

## James Harvey, PhD, 1976



### **What influenced your decision to attend graduate school at OSC?**

I graduated from Wayne State University in Detroit, Michigan, in 1966 with a MS in Physics. In 1967 I was working in the Applied Optics Laboratory at Ford Motor Company, and I met OSC Professor Robert Noble at the Annual Meeting of the Optical Society of America (OSA) in Detroit. He was handing out glossy brochures for the Optical Sciences Center in Tucson. In addition to the brochure, he left me with an application for a Graduate Research Assistantship at the University of Arizona. I was quite enthralled with both the description of the graduate program in optical sciences and with the description and photos of life in the great southwestern desert. I went home from the convention and asked my wife, Marva, 'What would you say if I told you that I was going to quit my job and go back to graduate school in Arizona?' Her response was, 'It's okay with me, but I'm going to quit my job and start a family, regardless!'

### **Which classes did you find most enjoyable? Which ones did you find most difficult?**

My most enjoyable classes were Fourier Optics and Applications of Coherent Optics with Jack Gaskill, Radiometry and Infrared Systems with Bill Wolfe, and five different courses, including an Optical Testing Lab course, with Roland Shack.

### **Was there an individual (professor, advisor, staff, friend, family member) who played a particularly important role in your education?**

I had three tremendous mentors who played a major role in my education, my life, and my career. Jack Gaskill was the best instructor I ever had, Bill Wolfe hired me as a full-time research associate just as I was finishing up my course work, and Roland Shack was my dissertation advisor.

### **What was your research while attending OSC?**

I first worked on an ionic polishing project for Bob Noble, later worked on several research projects for Bill Wolfe (Large Aperture, Wide-angle Infrared Scanning Concepts and Index of Refraction Measurements of Infrared Optical Materials), and finally, my dissertation topic was Investigation of Light Scattering from Optical Surfaces with Roland Shack.

### **What was the cost of rent in Tucson while you were in school?**

Before moving to Tucson, Marva and I studied the Apartments for Rent in the classified ads of the local Tucson newspaper, and thought we could rent an apartment near campus for about \$100/month. In July 1968 we drove to Tucson to find and rent an apartment, and discovered that decent apartments near campus were renting for more than we had anticipated. With my yearly research assistantship stipend of \$2,700, we would deplete our savings long before I finished my PhD. So, instead, we ended up buying a nice little 3-bedroom house in the Flowing Wells community for \$12,400, and our total monthly payment was \$96/month.

### **If you owned a car during graduate school, what year and model was it?**

We moved to Tucson in 1968 in a 1964 Ford Galaxie (added an after-market air conditioner before heading for Arizona). I immediately bought a Yamaha motorbike to drive to and from school so Marva would have the car at home for her use. A few years later I saw an old Ford Motor Co. Edsel sitting on blocks in a back yard in South Tucson. I stopped and asked the gentleman how much he wanted for it. I paid \$150 for it, bought a battery to get it started, had the brakes repaired, drove it for two years, then sold it for \$500.

### **What was your favorite restaurant/student hangout near campus?**

During my first two years as a graduate student at OSC, our budget didn't allow for much dining out. However, at the end of each semester, Marva and I would treat ourselves to a dinner out for each 'A' I received. We liked to go to the Pinnacle Peak Steakhouse with Greg Sanger and Len and Nancy Mott.

### **What did you do for fun during your time in graduate school?**

Picnics and hiking in the mountains (or the desert, depending on the season), usually with Brian and Annie Hooker, Len and Nancy Mott and Greg Sanger. Also, chasing across the desert trying to photograph sunsets silhouetted behind saguaro cacti. Occasionally, a motorbike ride up the mountain or through the desert with Len Mott and Greg Sanger.

**What was most memorable about your commencement ceremony?**

We had already moved to Florida for me to start a new job, and I did not return for my graduation (regretfully, now).

**At the time of your graduation, what were the most sought-after jobs/most popular industries/most popular companies?**

In the fall of 1976, the U. S. Air Force High Energy Laser Program (pre-Reagan 'Star Wars') was just heating up. The big aerospace companies were scrambling after 'optics and laser' talent. I went on a whirlwind of interviews and managed to get five job offers in-hand before having to commit to a particular job.

**What was your first job after graduation?**

High-power gas dynamic lasers were being developed that were powered by jet engines. I accepted a job with Pratt & Whitney Aircraft Company in West Palm Beach, Florida, where I worked for a group developing high-power deformable mirrors for adaptive optics Wavefront Error Correction Systems (WECS). This group would later become part of the United Technologies Research Center.

**What was the most significant world event during your time in graduate school. How were you affected by this event?**

The OPEC inspired gasoline shortage of 1973. Gasoline prices more than doubled from ~30¢/gallon to over 60¢/gallon, almost overnight. I was inspired to sell my 1972 LTD Ford station wagon with a 400 cu in engine and buy a 1969 Ford Falcon station wagon.

**Was there a campus or community event in Tucson that was especially important to you?**

The Fiesta de Los Vaqueros Tucson Rodeo and Parade, and the annual OSC Fall Picnic at Ft. Lowell Park.

**What advice would you give to this year's graduating class?**

I wouldn't pretend to be qualified to give them advice, however, I would wish them to be blessed with a love of optical sciences and engineering, and a job that makes them wake up each morning looking forward to going to work.

My eight years as a graduate student at OSC (5 years of which I was a full-time research associate) were some of the most productive years of my career. I not only earned a PhD in optical sciences —which kick-started a very satisfying career in applied optics, including 21 years in academia at the University of Central Florida (CREOL)—but, our three wonderful sons were born during that eight years in Tucson.