

James Breckinridge, PhD, 1976



What influenced your decision to attend graduate school at OSC?

I wanted to study how to build optical instruments for astronomical research. I built (ground and polished the mirror) my first telescope when I was about 12/13 years old and used it to make measurements of variable stars. At 14, I was the youngest member ever of the American Association of Variable Star Observers (AAVSO).

I had built and used astronomical instruments at Lick Observatory, Mr. Hamilton, California, and at Kitt Peak National Observatory (KPNO Solar division). I worked for five years after graduating from Case Tech, Cleveland, Ohio, in 1961, before enrolling in graduate school at OSC. My first classes were Steve Jacobs' laser class and Bob Noble's class in optics.

I have always enjoyed physics when you can 'see what you are doing.'

What do you wish you would have known your first day of graduate school? Was there anything you wish you had done to prepare more for graduate school?

I pretty well had it all together. But, I started in astronomy and wasted a year plowing through a stellar atmospheres class.

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

Most enjoyable were Steve Jacob's Laser Lab class and Roland Shack's Interference, Coherence and Diffraction class. The most difficult was Methods in Theoretical Physics (in the physics dept) and Statistics (in the electrical engineering dept).

The job I had at KPNO paid me enough money that I could continue in school almost indefinitely, learning more and more optics, electrical engineering and physics. At the time I was in graduate school, 60 units were required to graduate. When I graduated, I had over 120 units.

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

Professors Roland Shack and Aden Meinel and classmate Jim Harvey.

What was your research while attending OSC?

MS—Polarization properties of large aperture astronomical diffraction gratings.

PhD—Development of the coherence interferometer and its applications to imaging through atmospheric turbulence and measurement of the angular size of solar spiculae seen at the limb of the sun.

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

My wife, Ann, and I rented an apartment for \$125/month—about 30% of my salary.

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

1964 Mercury Comet.

What was your favorite restaurant/student hangout near campus?

Shakey's Pizza at Craycroft/Speedway.

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

Not much. I was married with two small children.

What was most memorable about your commencement ceremony?

There was a large number of people in attendance; it was hot; and it was long. It took us almost an hour to process in! The highlight was my name being called out to the thousands of strangers gathered.

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

CAD ray-trace trace engineers and end-to-end optical system engineers were being hired by Aerospace and government defense contractors.

What was your first job after graduation?

Aerospace scientist/engineer at NASA/JPL.

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

The Arab oil embargo and the Vietnam War.

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

No.

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

Go on lots and lots of interviews to polish your interviewing skills for the job you really want. It will also be the only time you can see everything going on inside a company. Go for the most interesting job, not necessarily the highest paying. There may be a reason why they need to pay so much to find anyone to take the job!