

YEAR 1995

CfA Weekly Calendar

9/25-29/1995

<http://cfa-www.harvard.edu/cfa/calendar/950925.cal.html>

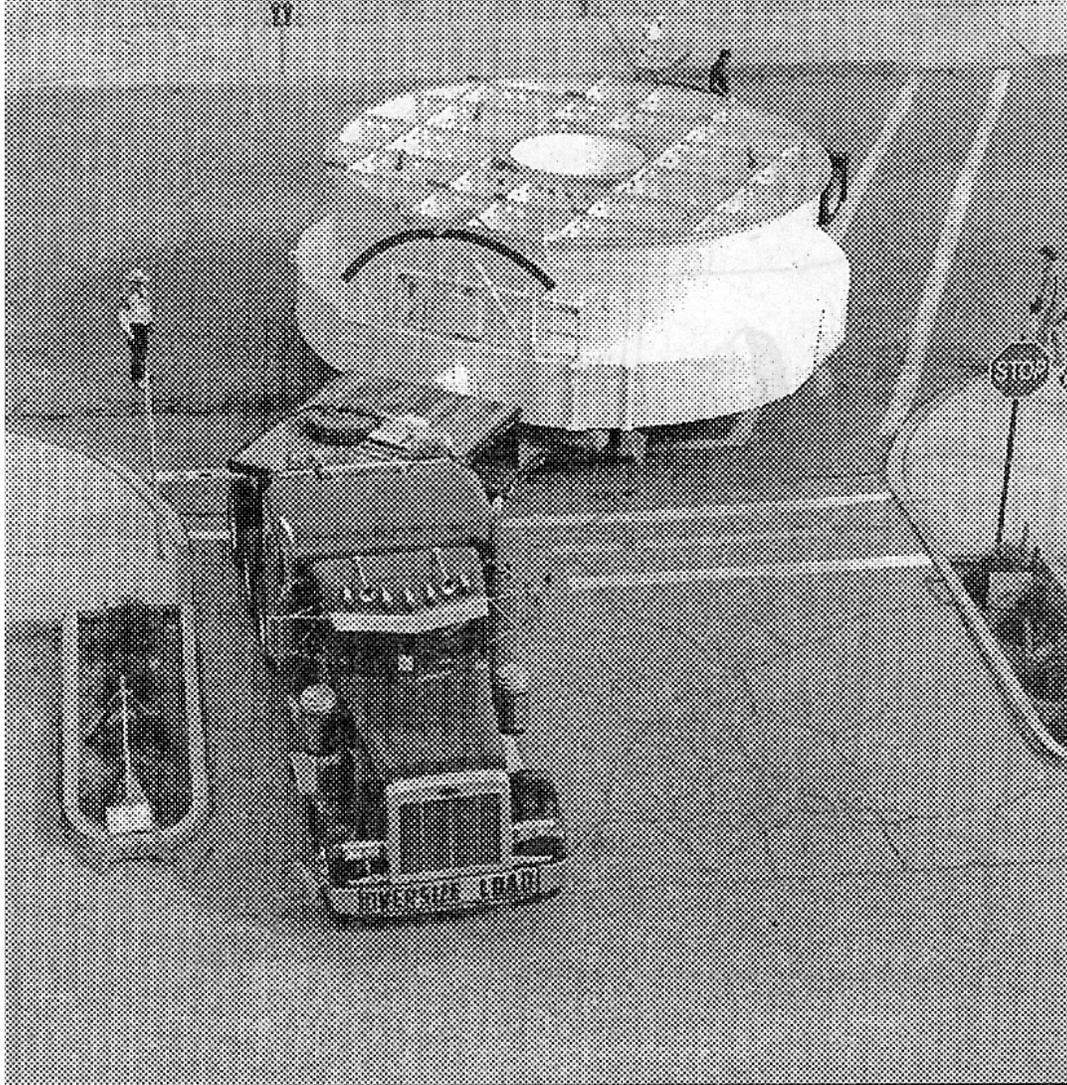
IN MEMORIAM

Charles A. (Chuck) Tougas, a former SAO employee and the first field manager of the Whipple (then, Mt. Hopkins) Observatory, died of cardiac arrest in Chicago after surgery following complications from an accidental injury. He was 69. A native of New Hampshire, Tougas joined SAO in 1957 as a member of the first batch of satellite trackers, transferring directly from the Harvard Meteor Project in New Mexico. His photo, at the controls of a Baker-Nunn camera, appeared on the cover of LIFE magazine in early 1958, when the United States finally achieved its first successful satellite launch. After a stint as training director at SAO's Organ Pass, New Mexico, station, he managed several of the Baker-Nunn sites in South America.

He returned to the United States in 1963 to become the field manager of SAO's Meteorite Photography and Recovery (Prairie) Network in the Midwest. And, in 1965, Tougas went to Arizona to establish SAO's observatory on Mt. Hopkins. His diligence, ingenuity, and imaginative use of limited resources allowed creation of a premier research site during a period of extremely restricted funding. Following his separation from SAO in 1972, Tougas remained in Arizona's Santa Cruz Valley, where he was residing at the time of his death. Most recently, he had been conducting nature tours and hikes in the mountains around the Whipple Observatory. He is survived by two daughters, both of Arizona, and his companion, Jean Ferguson, of Green Valley. Funeral arrangements are undetermined at this time.

Chuck's ashes were spread on the Observatory's grounds. A scholarship fund was established at Sahuarita High School in his name.

November 10, 1995



*(UA photo)
The 55,000-pound mirror cell for the 6.5-meter MMT mirror arrived at the UA Steward Observatory in Tucson Wednesday, Nov. 1*

May 24, 1996

James Jones, employee at Whipple Observatory, dies

James R. Jones, a support staff member of the Smithsonian Whipple Observatory, passed away May 24. He was 48.

A native of Tucson, Jones began as an equipment operator at the observatory in 1988.

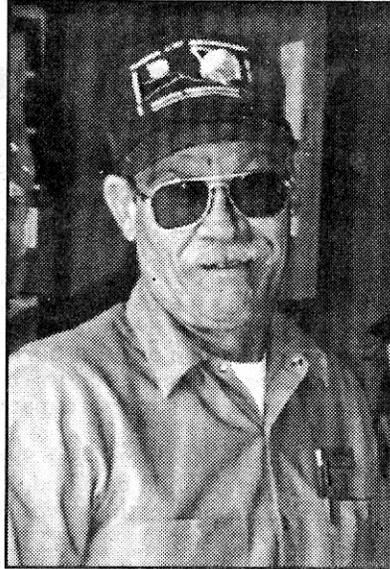
Facilities Manager Karen Myres remembered Jones for being "reliable and open for new challenges."

In 1994, Jones received a Superior Accomplishment Award from the Smithsonian Institution Astrophysical Observatory for his truck driving and crane operating expertise during the initial construction of the IOTA project.

From squeezing an IOTA shelter through an overpass with only two inches to clearance to maneuvering a crane to make awkward lifts on the cramped IOTA site, Jones did it all.

Last year, Jones was one of the members of the support force to be given an "Unsung Hero" award for his efforts at Whipple Observatory.

Jones is survived by his wife Raylene, daughters Sharon Jones, and Raylene (Freddie)



JAMES R. JONES

Jones of Amado; daughter Karen Jones of Tucson and two grandchildren.

A memorial will be held Saturday, June 1.

Please contact the family at 398-9223 for additional information.



Bruce McClelland, The Arizona Daily S

Frederic Chaffee at hatch leading to UA's Steward Observato

Observatory director sets sights on Hawai

June 1996

Fred Chaffee left FLWO to become Director of the Keck Observatory on Hawaii's Mauna Kea.

YEAR 1998

April 10, 1998



(News photo by James C. Orchard)

BIG HAUL—Semi-truck snakes its way up Mount Hopkins Road Wednesday in a practice run for transporting a 21-foot telescope mirror that will be installed soon on top of the 8,500-foot peak. (See story below.)

Practice run staged for delivery of giant telescope on Mount Hopkins

By Jim Lamb
Green Valley News

AMADO—Crusts of dirty snow clung to the sides of the road as a giant truck groaned its way toward the top of Mount Hopkins this week.

Aboard the semi-truck trailer was a 50,000-pound load—the "transporter," other equipment and a stand-in for a 21-foot telescope mirror that will be installed soon on top of the 8,550-foot peak.

Workers were bundled in win-

ter garb to ward off temperatures in the 30s and 40s.

Part of the way an industrial tractor followed the truck as it snaked around rocky hairpin turns clinging to the mountain side.

There were "outrigger" wheels along the truck for part of the trip to help keep it upright.

Depending on this week's success, astronomers and others will schedule the real thing—hauling the genuine 21-foot mirror up to be installed in the white barn-like observatory.

For two decades it housed the Multiple Mirror Telescope.

The MMT was made from six 6-foot mirrors. Their images were electronically combined to provide the light-gathering capacity of a 14-foot mirror. In 1978 it was considered the world's third most powerful telescope.

When the MMT was built technology was not advanced enough to build a 21-foot, lightweight telescope like the new one.

The transporter was designed especially for the new mirror. It

(turn to MMT, 9a)

Mount Hopkins

Test trip a success

By Jim Lamb
Green Valley News

AMADO—A giant test cargo made it to the top of 8,550-foot Mount Hopkins last week in what participants called "an unqualified success."

A transporter designed to carry a 21-foot telescope mirror crawled up a crooked road to the empty building that once housed the Multiple Mirror Telescope.

The truck-transporter averaged three miles an hour and Smithsonian project director J.T. Williams walked ahead of the truck for much of the way.

"Coming down we averaged six miles an hour," said Dan Broctous, Smithsonian spokesperson.

The trip took two days. The

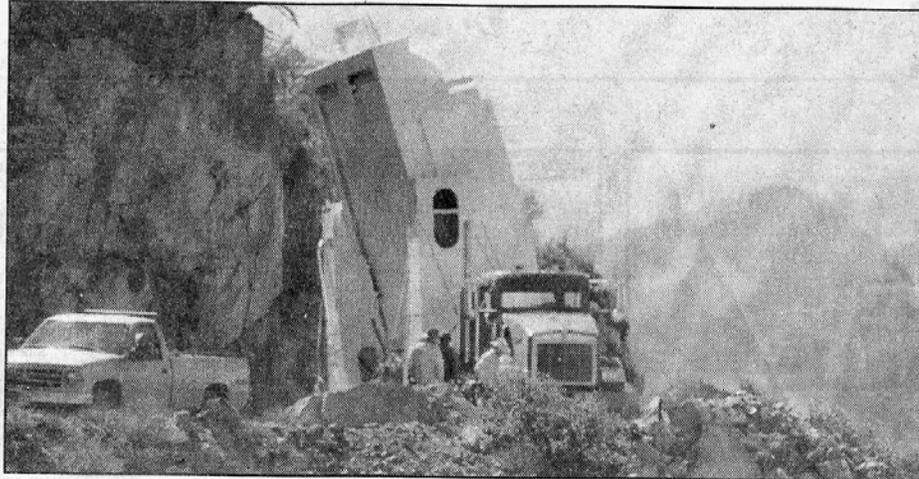


Photo by Lori Stiles

The transporter making a test run up Mount Hopkins eases around a turn.

first day the truck and other vehicles reached an area known as the ridge, where some smaller telescopes are located.

The next day, with a loader providing some push, it made it

all the way to the top.

Part of the road clings to the west side of Mount Hopkins and the truck and giant mirror transporter were clearly visible from the Smithsonian Visitors' Center.

Now that the engineers have determined that the transporter will work, the next step is to modify the building and then eventually haul the real thing to the top.

Multi-mirror Hopkins telescope to be 'retired'

By Jim Erickson
The Arizona Daily Star

The Multiple Mirror Telescope on Mount Hopkins will make its final observations this weekend before a \$20 million conversion project begins.

Later this year, the six 72-inch-diameter mirrors in the telescope will be replaced by a single reflector 21 feet across. The conversion will increase the telescope's light-collecting area by

2.5 times and its field of view by 15 times.

The replacement mirror was cast and polished at the University of Arizona's Steward Observatory Mirror Lab, beneath Arizona Stadium. The MMT is a UA-Smithsonian Institution telescope.

The MMT was dedicated in 1979 and represented a radical departure from earlier telescope design.

It has contributed significantly

to astronomers' understanding of young stars, galaxies, quasars, gravitational lenses and black holes, said Craig B. Foltz, director of the MMT Observatory.

"This telescope has been an outstanding success, both in terms of the high quality of scientific research and in terms of new-generation telescope design," Foltz said.

Mount Hopkins is about 35 miles south of Tucson in the Santa Rita Mountains.



Smithsonian Institution

To J. T. Williams



University of Arizona

in recognition of your contributions to every aspect of development, construction and operation of the Multiple Mirror Telescope from the beginning of site work on Mount Hopkins to the present —

On this occasion of the celebration of nineteen years of successful performance of the MMT, we express deeply felt thanks from all those who have been involved with this instrument. You have guided the day-to-day work of this project from its beginnings here, through the dedication of the MMT as a useful telescope, on through its evolution toward ever better operation, and now, to this point of transition.

Your guidance has been characterized by a calm intensity of purpose, a thoughtful gathering of an incredible variety of information, and a well-directed melding of the varied talents of a large team of people. Your love of Mount Hopkins and the MMT and your infectious enthusiasm have touched all of those who have worked with you. Your directness and effectiveness in working with public agencies and our public constituency has been exemplary.

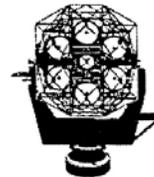
A whole community eagerly looks forward to the completion of the enormous task of assembling the 6.5-m system of the MMT, and appreciates your vital part in this. This group assembled, however, has a special vantage point from which to look back. We recall times when we were beset with a host of problems, always faced with barely sufficient funds at hand. We remember particularly how your ingenious leadership and calm presence helped us through those times.

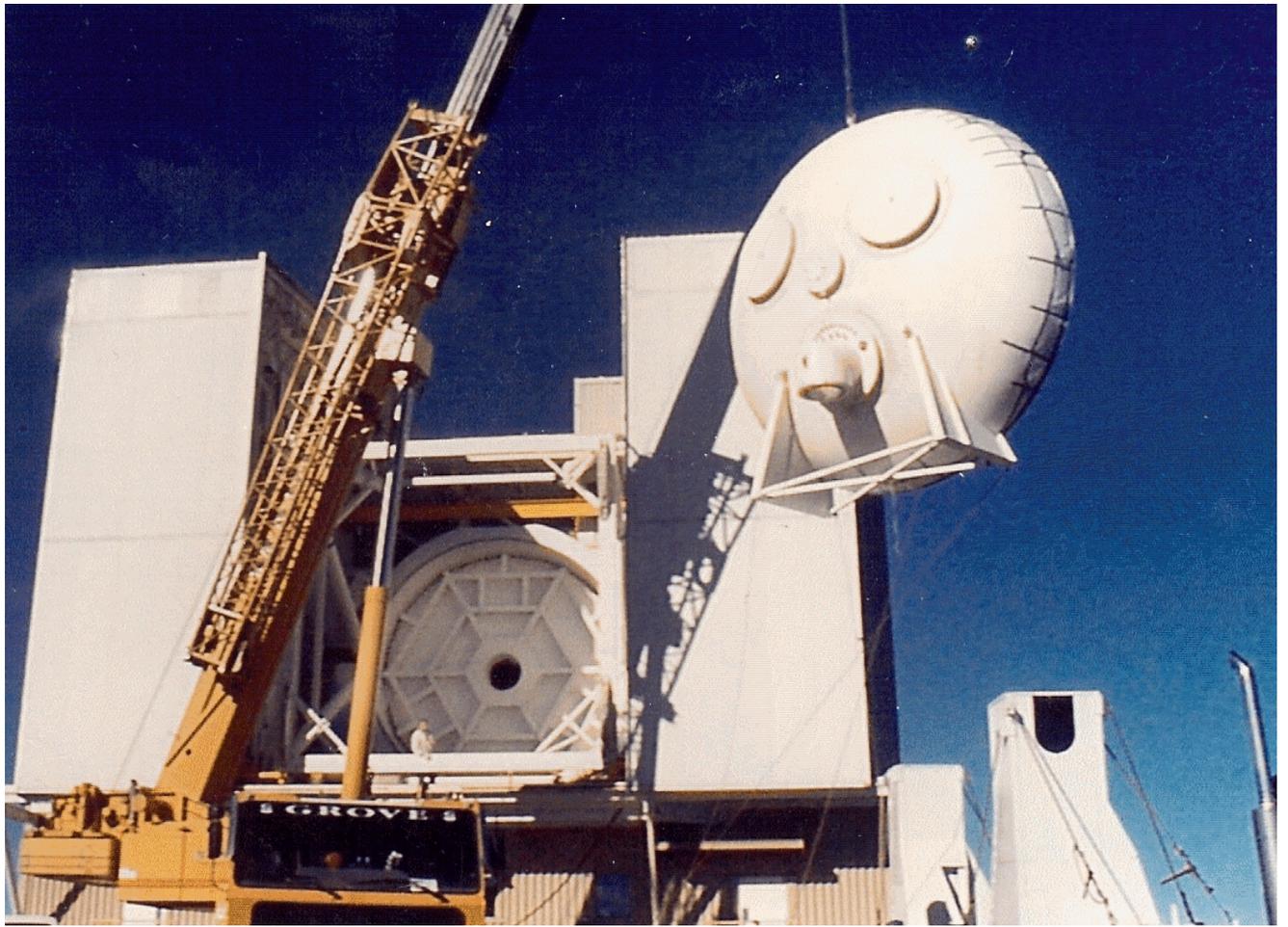
We note that your tenure with the Smithsonian Astrophysical Observatory has spanned nearly forty years, from the support of observations of meteors and artificial satellites, to the enabling of astronomical observations out to the farthest reaches of the universe.

Please accept our warmest thanks for all that you have done.

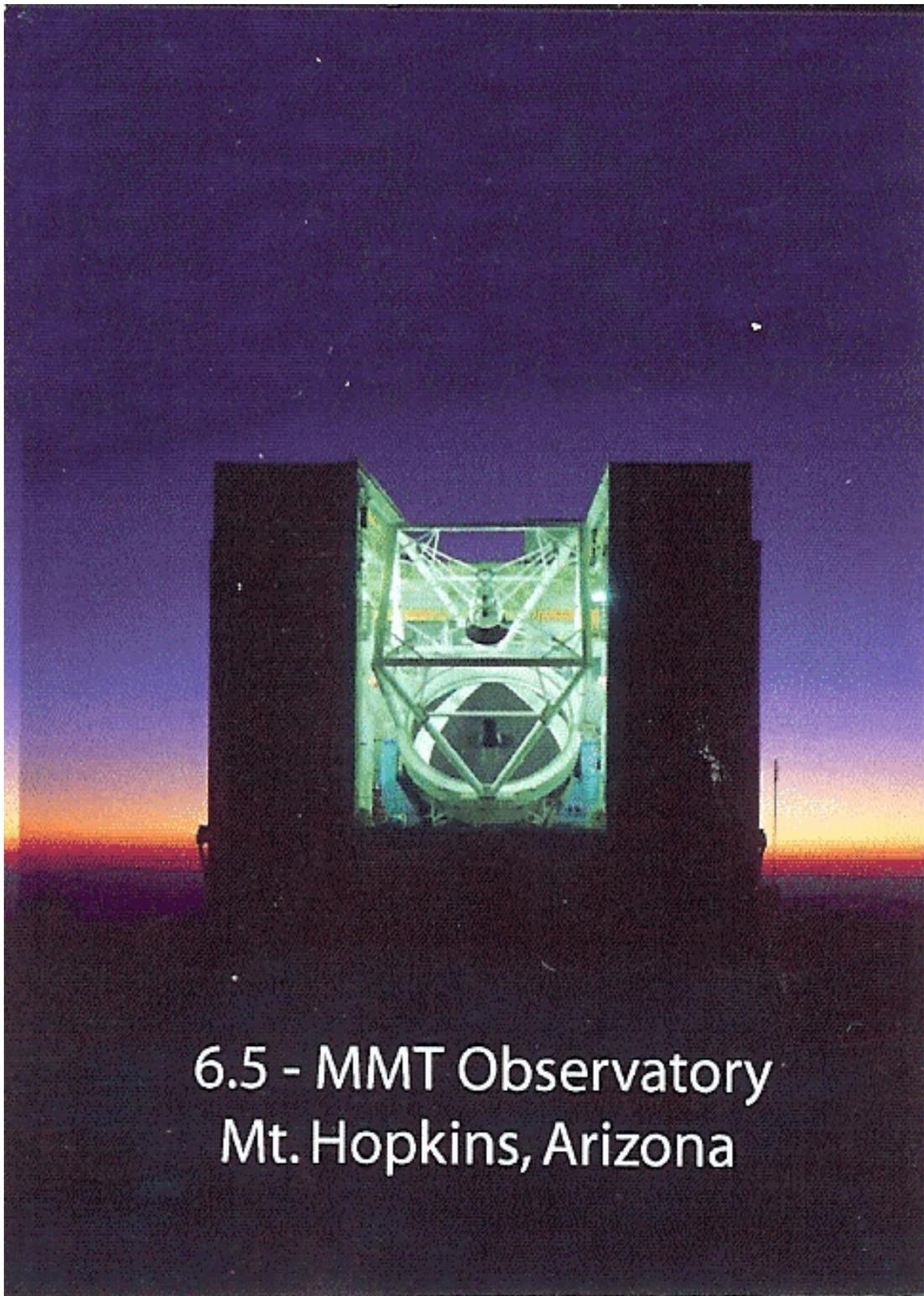
From the Directors of the MMT, Smithsonian Astrophysical, and Steward Observatories, and all of us assembled to celebrate this occasion.

February 14, 1998.
Fred Lawrence Whipple Observatory
Mount Hopkins, Arizona





The 6.5 meter mirror going into the building...very carefully!



6.5 - MMT Observatory
Mt. Hopkins, Arizona

U.S. seeks input on telescopes near sweat lodge site

By Stephanie Innes
ARIZONA DAILY STAR

The U.S. Forest Service is once again seeking public comment on a telescope cluster that could be built on land near an American Indian sweat lodge in the Santa Rita Mountains.

The Coronado National Forest this week released an environmental analysis of four plans for the scientific project, which is expected to be the largest gamma-ray telescope system in the world if it's built.

"It will be a complex and difficult decision to make, but we're expecting it will come sometime next year. We're looking forward to the public review and comments," Coronado National Forest spokeswoman Gail Aschenbrenner said.

Aschenbrenner anticipates the decision will come during the first three months of 2002.

Coronado National Forest Supervisor John McGee will have final say. One of the alternatives he could choose is to deny the \$22 million telescope project from locating on Forest Service land altogether.

The other three plans are:

- ▶ Montosa Canyon Site, which is about 1,000 yards east of the To All Our Relations sweat lodge, or a mile east of the Mount Hopkins Visitors Center.

- ▶ The Montosa Canyon Site with modifications to its access, which would make the project more expensive. A new, 1,200-foot-long road would be built to keep traffic away from To All Our Relations activities.

- ▶ The North Site, which is northwest of the sweat lodge and near the Smithsonian Base Camp, about 150 feet south of Mount Hopkins Road.

Scientists say the North Site is one they would consider, though they do not prefer it because it would have more light pollution than the Montosa Canyon site. The Smithsonian Institution says it would prefer the Montosa Canyon site, but include modifications on the access road to accommodate the sweat lodge.

Cayce Boone, the sweat lodge keeper, prefers the North Site. Boone, a Navajo, has been operating the sweat lodge since 1990 through an organization called To All Our Relations, which aims to revitalize indigenous culture. He has the support of several American Indian tribes, including the Tohono O'odham Nation, the Pascua Yaqui Tribe of Arizona and the Salt River Pima-Maricopa Indian Community, which have sent letters of support for Boone to the Forest Service.

Forest Service officials did not recommend one plan over the other. The public comment period will go through Nov. 20. Officials are seeking comments on the environmental analysis of the sites.

It's been more than three years since the Smithsonian Institution first proposed building its Very Energetic Radiation Imaging Telescope Array System, called VERITAS, at the base of Mount Hopkins in the Santa Rita Mountains.

In September 1999, Coronado supervisor McGee denied the Smithsonian's request to build in Montosa Canyon, saying the presence of the sweat lodge was a "significant factor" in his decision.

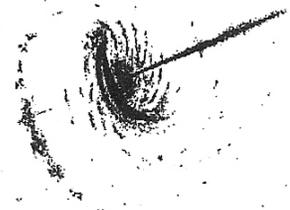
But three months later, the Forest Service said it would take a second look if the Smithsonian corrected deficiencies in its original proposal.

If it's approved, the telescopes could be operating as early as 2004. VERITAS would use seven giant telescopes to study high-energy gamma rays emitted by celestial processes such as exploding stars and black holes to better understand the universe.

Copies of the VERITAS Environmental Assessment are available at all Coronado National Forest business offices. Additionally, the document can be viewed and downloaded from the Coronado National Forest Web site: www.fs.fed.us/r3/coronado. Click on "information" to get the VERITAS link.

Comments should be addressed to: Forest Supervisor, Coronado National Forest, 300 W. Congress St., Tucson, AZ 85701 or e-mailed to bflewis@fs.fed.us.

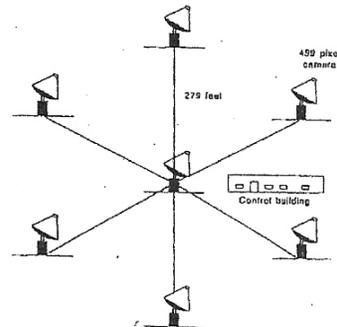
▶ Contact Stephanie Innes at 573-4134 or at sinnes@azstarnet.com.



VERITAS

The Very Energetic Radiation Imaging Telescope Array System

Investigating the Most Energetic Objects in the Universe



Clarifying facts about proposed telescopes

Editor:

We would like to correct some statements and impressions made the Nov. 28 article, headlined "Native Americans may need to conduct environmental study."

The story says, "The Smithsonian said the telescope and roads will be more than 100 feet from Native American land."

In point of fact, the nearest point of the proposed telescope array is 1,100 feet from the sweat lodge.

None of the telescopes would be visible from the sweat lodge nor be audible during operation.

Also, all of the land in Montosa Canyon is administered by the U.S. Forest Service, not by any tribal authority.

Further, Boone said the Smithsonian didn't do an assessment or study on its roads to the telescope.

"Boone said if he has to conduct one, so should the Smithsonian."

The observatory began initial operations in late 1967; the National Environmental Policy Act, which introduced the present requirement of environmental assessment, became effective Jan. 1, 1970.

No assessments were needed prior to that time.

The Smithsonian has cooperated with the U.S. Forest Service throughout the history of the observatory to work within in the guidelines and requirements set by the Forest Service and the law.

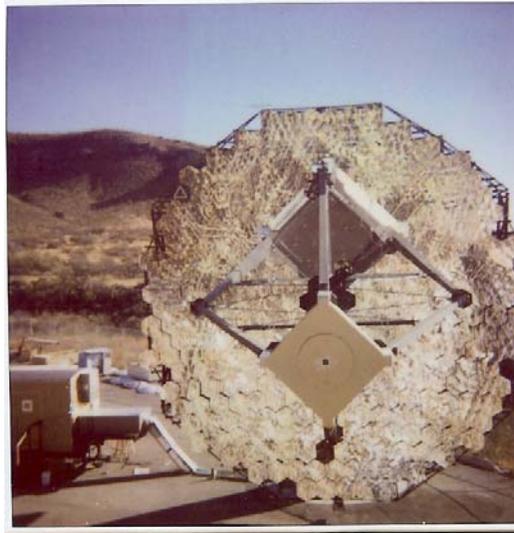
For example, an environmental assessment was conducted prior to a permit being granted for the Observatory Administrative Complex at the entrance to Montosa Canyon.

To date, the observatory has paid \$75,000 for an environmental assessment of the proposed VERITAS sites.

We wish to repeat that the VERITAS project has no objections whatsoever to To All Our Relations activities in Montosa Canyon.

We believe that TOAR and VERITAS can coexist in the canyon, each group exploring the universe along its chosen path.

**Dan Brocius
Public Information Office
Fred Lawrence Whipple Observatory
Amado**



FRIDAY, FEBRUARY 10, 2006

IVUU

www.g

Local astronomers join search for powerful gamma-ray bursts

By Jim Lamb
Green Valley News

Gamma-rays are the "brightest single object in the universe" and their source can produce more energy in minutes than the sun will during its entire 10 billion-year lifetime.

This was part of the message Wednesday morning by astronomer Deirdre Horan at the Smithsonian's Fred Lawrence Whipple Observatory's astronomy lecture.

As an indication of the energy it would take to produce gamma-rays, one audience member asked if there could be a burst in our solar system.

"No," she replied. "It would mean the end of life here as we know it."

Astronomers had known about gamma-ray bursts, or GRBs, but had done little study until the 1950s. At that time the world's nuclear powers agreed there would be no atom bomb experiments outside the Earth's atmosphere.

The United States launched VELLA satellites to detect nuclear explosions to determine if the Soviet Union was violating the agreement. The VEL-



Deirdre Horan

LA satellites found no such explosions but they "discovered a new phenomenon, gamma-ray bursts," said Horan.

Other satellites were launched, some of them looking for GRBs.

"They detected many, and not from only one direction," said Horan. "They were all very powerful."

More improved instruments and satellites led to more and more discoveries of gamma-ray bursts, and more and more astronomers searched for the cause of them.

Somewhat puzzling is the fact that there were two kinds of GRBs—shorter ones and

ones that last a little longer. Scientists are working to find out the reason.

Scientists believe that GRBs are created by collisions of black holes with supernovae, the gigantic explosions that occur when a star dies and collapses.

Astronomers at the Whipple Observatory are part of an international team looking for gamma-ray bursts.

Night after night, three or four observers sit in a room doused in red light staring at screens that are receiving data from satellites looking for GRBs. Within seconds after a GRB is detected the team can swing the VERITAS telescopes on Mount Hopkins into position to catch what light is left of this burst.

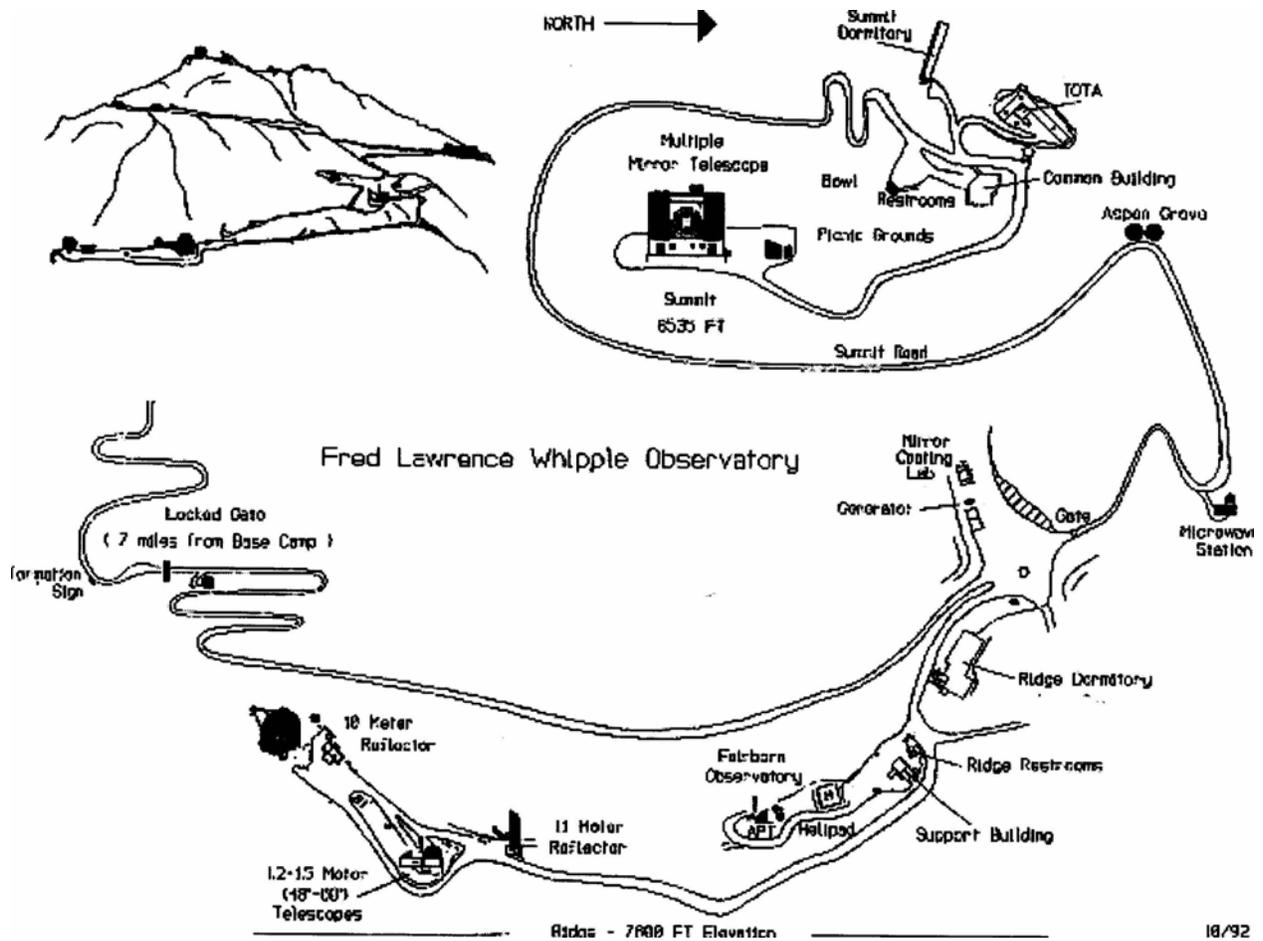
There are satellites that can detect the bursts and automatically alert such ground installations.

Asked if it was exciting when a GRB is detected and tracked, she said "It can be."

She often sits in the command chair at the observatory and decides whether to "slew" the VERITAS telescope into position.

jlamb@gvnews.com | 547-9749

BASE CAMP



An old FastCAD drawing still in use.

September 8, 2004

Fred Lawrence Whipple an internationally acclaimed astronomer died in a Boston suburb. He was 97. He was best known for his work on comets. He discovered six and discovered they were really bodies of ice, snow, and debris. Re: the Boston Globe

CELESTIAL CELEBRITY

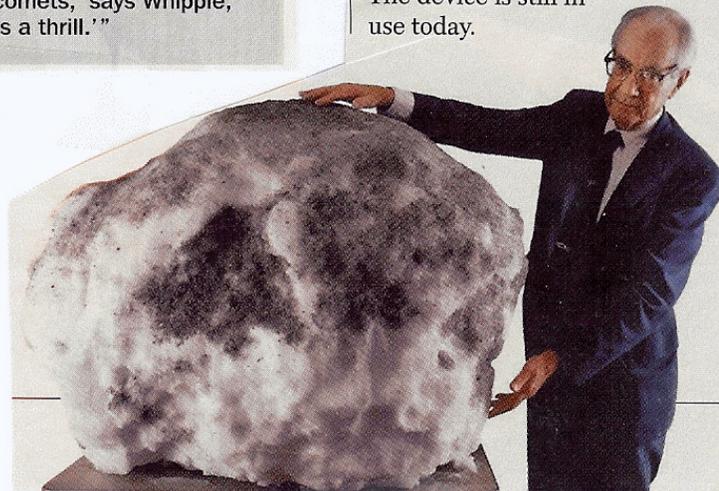


Harvard astronomer Fred Whipple revolutionized the study of comets with his 1950 theory about their composition [MILESTONES, Sept. 13]. Years later, as Halley's

comet reappeared after a 75-year passage through the solar system, we made note of Whipple's cosmic contribution [Dec. 16, 1985]:

"[A] big breakthrough came in 1950, when Fred Whipple, a Harvard astronomer, proffered a detailed model for the anatomy of a comet. In a delightfully evocative phrase, Whipple declared that comets are 'dirty snowballs,' dark conglomerates of mostly frozen water stippled with rocky fragments, dust particles and trace elements. As one of these snowballs swoops toward the sun, said Whipple, solar radiation begins to vaporize ice and frozen gases on the comet's sunward surface by a process called sublimation. **THE GASES, CARRYING DUST WITH THEM, FORM A LIGHT-REFLECTING COMA THAT MAKES THE COMET VISIBLE FROM EARTH.** Like the heated gases bursting from a jet engine, the departing cometary molecules exert a force on the icy nucleus, giving the comet its independent thrust . . . After 35 years of scrutiny, Whipple's model of comet properties is still accepted today. 'When I first realized about the jet action of comets,' says Whipple, 'Boy! That was a thrill.'"

▼ **DIED. FRED WHIPPLE, 97,** inventor and rocket scientist whose "dirty snowball" theory made it easier to track comets; in Cambridge, Massachusetts. Whipple correctly proposed that the core of a comet consists of ice, ammonia, methane and carbon dioxide, and that its tail is formed by particles that break off from the mass as it approaches the sun. Over seven decades at Harvard University and the Smithsonian Astrophysical Observatory, Whipple also discovered that the source of meteors is not far-flung stars but Earth's solar system. Anticipating space flight, he invented in 1946 a thin outer skin of metal known as a meteor bumper, or Whipple shield, to protect spacecraft from high-speed particles. The device is still in use today.



YEAR 2005



MT VISITOR REFLECTION IN FRONT OF GAMMA RAY MIRRORS

This visitor, Charles Fields, was a shipmate of mine when we sailed on the good schoolship the USTS CHARLESTON 1956-57. We were midshipmen at the Massachusetts Maritime Academy. The photograph was taken by his brother John, a professional photographer from Australia.

MT HOPKINS OR BUST An Amado Adventure

My brother was visiting from Australia and we had been invited by an old Massachusetts Maritime Academy classmate, Donald "Ben" Hogan, for a personal tour of where he once worked. This offer, under normal circumstances, would not be of interest, but in Ben's case (He is known as Ben to me), was very attractive and interesting because he had been with the Smithsonian Institute for over 30 years. Before retirement, 28 years were spent commuting up 8000 feet of narrow mountain roads to the Whipple Observatory.

My brother was a professional photographer, so anything to do with a lens appealed. I was just adventurous and curious and had to find out for myself if Ben was, as many old maritime friends thought, a "Spook." I can assure you the only thing spooky was his dare devil driving on those mountain roads. My seat was on the outside and I thought I was riding the wind on the edge of the world. Fortunately, the weather was ideal. The roads were clear, even heated in spots where ice would accumulate. At higher elevations we could see scattered patches of snow. In the distance, Mt Wrightson of 9600 ft loomed up putting things in a more dramatic perspective.

After touring a few facilities we stopped for a lunch break. Before leaving we had stocked up at the local Amado convenience store with exotic delicacies of spam, sardines, peanut butter and crackers. A most memorable feast was consumed by all, but the staff refused any left overs. I wonder why?

The tour continued and from an engineering point of view, I was in awe of the road construction and shear logistics of getting machinery and equipment up the mountain. Ben had been there from the beginning of the installation, so his guided tour was very informative. It provided many colorful descriptions, as well as harrowing personal experiences. I can't explain the technical things we saw, but I do remember looking and not finding wizened long haired scientists eying the heavens through telescopes. Instead, to my amazement, I observed computers doing the looking and reporting to other computers, which in turn sent data all around the world to other stations in seconds. The real people we met were highly trained professionals and staff. They were all very helpful and congenial and it was obvious how much they respected and missed their Don aka Ben.

The trip down the mountain provided as many powerful vistas as those we saw coming up.

When we arrived at the base we were treated to a tour of the administration building and museum. The informative personnel and mounted displays helped put the day in better perspective and brought a close to a true adventure.

As my brother and I drove back to my home in Sun City West, we reflected on the day and both agreed that the most important observation was not the outer universe, but the deeper inner one. That being the respect and dedication the Mt Whipple personnel shared for their work and each other and especially for our Donald " Ben" Hogan.

Charles L. Fields

July 2005

A huge forest fire endangered the observatory. This fire consumed more than 60,000 acres of the forest and came within one mile of the telescope buildings. Observatory personnel were evacuated on Tuesday, July 12th. More than 1,000 firefighters battled the blaze to protect this irreplaceable scientific resource.

The observatory survived due to the hard work and dedication of the U.S. Forest Service.

For more information and photos on this fire go to:
<http://www.cfa.harvard.edu/cfa/oir/FLWO/FloridaFire/>



Whipple Observatory Telephone List

Administrative Complex

Business Office	(520) 670-5704*
Public Information (Tours)	670-5707*
Fax	670-5714*
Facility Manager	670-5703*
Conference Room	670-5713*
Gamma Ray Office	670-5718*
MMT Office/VERITAS	670-5705*
Ready Room	670-5705*
Motor Pool/Warehouse	670-5710*
Support Office & Road Conditions	670-5708*
Mirror Coating Lab	670-5720*
VERITAS Trailer #1	670-5722*
VERITAS Trailer #2	670-5723*

Scientists

Emilio Falco	670-5715*
Ken Gibbs	670-5719*
Trevor Weekes	670-5711*

Tucson Offices SO Room 458

Deirdre Horan	670-5726
Andy Smith	670-5726
Hussein Badran	670-5726
Marc Lacasse	670-5750
	pager (520) 703-8976
Trevor Weekes	670-5726
	670-5749
Fax	670-5739
Tucson Camera Lab	792-6627

MMTO Office SO Room 460

	670-5730
	621-1558
Fax	670-5740

Dialing Observatory Telephones

To call Tucson, Amado, Tubac and Green Valley — Dial 9 and the seven digit number.

To call Rio Rico, Nogales, Patagonia and similar area numbers — Dial 9-1-520 and the seven digit number (this includes 394-, 281-, 761- and 287- exchanges.)

To call **long distance** — Dial 9-1+(Area Code) and the seven digit number from a telephone with a 670-xxxx number.

Three-way Conversation -- to add a third party, depress switch hook or *Flash* button; after hearing special dialtone, dial third party; when third party answers, depress switch hook or *Flash* button, begin conversation.

Transfer -- to transfer a call to a third party, depress switch hook or *Flash* button; after hearing special dialtone, dial third party; when party answers, announce call and hang up.

Employee

Alegria, Grace	(520)
Alegria, Mike	
Berlind, Perry	
Brocius, Dan	
Calkins, Michael	
Chute, Creighton	
Clark, Dusty	
Comisso, Brian	
Criswell, Stephen	
Falco, Emilio	
Gardner, Gene	
Gibbs, Ken	
Gibson, Duane	
Glaspey, John	
Groner, Ted	
Harris, Rodger	
Horan, Deirdre	
Hutchins, Bob	
Kindred, Bill	
Knop, Cory	
Lacasse, Marc	
Larson, Ginnee	
Lester, Howard	
Little, Ed	
Lopez, Cesar	
Love, Brian	
Martina, Dave	
McAfee, John	
Milone, Alejandra	
Myres, Karen	
Ortiz, Ricardo	
Peters, Wayne	
Pickering, Tim	
Roache, Emmet	
Ruiz, Peter	
Russ, Barbara	
Ryan, Kevin	
Schroedter, Martin	
Smith, Andy	
Smith, Dennis	
Smith, Sam	
Stalcup, Thomas	
Trebisky, Tom	
Van Horn, Ken	
Wainwright, Court	
Weekes, Trevor	
Welsh, Tom	
West, Dan	
Williams, Grant	
Williams, J.T.	

10/2005

Office

670-5704*
670-6747
670-6746
670-5706*
670-6746
621-3953
621-5185
621-5484
670-5702*
670-5715*
670-5709*
670-5719*
626-2996
626-0579
670-6746
670-5201
670-6728
670-6746
670-6747
621-5484
670-6757*
670-5701*
621-3451
670-5721
670-5710*
670-6747
670-5201
670-6747
670-6747
670-5703*
670-6747
670-6746
626-3755
670-5720*
792-6627
621-1558
670-5710*
670-5726
670-5726
670-6747
670-5201
626-8795
621-5135
670-6747
621-5414
670-5726
670-5708*
670-5710*
626-0580
621-5407
670-5730

Send changes or corrections to
brocius@carpincho.sao.arizona.edu

Oct. 2005 v.1.1

YEAR 2006

New Vistas In Astronomy



Smithsonian Institution

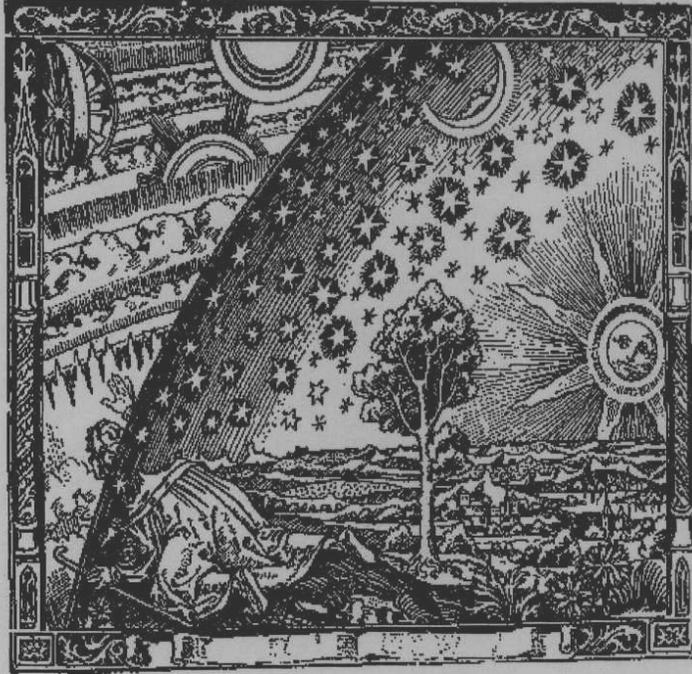
Fred Lawrence Whipple Observatory

Lectures in Astronomy

Free to the Public

In the Santa Cruz Valley

The Fred Lawrence Whipple Observatory takes pleasure in presenting its 36th year of public lectures on astronomy and astrophysics for the Southern Arizona community. The series presents recent discoveries in astronomy, local research projects, and modern methods used to explore the universe.



Tuesday
January 10
9 a.m.

It Only Comes Out at Night: Effects of Light on Health

Dan Brocius, Fred Lawrence Whipple Observatory

Wednesday
February 8
9 a.m.

The Wonder of the Universe

Deirdre Horan, Fred Lawrence Whipple Observatory

Tuesday
February 14
9 a.m.

The Discovery of the Spiral Nebula

Trevor Weekes, Fred Lawrence Whipple Observatory

Tuesday
February 21
9 a.m.

The History of the Whipple Observatory

Emilio Falco, Fred Lawrence Whipple Observatory

Wednesday
March 29
9 a.m.

Mission to Asteroid Hayabusa

Faith Vilas, 6.5-meter MMT Observatory

All lectures are held in the Green Valley Recreation Center West Auditorium, Green Valley, Ariz. Each 45-minute illustrated lecture is nontechnical and intended for the interested layperson. A question-and-answer period follows each lecture. Admission is free and open to the public. For more information, call the Whipple Observatory Visi-

EXCERPTS FROM
"LETTERS TO LOU"
A MIDSHIPMAN'S ODYSSEY



A THREE YEAR JOURNAL OF LIFE AT THE MASSACHUSETTS MARITIME ACADEMY
1954 - 1957

Donald "Ben" Hogan



azdeckie@dakotacom.net
Tel: 520-398-2507

INFINITY
PUBLISHING.COM

"Letters to Lou"
The Sequel

Donald "Ben" Hogan
author

fax: 610-519-0261
www.buybooksontheweb.com

A MIDSHIPMAN'S ODYSSEY
EXCERPTS FROM
"LETTERS TO LOU"
THE SEQUEL



A THREE YEAR JOURNAL OF LIFE AT THE MASSACHUSETTS MARITIME ACADEMY
1954-1957

Donald "Ben" Hogan

Several years after my retirement I happened to run into Karen Erdman-Myers in a bank at Green Valley. After an exchange of the usual "Hi, how are you, etc..." She asked, "What have you been doing with yourself?" I explained that I wrote a book. "You did!" "How did you do that?" " You couldn't write a memo!"

Oh well! Nine hundred copies later the "Sequel" is still in print and the royalties continue to add to the Massachusetts Maritime Academy's Scholarship Fund.
Cheers!