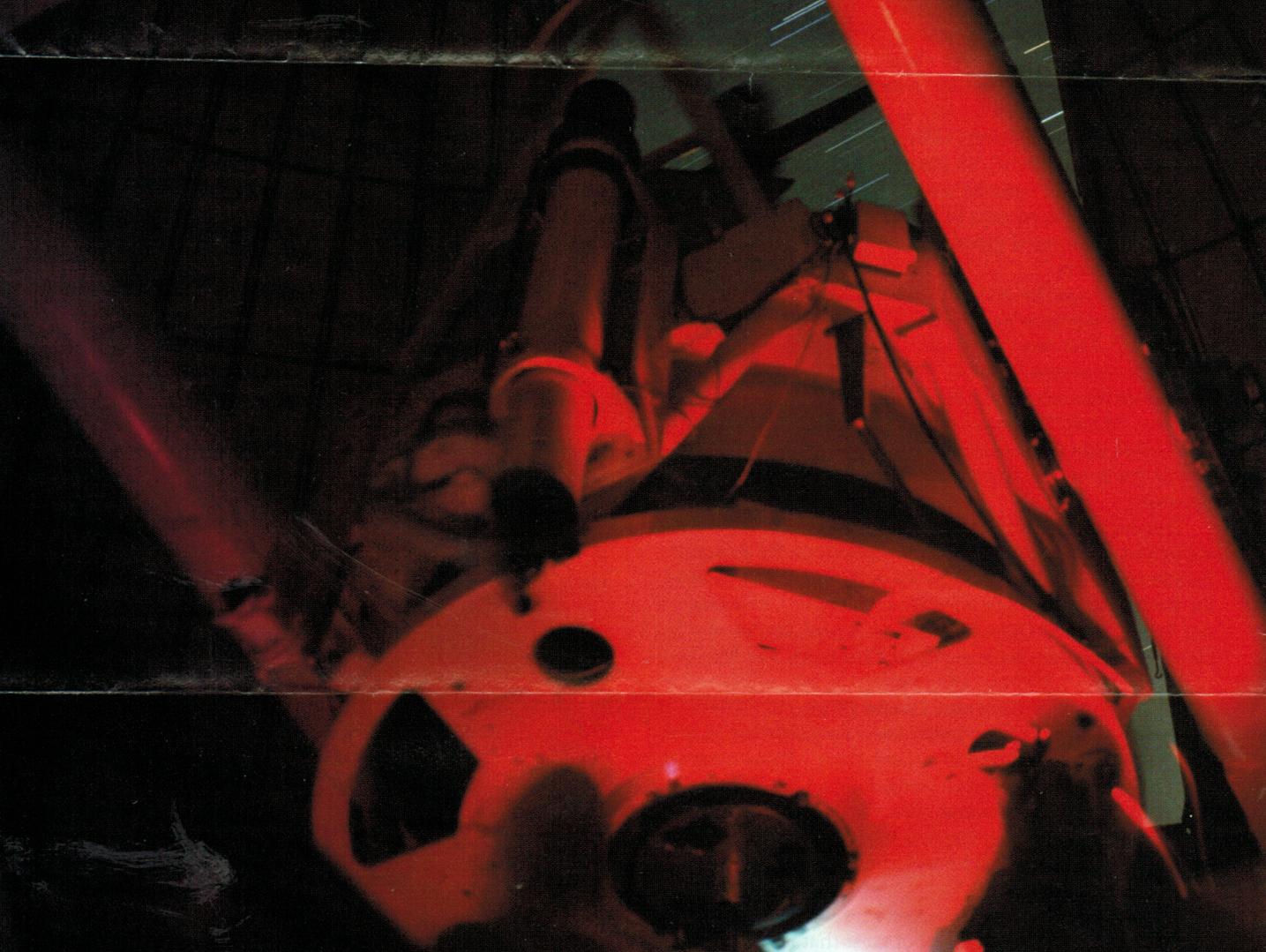


LEARNING THROUGH DISCOVERY

# Putting Stars in

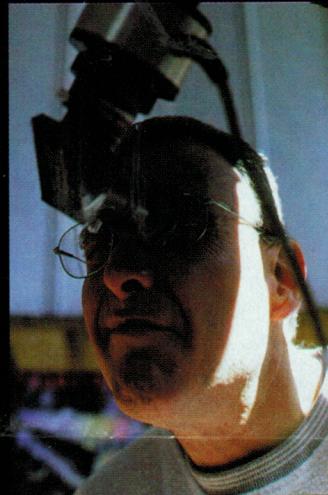
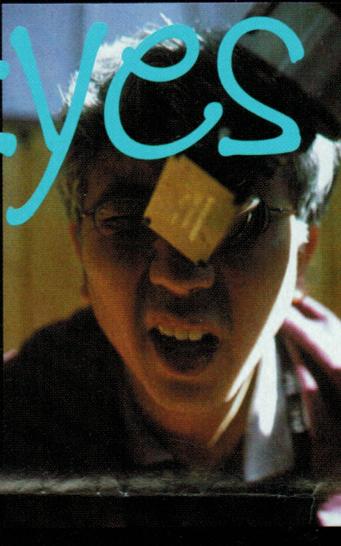
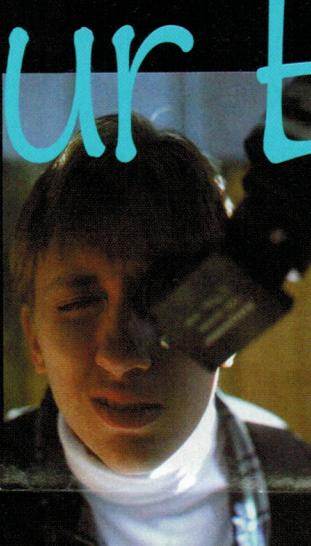
## Don McCarthy and Astronomy Camp

Story and photos by Jay Rochlin



The 60-inch Cassegrain reflector is completely hand operated, but contains accurate encoders for positioning on the sky. This facility is operated jointly by NASA and the University of Arizona.

# Our Eyes



I asked, "Are photons 'something' or are they 'nothing'?"

It was likely the most naive question that would be asked during the three-day Astronomy Camp, but it generated a 30-minute discussion as about five or six of my fellow campers tried to help me see the light (or photons).

They asked me to clarify, so I elaborated. "Do protons have mass? Astronomers say they measure photons. Do protons have a nucleus? Can we count them? Do they weigh? Or are they really just imaginary? When we see light, is it made up of invisible particles? Should I think of photons as tiny pixels that glow?"

One of them answered. Another disagreed. And I enjoyed listening to what became an animated discussion about the nature of light itself. Then I asked, "Don't you really think that someday people will read about the big bang theory, much like we read about the great debates about how many angels could fit on the head of a needle?" But that discussion is another story.

This was the 30th edition of Astronomy Camp, and about 20 men and women from around the USA and a couple from Canada couldn't wait to get their hands on the 60-inch scope that would be theirs for two nights of viewing under nearly perfect conditions.

We were on the very top of Mt. Lemmon, at one of the country's top observatories, under the tutelage of internationally recognized astronomer Don McCarthy.

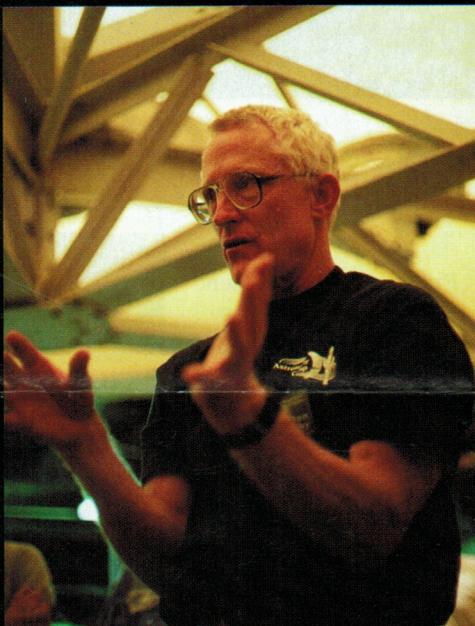
Astronomy Camp was launched in 1988 when Joan Morrill of the Arizona Alumni Association and

Ray White of the UA astronomy department teamed up to develop an astronomy program for children of alumni. The following year, in 1989, infrared astronomer Don McCarthy adopted the program and has grown it into one of the country's leading hands-on astronomy programs for teenagers. And, because of demand, McCarthy also created an adult camp. Today, there are beginning and advanced camps for teenagers and beginning and advanced camps for adults. McCarthy recently added a camp for educators and is working with Girl Scout leaders and school groups.

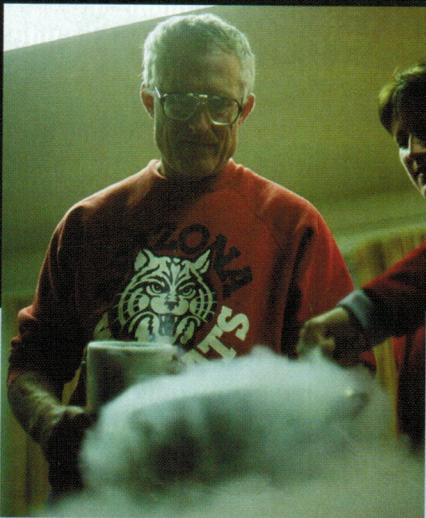
As evening approached and darkness set in, McCarthy gathered our group together to put us into the mood for appreciating the heavens. As we sat, anxiously awaiting the deep and profound words the famous astronomer would share with us, he took out

a single panel of an old Dennis the Menace cartoon. The caption read, "Boy! The stars are really shining tonight!" They were. We laughed. And we were ready for some viewing action.

But McCarthy wasn't ready. He sensed we weren't



Astronomy Camp Director Don McCarthy is an astronomer at the University of Arizona. He builds infrared equipment for imaging/spectroscopy and adaptive optics and is involved in the large binocular telescope project. He is the director of the education/outreach aspects of the near-infrared camera (NIRCam) for NASA's Next Generation Space Telescope.



One of the camp's terrestrial highlights is making ice cream with liquid nitrogen.

quite in the mindset to experience planets, stars, and nebula with the help of a 60-inch mirror. He asked us to sit still and listen for a few moments, look up at the sky with our own eyes, and let our minds drift. As we did, he played music about stars — music from *CATS*, *Annie*, and *Phantom of the Opera*. Finally, we were ready to enter the dome of the 60-inch telescope.

My fellow campers knew a lot about astronomy and got to Mt. Lemmon different ways. A 60-year-old camper was there because his kids gave the trip to him as a gift. It was that or a big-screen TV. He was happy with his choice. For Tom Turner, it was a birthday gift from his wife, David and Amanda

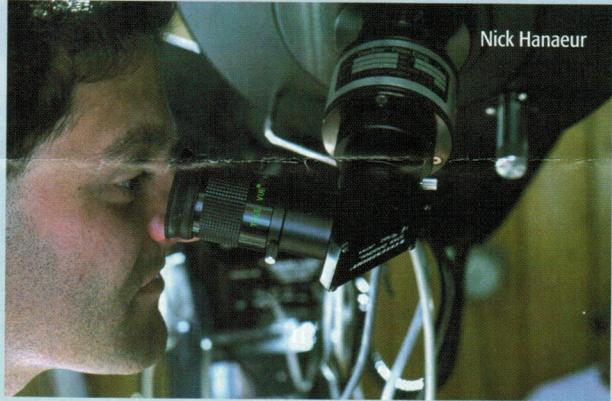
Pi, from Vancouver, sent their 14-year-old son to the teen astronomy camp in June. He came back and reported, "The sky is so different!" They said, "We came because our son loved it."

**Nick Hanaeaur**, a venture capitalist from Seattle, was on the mountain for a second time. He got his first camp experience thanks to his mother, who gave it to him as a gift. She thought he should spend some time out of the office.

Hanaeaur, a person who, McCarthy says, likes to delve into things deeply, says he was drawn to astronomy because of how much actual science an amateur can do. He points out, "You can't do particle physics as an amateur." Also, he likes how "astronomy and cos-

The Mt. Lemmon observatory is about 45 miles north of the UA in the Catalina Mountains. The 20-acre site was formerly a radar base of the Air Defense Command and was converted into an observatory for infrared astronomy in October 1970.

The summit area itself is federal land and is maintained by the UA for astronomical research and science education. The altitude is 9,157 feet.

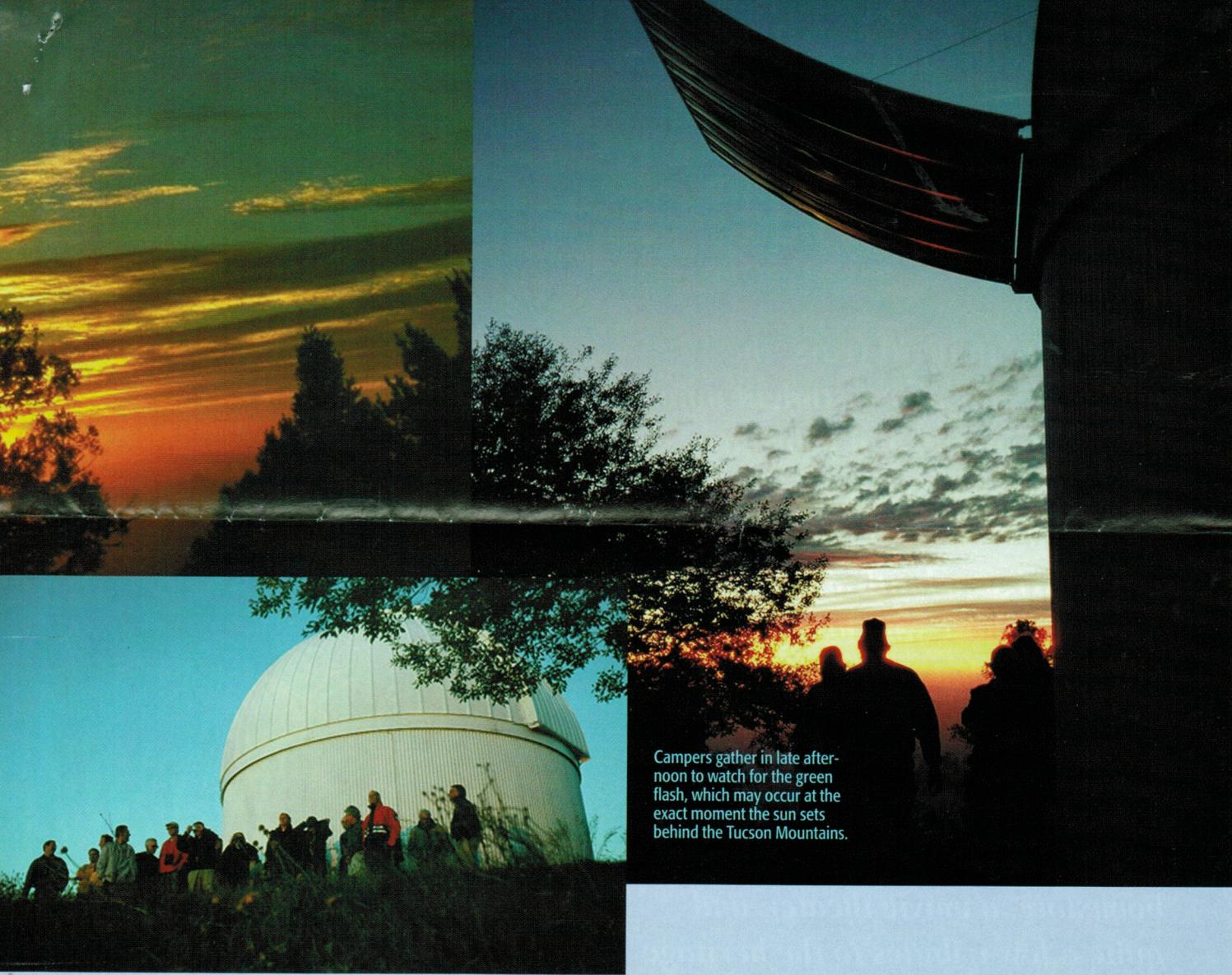


Nick Hanaeaur

mology address the 'big' questions — where do we come from and where are we going? — in a more direct way than most of the other physical sciences."

And, he says, "Don is a treasure. I and all of the other campers feel privileged just to spend time with him."

Just as rewarding for McCarthy are the long-term effects that Astronomy Camp has on others, especially some of his teen campers. For example, two are



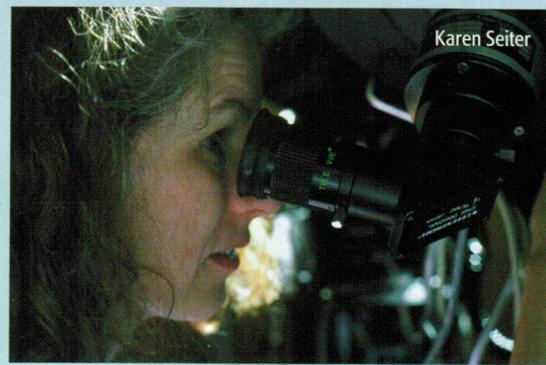
currently enrolled at the UA. Another is completing his Ph.D. in astronomy at the California Institute of Technology. Henry Row was a member of the first advanced camp. He has already completed his Ph.D. at the University of California, Berkeley.

**Karen Seiter**, a first-time camper, is an M.D. and an associate professor of medicine at New York Medical College in Valhalla, N.Y. She's also a hematologist and oncologist, specializing in clinical trials in adult patients with acute leukemia.

Seiter says she purposely started taking college courses in subjects that had nothing to do with her field of research. She became seriously interested in astronomy about three years ago after a particularly inspiring professor taught one of those

courses. After that, she bought a telescope. Since then, she says, "It's gone from an interest to almost an obsession."

Says Seiter, "I've always had an interest in science so it's sort of natural to have an interest in astronomy. But there



is the more philosophical angle. I go to work every day and I deal with dying cancer and leukemia patients. It makes you ask, 'What does it all mean?' Astronomy gives you a different perspective

on what we do on a day-to-day basis. It makes you realize that we are a very small part of a much bigger entity that we don't understand."

At Astronomy Camp, Seiter found herself in a new universe in more ways than one. "I get upset if I go to a hotel and they don't have a bathrobe and slippers. I'm kinda spoiled and to go and live in military barracks for a few days was very different. It was great to escape the real world and be on this mountain out in the middle of nowhere with this incredible sky that you could never see in a million years in my neighborhood. I'm lucky if I can see three stars. The only things I see in the sky are planes going into LaGuardia. To go out there and look up and see millions of stars is just incredible."

*You can learn more about Astronomy Camp at [ethel.as.arizona.edu/astro\\_camp](http://ethel.as.arizona.edu/astro_camp).*