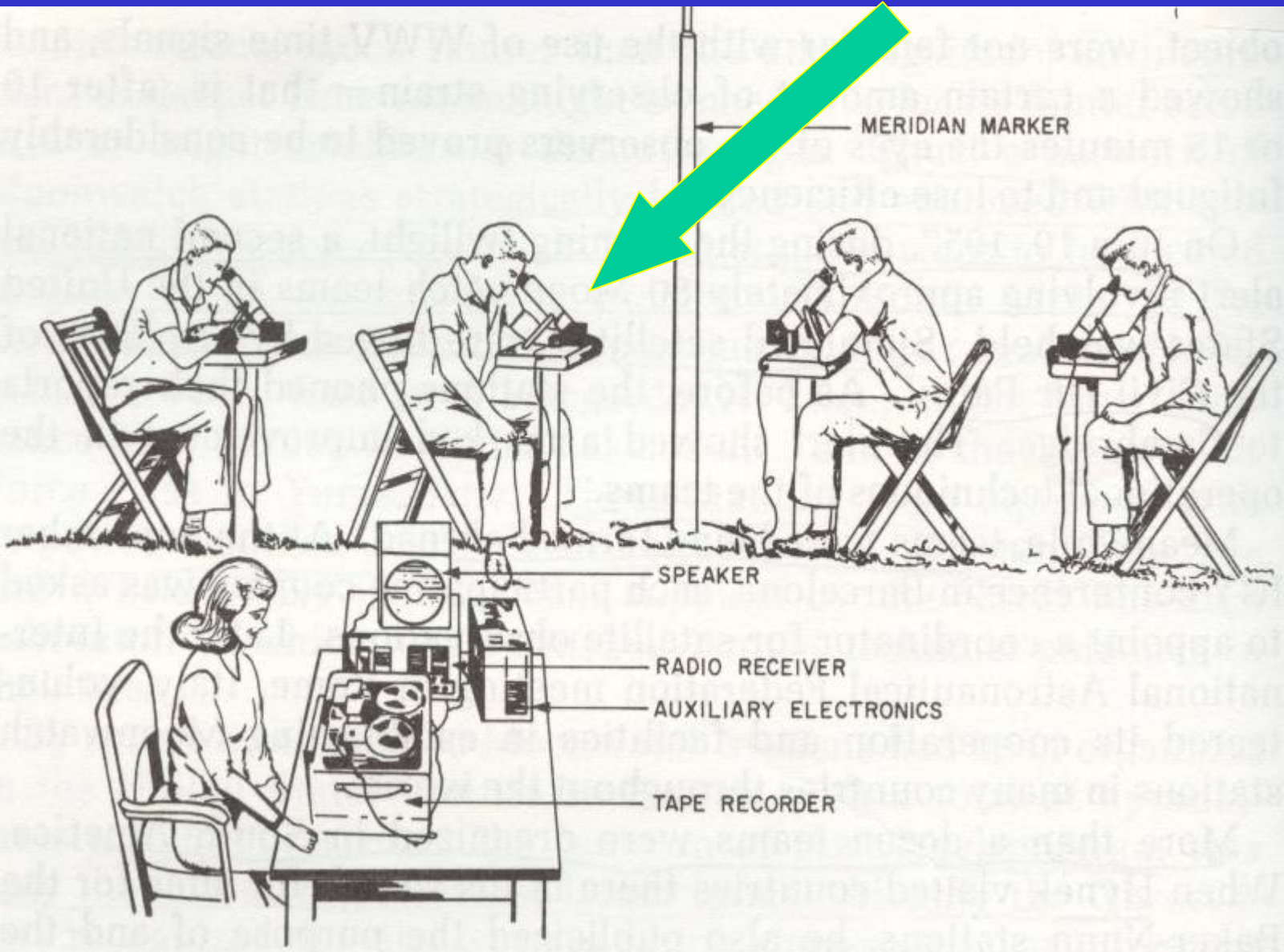
Schematic of Whipple's satellite tracking scheme, c. 1956



How did Moonwatch work?



???



Moonwatchers and Their Telescopes



Satellite spotting for men and women, young and old

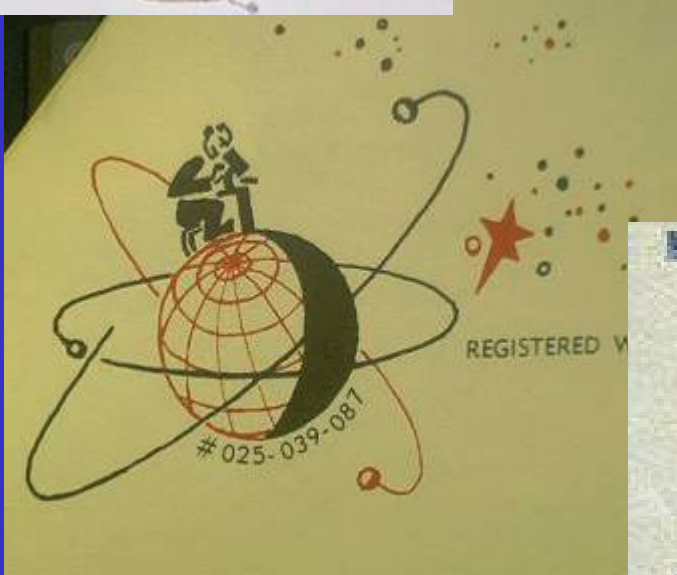


TERRE HAUTE, IND.

7-19-'57

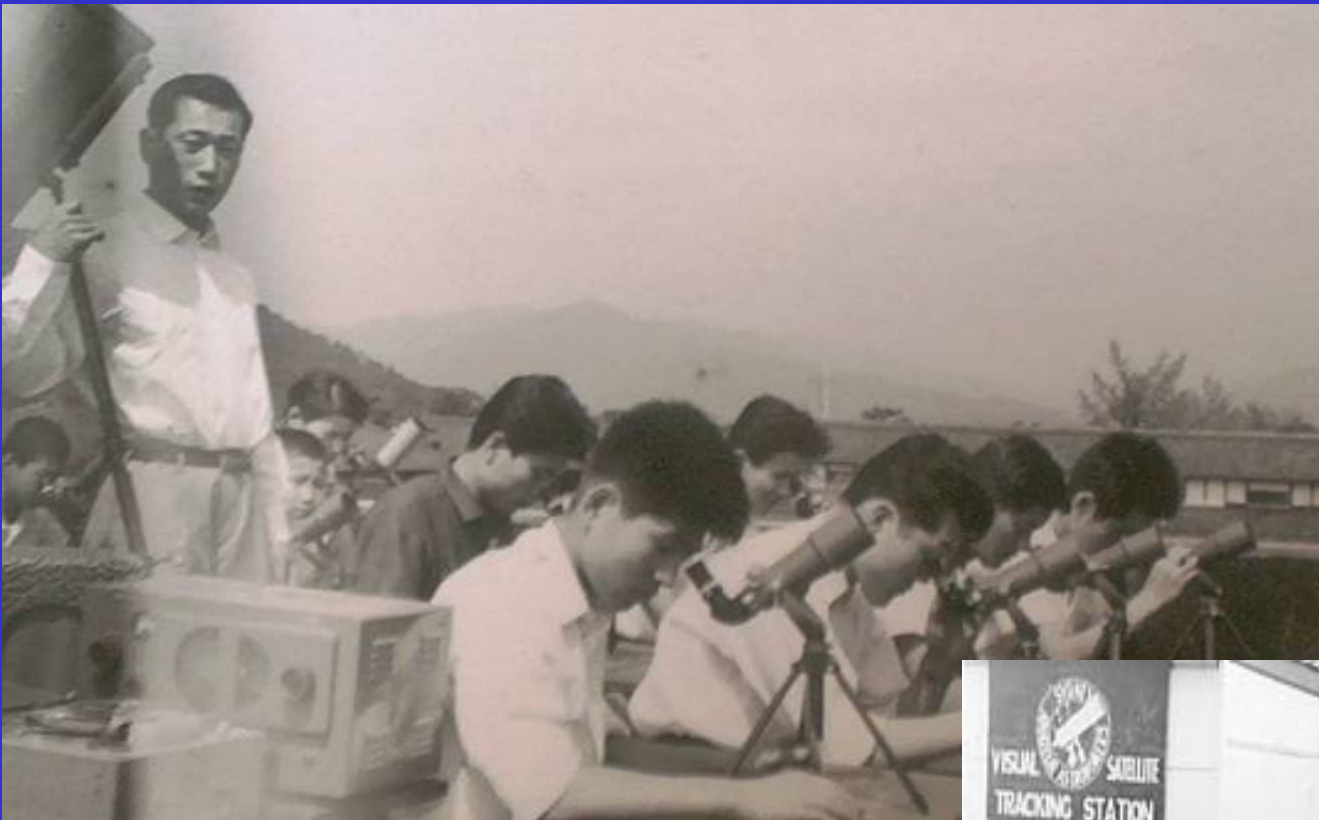


Moonwatch
ephemera



DOUGLAS AIRCRAFT CO., INC.
SANTA MONICA, CALIFORNIA
Moonwatch
IGY STATION 109-034-119
John E. Young
Member must present this card with his
Douglas badge and ID card for admission
to the station.
AUTOMOBILE AUTHORIZES
Balboan Plant Protection
J. H. Mayhew Station Director

Japanese team
practicing



Moonwatch station in
Sydney, Australia





Vioalle Hefferan
and friend, c. 1945

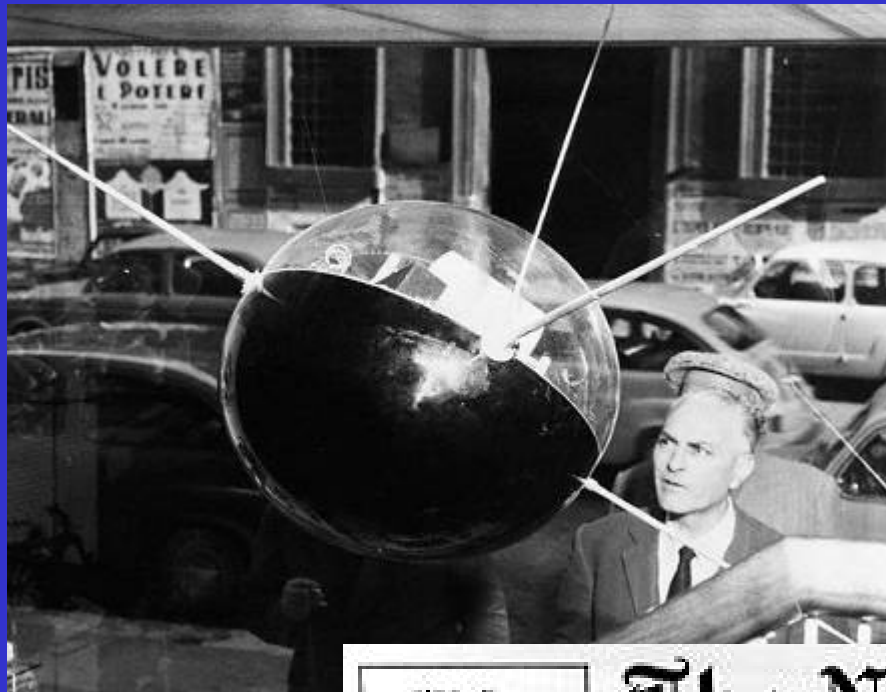
Hefferan and team members on roof of Albuquerque High



Moonwatch team practicing their craft



Months of New 'Moons'



"All the News That's Fit to Print" **The New York Times.** LATE CITY EDITION
 VOL. CXLII, No. 20491. *PUBLISHED DAILY* NEW YORK, SATURDAY, OCTOBER 3, 1958. *FIFTY CENTS* FOUR CENTS

SOVIET FIRES EARTH SATELLITE INTO SPACE; IT IS CIRCLING THE GLOBE AT 18,000 M. P. H.; SPHERE TRACKED IN 4 CROSSINGS OVER U. S.

HOFFA IS ELECTED TEAMSTERS HEAD; WARNS OF BATTLE
 Debate Two Foes 2 to 1—Says Union Will Fight 'With Every Gun'

COURSE RECORDED
 Navy Picks Up Radio Signals—4 Report Sighting Device

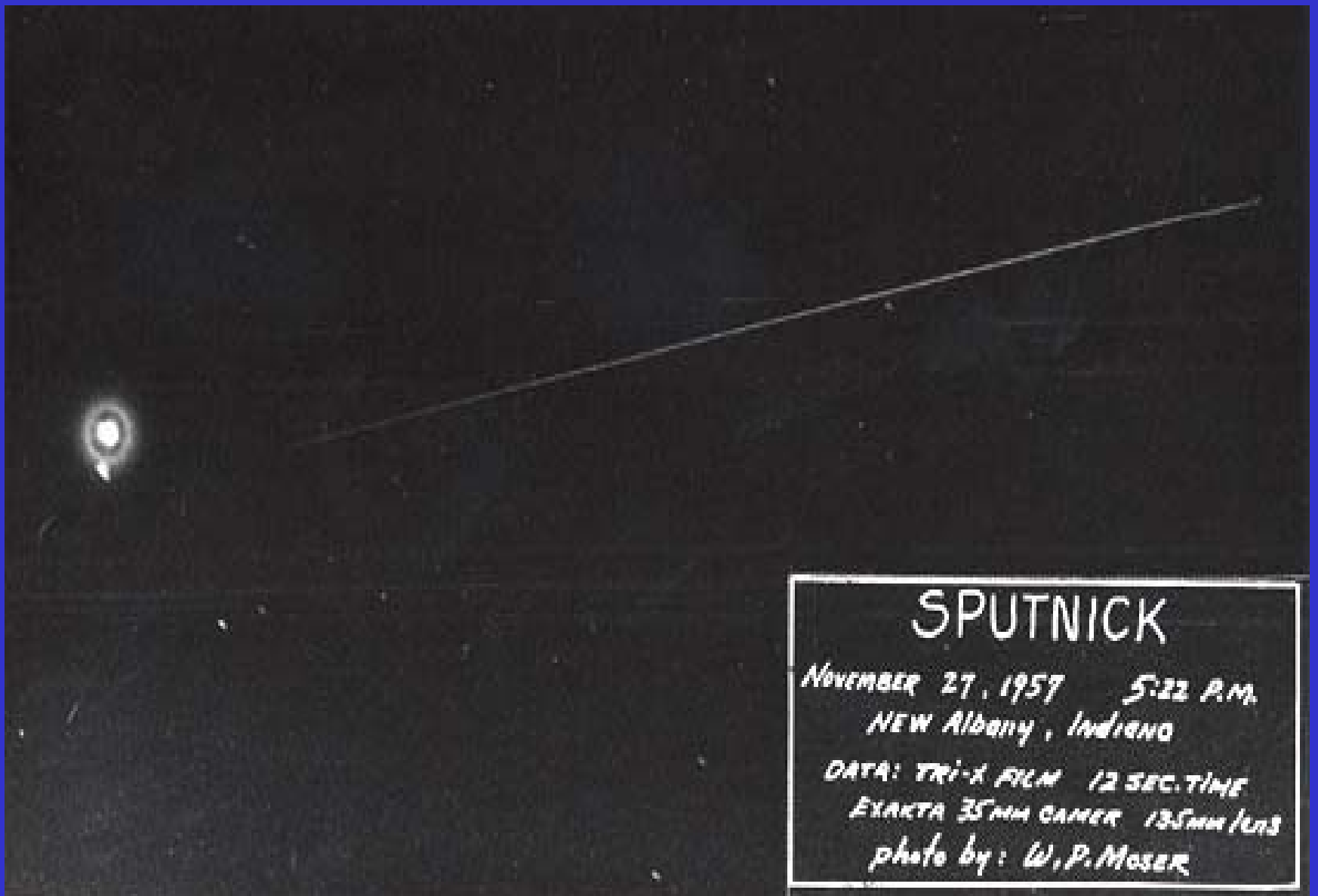
500 MILES HIGH
 Visible With Simple Binoculars, Moscow Statement Says




The approximately orbit of the Russian satellite satellite is shown in lower left. The position of the earth will bring the United States under the orbit of the satellite.



*Whipple and colleague, at MIT Computation Center
October 1957*



The rocket casing of *Sputnik 1* tumbles across Indiana sky



TERRE HAUTE MOONWATCH STATION ~ OPENHOUSE ~ JAN. 19, 1958

Amateurs find creative ways to explain satellites



Walnut Creek's "Satellarium"

Fred Whipple and
staff, posing for
Life magazine





"Do you call C-minus catching up with Russia?"

Caption:
"Do you call a C- catching up with Russia?"



Teen members of Millbrook,
NY team

Pin given to Moonwatch members in 1958



Joel Weisberg, astronomer-to-be



Winner at state science fair



REGULAR TOOLS: John Buehler, left, and Joel Weisberg are thanked by hosts they use routinely as members of the Albuquerque schools Moonwatch Team. Next to Buehler is a six-inch reflector. Weisberg's

equipment is an aperture (high point) satellite tracking scope. Buehler gestures toward a satellite visible when the photo was snapped. (Journal photo)



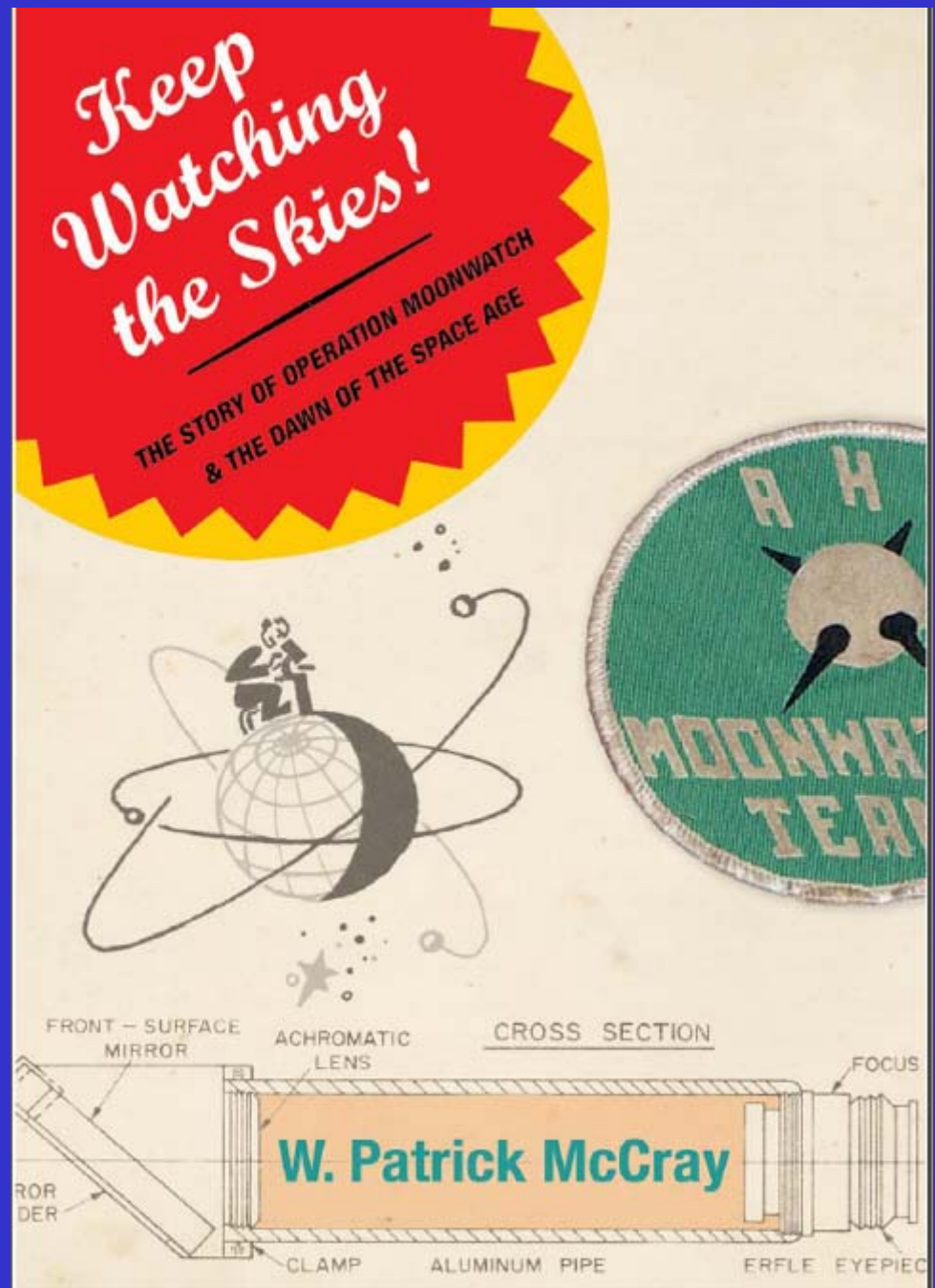
Backyard observing



Bracelet Vioalle Hefferan's students gave her when she retired in 1972



Want to learn more?
Available in April 2008



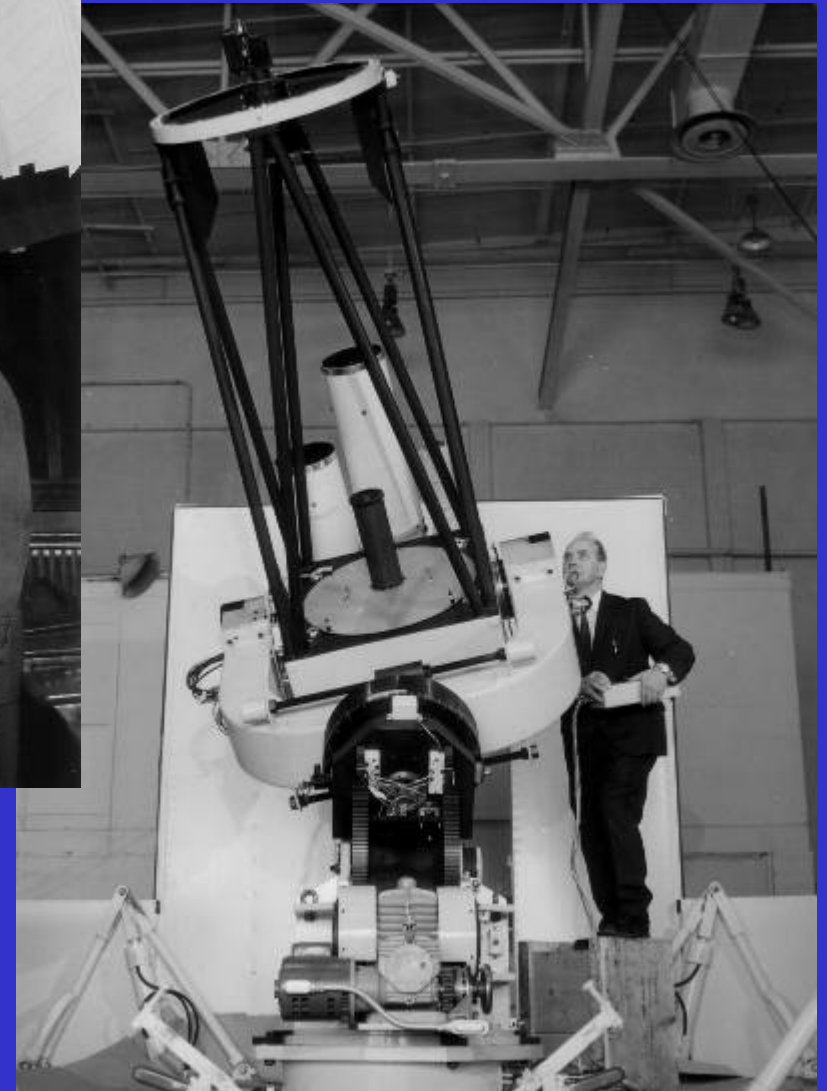
Extra slides

Richard Emmons,
inside his backyard
planetarium





Emmons in his "Star Barn"



Observing with NASA Mobile Telescope