



# Sloan Career Cornerstone Center

## Profiles of Materials Science and Engineering Professionals



**Carol Handwerker**

**Chief of the Metallurgy Division  
National Institute of Standards and Technology  
Gaithersburg, MD**

### **Education:**

1973 - BS in Art History, Wellesley College  
1977 - BS in Materials Science & Engineering, MIT  
1978 - MS in Ceramics, MIT  
1983 - PHD in Ceramics, MIT

### **Job Description:**

Research & Development

### **Advice to Students:**

"Look at every job as an opportunity. Have a positive attitude. Find a subject area that is exciting to you, and you'll find that the rest is easier."

### **Video Transcript 1:**

"I've been really lucky. NIST and the management of the Material Science and Engineering Laboratory, where I am, has really made my transition from being more of a bench scientist to a technical leader to a manager -- pretty easy. They have tried to help me along the way and basically have been willing to change my job and change my role, and I'm willing to accept more and more managerial responsibilities. So in some ways it was actually pretty easy a transition, going from bench scientist to management. The first thing I did was I put together some interdisciplinary teams and, you know, that's sort of the first step at management, even if there isn't any managerial responsibility. And then, I was asked for a while, maybe four or five years, if I wanted to have any official managerial responsibility, and for about five years I declined. And then I decided that I really wanted to have a broader role in defining even larger programs. So as soon as I told them that I was interested in doing that, then they found ways to help me move into it. Now, that doesn't mean that the reality of it was quite as easy as I've made it sound. I do miss bench-level science and if I didn't love it so much, I don't think I would be here, because -- well, first of all, I like being at -- at a government laboratory where we have this clear mandate to help industry, but we don't have to work on, you know, the industrial fire fighting that has to go on. We can, in many ways, take a longer view."

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### Video Transcript 2:

"Maybe it comes back to my childhood when all the kids in the neighborhood would get together and decide that we were going to, you know, put on a little variety show in the summer. You know, it's almost like Mickey Rooney and Judy Garland sort of get together and say, "'Come on kids, let's put on a show!'" And that's, in a way, sort of the feeling I get when I put these teams together and I'm also a part of the scientific team as well as the management team. And we can see if we can really come up with an answer to a particular problem. "

### Video Transcript 3:

"I have an abiding fondness for the American Ceramic Society. In many ways I consider that actually -- and TMS -- those two -- my home societies. The American Ceramic Society in particular is one that I have remained active in. I'm a fellow of the American Ceramic Society. I'm the associate editor of their journal. I just served as the chair of the basic science division of the Ceramic Society and I'm organizing a symposium next year, as well, for the society. That's where a lot of the folks that I graduated with are still active and really, that was where I first learned of some of the new and exciting topics there were in material science and engineering."

### Interview:

#### - Typical Day

7:00 AM - Wake up, have breakfast with the kids  
8:00 AM - Pack lunch, water garden, leave for work.  
9:00 AM - Check e-mail & schedule, answer phone calls.  
10:00 AM - Program planning or review at my desk unless  
11:00 AM - Fighting fires  
12:00 PM - Exercise class, pump iron or ice skating.  
1:00 PM - Eat lunch at my desk while I check e-mail, etc.  
2:00 PM - Time for a little science: work on technical papers with co-authors.  
3:00 PM - Group leaders - personnel issues.  
4:00 PM - Meeting with ATP program manager.  
5:00 PM - Last go-round with e-mail & phone calls, meeting with my boss.  
6:00 PM - Check priorities for tomorrow, leave for home and help kids with homework.  
Evening - Take walk around neighborhood, go swimming, read or watch TV with kids.

#### - Career Experience

3/96-Present - NIST, Division Chief  
10/94-2/96 - NIST, Group Leader  
2/86-9/94 - NIST, Metallurgist  
1/84-1/86 - NIST/NRS, Post Doc  
2/83-12/83 - MIT, Post Doc

#### - Internships & Coops

1975-1977: Researcher, Undergraduate Research Opportunities Program, MIT

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## **- Honors & Awards**

NRC/NBS Postdoctoral Appointment, US Dept. of Commerce Bronze Medal, US Dept. of Commerce Silver Medal, Fellow, American Ceramic Society

## **- Best Preparation:**

A solid background in applied mathematics opened more doors for me than more qualitative information and skills I acquired. I wish I knew more math.

## **- Getting First Job:**

I obtained my first full time job after graduating from Wellesley College from a newspaper ad for a secretarial job at a small engineering company. I found a job as a secretary/bookkeeper/chemical engineer. The latter because of my high school experience in water pollution research.

## **- Advice**

Look at every job as an opportunity. Have a positive attitude. Find a subject area that is exciting to you, and you'll find that the rest is easier.

## **- Memberships**

- The Minerals, Metals & Materials Society, American Ceramic Society (also a Fellow)
- Institute for Interconnecting and Packaging Electronic Circuits

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