Figure 6. A section of the platform of the Arecibo telescope in 1969. The carriage house is at high zenith angle, and the extendible boom is visible at the far left (Terzian & Parrish, 1970).

fringes of > 1 *flux unit* amplitude for 12 sources, seven of which (including those hardy annuals CTA102 and 3C454.3) appeared unresolved at < 20 milliarcsec. These were also the heroic days of radio-spectrum determinations, with flat and complex spectra for extragalactic sources having been revealed during the previous decade. Jauncey, Neill, and Condon (*ApJ*, *162*, L31, 1970) measured 111-, 318- and 430-MHz flux densities for 47 Ohio sources with "unusual" spectra to fill in their low-frequency behavior. Extending the spectra to over two decades of frequency showed the unexpected complexity of many of them. These observers pointed out that while the objects for which they derived flat spectra could represent single components with a relatively low value for the electron-energy distribution index, γ, they could also be superpositions of components with normal nonthermal spectra that become optically thick at different frequencies. They used the then-existing VLBI results to back the latter notion; early intuition of the "cosmic conspiracy" theory, indeed.

Finally, our fancy was caught by the fact that it is 25 years since Arecibo managed to observe the Orion Nebula, an option that we won't be able to offer present -day users, even after the current upgrade! Terzian and Parrish (*Ap. Lett.*, *5*, 261, 1970) used a specially constructed mechanical system to observe the Orion Nebula at 74, 111, and 196 MHz. An extendible boom on Carriage House 1 could carry their feeds out to 34 feet beyond the center of the Carriage House, extending the sky coverage to -5^{o} 54' < dec < $+42^{o}$ 36' (Fig. 6). The feeds at the three frequencies were concentric pairs of Yagi antennas, and the observations finally enabled the low-frequency spectrum of the Nebula to be well determined (Fig. 7). While recombination-line measurements had yielded electron temperatures of 11,000 K for the "central" part of the region, the new continuum spectrum represented the lower-density extended component at the lowest frequencies and gave a temperature closer to 5,000 K, indicating that the outskirts of the Nebula are considerably cooler than is the center.

Agent 007 Comes to the Observatory
Daniel R. Altschuler

In late January, after several months of negotiations related primarily with legal matters and questions of what is allowed and what is not, we were visited by the staff of EON Productions, the company that is producing the new Bond movie. This, the seventeenth in the series, will be called *Goldeneye* and is directed by Martin Campbell. It features Pierce Brosnan (ex-Remington Steele) as the new Bond, James Bond that is. Several important scenes occur at a location that

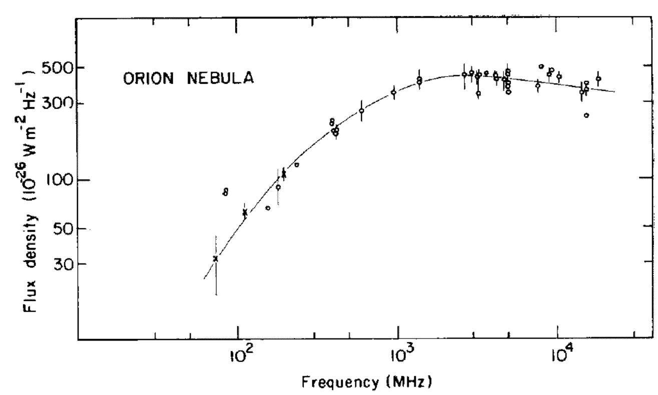

Figure 7. The radio continuum spectrum of the Orion Nebula including the Arecibo points at 73.8, 111.5, and 196.5 MHz (shown as crosses).

Photo courtesy of EON Productions.

Under our seaweed-festooned ground screen, Bond and friend rush to save the world.

Activity can be subdivided into two clear categories: preparation, which consumes 99% of the time, and action. Nevertheless we had to work hard to help coordinate all activities, and make certain that we were under control at all times. At some point there were about 80 people on site, with over 30 vehicles, and a lot of equipment and paraphernalia, including a fire truck to wet down a scene, several motor homes, drums containing real algae to hang from different places, pneumatically operated dummies to slide down the reflector, and a local station news helicopter painted in army camouflage colors for the occasion.

Most of the action was performed by doubles who had to run all over the place while being shot at with AK47s, had to fall down stairs and run up the catwalk, all this for several "takes." These were real guns, with, of course, special blanks which when fired produce extra-long (in the time domain) flashes so that they will register well on the film running at 24 frames per second. The fact that these were real guns meant that a small police contingent was also part of the crew, keeping a close watch on who handled

looks very much like our observatory but is, of course, somewhere else—Cuba, I believe. EON works out of Leavesden Airfield, near Watford, England (P.O. Box 007). There, a huge hangar that used to be a Rolls Royce factory, has been converted to a studio complete with flight simulators, room for Russian tanks to drive over cars and for the construction of a sixty-foot scale model of our site, and several replicas of parts of our telescope. The need for a model arose from our insistence that we would not let them blow up the real thing. The budget for the production is $50,000,000, which is about half of the cost of building a new Arecibo-type instrument!

The filming activities were supervised by several of our staff, principally Rey Medina, Tony Acevedo, and Rey Velez (and a cast of tens). Having spent a good fraction of my time observing what was going on, I can attest that filming a movie is as exciting as watching paint dry.

Photo courtesy of EON Productions.

Filming stunts on top of the platform.

them. Brosnan and the leading lady (Izabella Scorupco) spent a total of 4 hours on site and 4 minutes acting. They had to run along the rim road for 50 yards (see first photo on previous page) until they located an opening to slide down the dish. This is where the dummies were supposed to take over. The tough director of the first filming unit was satisfied that he had gotten what he wanted after 9 takes. A very tired Bond hurried back to his air-conditioned motor home for the ride back to San Juan.

It is all over now and what remains are some memories, several new friends, and a donation by EON to pay for part of the cost of the elevator that goes into our new visitor center. I wonder if this elevator should go between floors "006" and "007"? You will be able to see the results of all this by December when *Goldeneye* is supposed to be released.

Comings and Goings

An Astronomer is Born

Carmen Pantoja, who had been an Oklahoma University graduate student, resident at the Arecibo Observatory since 1992, has just received her Ph.D. Carmen first became interested in an astronomy career while a student at the University of Puerto Rico-Rio Piedras, where one of her physics professors was Daniel Altschuler, the current director of AO and her thesis advisor. She has accepted a post-doctoral position with John Huchra at the Center for Astrophysics of Harvard University, where she will continue her research in the Zone of Avoidance and embark on new projects.

We congratulate Carmen and wish her the best of luck as she departs for Massachusetts. However, we are sad to see our friend (and Editorial Assistant) go—her mastery of FrameMaker will be especially missed by us, the hapless Editors.

Photo by Tony Acevedo.

Edith Alvarez serves up some cake for Carmen Pantoja at her post-defense party.

Bob Thomas Departs

Arun Venkataraman

It is not quite six years since Bob Thomas joined the AO Computer Department as a Senior Software Specialist. His departure in May leaves a sizable void in our small staff. Bob took on the not-always-pleasant tasks of network administration with characteristic vigor and dedication, and will be especially missed by the summer students this year. We wish Bob all the best in his future travels, and trust he will not forget his (Puerto Rican) Spanish.

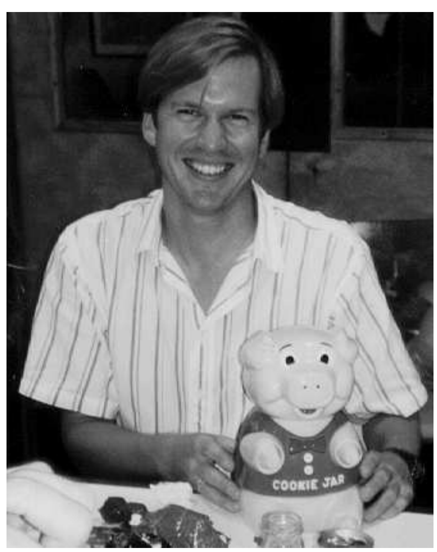

Photo by Susan Nossal.

Bob Thomas and his alter ego.

Swiss Students Visit

Susan Nossal

Approximately 30 Swiss physics students visited the Arecibo Observatory on March 10, 1995 as part of a class trip to Puerto Rico. These students are advanced undergraduate students at the Swiss Polytechnic Institute at Lausanne. The trip was led by Prof. Christian Grüber. While at the observatory, the students toured the facilities and attended presentations concerning astronomical and atmospheric research at the observatory.

Mini-Workshop on Pulsar Sciences with the Upgraded Arecibo Telescope

Kiriaki Xilouris

The Arecibo upgrade project is now well advanced, and first light is expected late in the first half of 1996. It has been almost a decade (October 1986) since the last workshop on science with the upgraded telescope. We have organized a small workshop at the observatory this fall (8-10 September), focused on the current trends in pulsar research, the science to be pursued with the upgraded telescope in this field, and the instrumentation needed to exploit the upgraded telescope to the full extent.

We are bringing together at Arecibo a limited number (20) of potential telescope users in the field of pulsar research for a two-day mini-workshop aimed at delineating the needs arising from pulsar research as perceived nine years after the first upgrade science meeting. The following topics will be discussed:

- Current trends in pulsar research and the implications for Observatory facilities.