
CONNECTIONS

The EERI Oral History Series

**William A.
Anderson**

Robert Reitherman
Interviewer

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Earthquake Engineering Research Institute

Editor: Gail Hynes Shea, Berkeley, California, www.gailshea.com
Graphics: George Mattingly, Berkeley, California, www.mattinglydesign.com;
Book design: Laura Moger, Moorpark, California, www.lauramoger.com

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499 14th Street, Suite 320

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Tel: (510) 451-0905 Fax: (510) 451-5411

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The EERI Oral History Series

This is the nineteenth volume in the Earthquake Engineering Research Institute's series, *Connections: The EERI Oral History Series*. EERI began this series to preserve the recollections of some of those who have had pioneering careers in the field of earthquake engineering. Significant, even revolutionary, changes have occurred in earthquake engineering since individuals first began thinking in modern, scientific ways about how to protect construction and society from earthquakes. The *Connections* series helps document this important history.

Connections is a vehicle for transmitting the fascinating accounts of individuals who were present at the beginning of important developments in the field, documenting sometimes little-known facts about this history, and recording their impressions, judgments, and experiences from a personal standpoint. These reminiscences are themselves a vital contribution to our understanding of where our current state of knowledge came from and how the overall goal of reducing earthquake losses has been advanced. The Earthquake Engineering Research Institute, incorporated in 1948 as a nonprofit organization to provide an institutional base for the then-young field of earthquake engineering, is proud to help tell the story of the development of earthquake engineering through the *Connections* series. EERI has grown from a few dozen individuals in a field that lacked any significant research funding to an organization with nearly 3,000 members. It is still devoted to its original goal of investigating the effects of destructive earthquakes and publishing the results through its reconnaissance report series. EERI brings researchers and practitioners together to exchange information at its annual meetings and, via a now-extensive calendar of conferences and workshops, provides a forum through which individuals and organizations of various disciplinary backgrounds can work together for increased seismic safety.

The EERI oral history program was initiated by Stanley Scott (1921-2002). The first nine volumes were published during his lifetime, and manuscripts and interview transcripts he left to EERI are resulting in the publication of other volumes for which he is being posthumously credited. In addition, the Oral History Committee is including further interviewees within

the program's scope, following the Committee's charge to include subjects who: 1) have made an outstanding career-long contribution to earthquake engineering, 2) have valuable first-person accounts to offer concerning the history of earthquake engineering, and 3) whose backgrounds, considering the series as a whole, appropriately span the various disciplines that are included in the field of earthquake engineering. Scott's work, which he began in 1984, summed to hundreds of hours of taped interview sessions and thousands of pages of transcripts. Were it not for him, valuable facts and recollections would already have been lost.

Scott was a research political scientist at the Institute of Governmental Studies at the University of California at Berkeley. He was active in developing seismic safety policy for many years, and was a member of the California Seismic Safety Commission from 1975 to 1993. Partly for that work, he received the Alfred E. Alquist Award from the Earthquake Safety Foundation in 1990.

Scott received assistance in formulating his oral history plans from Willa Baum, Director of the University of California at Berkeley Regional Oral History Office, a division of the Bancroft Library. An unfunded interview project on earthquake engineering and seismic safety was approved, and Scott was encouraged to proceed. Following his retirement from the University in 1989, Scott continued the oral history project. For a time, some expenses were paid from a small grant from the National Science Foundation, but Scott did most of the work pro bono. This work included not only the obvious effort of preparing for and conducting the interviews themselves, but also the more time-consuming tasks of reviewing transcripts and editing the manuscripts to flow smoothly.

The *Connections* oral history series presents a selection of senior individuals in earthquake engineering who were present at the beginning of the modern era of that field. The term "earthquake engineering" as used here has the same meaning as in the name of EERI—the broadly construed set of disciplines, including geosciences and social sciences as well as engineering itself, that together form a related body of knowledge and collection of individuals that revolve around the subject of earthquakes. The events described in these oral histories span many kinds of activities: research, design projects, public policy and broad social aspects, and education, as well as interesting personal aspects of the subjects' lives.

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Foreword

The interviews I conducted with Bill Anderson for this volume began in late 2006 and continued through 2010. The contribution of former EERI Executive Director Susan Tubbesing in reviewing the manuscript is acknowledged, along with the work of Gail Shea, consulting editor to EERI, who carefully reviewed the entire manuscript and prepared the index, and George Mattingly, who was responsible for the final page layout work for the publication. Eloise Gilland, the editorial and publications manager of EERI, assisted in seeing this publication through to completion. Dennis Wenger of the National Science Foundation was of assistance in providing support for this volume, which broadens the multidisciplinary breadth of the EERI Oral History series.

Robert Reitherman
Chair, EERI Oral History Committee
May 2011

Personal Introduction

I first heard about Bill Anderson when I was a graduate research assistant at the Disaster Research Center at Ohio State University in the mid-1970s. We all knew about Dr. Anderson. He was the intrepid researcher who had led DRC field teams into riot-stricken inner city areas to get interviews, the young guy who had experienced a meteoric rise in his career and was treated as a peer by Russ Dynes, Henry Quarantelli, and Gene Haas, DRC's co-founder professors. All the students at DRC were aware of his research on the 1964 Anchorage earthquake, his dissertation, his numerous field experiences, and his articles and other publications. We knew that he had moved from Arizona State to take an important position directing research at NSF. Then, sometime in 1977, we were told that Bill, who was now program officer for one of our new grants, was coming to DRC for a visit. Naturally, like the other research assistants, I was terrified. *The* Bill Anderson was coming for a visit! What if I did or said something really stupid in front of this famous researcher and scholar whose agency had just given DRC a very substantial amount of money? What if the other students and I ended up looking like a bunch of idiots in the eyes of Dr. Anderson and NSF?

The dreaded-but-hoped-for day of that first meeting came, and finally we got the opportunity to meet Bill. To our vast relief, he was then essentially what he is now: a warm, wonderful, down-to-earth person who was genuinely interested both in our research and in us as individuals. Far from being the high-and-mighty expert peppering us with questions that seemed designed to make us look foolish—like so many other visitors we had encountered—Bill instead sought to get us thinking and talking about the topics we were studying, raise our confidence in our research abilities, and tell us about new career-advancing opportunities. On that visit, more than thirty years ago, our journey of friendship began.

Bill and I have quite a few things in common. He was originally from Akron, Ohio, which was famous for the manufacture of rubber and tire products, and I grew up in the nearby city of Youngstown, which at the time Bill and I first met was just beginning its decline from steel town to dot on a map of the rustbelt. Suffice it to say that neither place was exactly a garden spot. That may be one reason we found the Sunbelt cities of Phoenix and Los Angeles so

attractive early in our respective careers. We share a history of having been trained at Ohio State and DRC, and in addition to studying the social dimensions of disasters, we also have a common interest in social movements and collective behavior.

One thing we do not have in common, however, is race. As an African American, Bill has been a scholar-pioneer throughout his entire career, first at Ohio State and Arizona State, and later at NSF, the World Bank, and the National Academies. Anyone who is familiar with the demographics of the hazards and earthquake engineering communities understands what a unique space Bill inhabits. It is indicative of Bill's outstanding qualities as a human being that he almost never spoke about personal hurts he experienced by virtue of being part of an infinitesimal minority in those fields, but rather spent his entire career trying to remedy that situation by mentoring young minority scholars, both women and people of color.

What the engineering community might not recognize is how much of a role Bill played in this respect within his own discipline of sociology, which even today is scarcely an exemplar of diversity and equal opportunity. His work with the American Sociological Association in the initiation of its minority fellowship program was groundbreaking, and that program, which still exists today because it is still needed, went on to make major contributions to the diversity of the field of sociology and help produce many distinguished sociologists of color.

With respect to race and diversity, Bill's many achievements must be viewed in the appropriate social context. He began his professional career in the early 1960s, before the passage of the Voting Rights Act and the Civil Rights Act, when the Jim Crow laws were still in effect in the South and the system of racial segregation held sway nationwide. His career was launched through the study not only of major disasters like the 1964 Alaska earthquake, but also through research on the civil unrest that swept U.S. cities, campus protests against the Vietnam war, and movements sparked by the demise of colonialism. Historically speaking, it was almost unheard of at the time for African Americans to become leading scholars at major research universities, much less full professors while still in their thirties. That wasn't supposed to happen. That wasn't the way the deck was stacked. But, fortunately for us and for the field of hazards studies, history and biography turned out to be drastically misaligned in Bill's case.

Short-term thinking is one of the plagues of our time, but again fortunately, Bill is and has always been a long-term strategic thinker. For example, about two decades ago, Bill became very concerned about what he saw as the “graying” of the field of disaster research, particularly in the social sciences. Those who had established the field were getting older, and subsequent cohorts were getting smaller. If that trend were allowed to continue, there would soon be too few researchers to address an ever-growing number of research challenges, and the field would face a genuine sustainability crisis. To head off that crisis, Bill consulted with other senior researchers, including in particular Dennis Wenger, who was then director of the Hazards Reduction and Recovery Center at Texas A&M (and who subsequently succeeded Bill at NSF). The “Enabling the Next Generation of Hazards Researchers” program was the outcome of these efforts. Three multi-year “Enabling” mentoring cycles have now been completed, and thanks to the foresight of Bill, Dennis, and others, many talented junior faculty members at doctoral-level institutions have either entered the field of disaster research for the first time or received support to continue work they had already initiated.

Wherever Bill went, his expertise was sought out in the development of programs for institutional change, both within and beyond science and engineering. He was present at the creation of NEHRP and worked on the conceptualization and implementation of the multi-disciplinary earthquake engineering research centers and NEES programs at NSF.

The interviews in this oral history highlight the many other ways in which Bill was a visionary and institution builder within the organizations he joined, including the World Bank and the National Academies.

For decades, Bill advocated for multi-disciplinary, integrated research on hazards and disasters, and over time he played a pivotal role in bringing about that integration. Championing such collaborations was a difficult battle, and one in which Bill sometimes had few allies. That multi- and interdisciplinary research activities have become much more common and more widely appreciated in recent years is due in no small measure to Bill’s persistence and coalition-building skills.

My personal memories of our long friendship are rich and vivid: A U.S.-China workshop on

urban earthquake hazards in Kunming in the early 1990s, with Bill, Hank Lagorio, Chi Liu, Russ and Sue Dynes, Joanne Nigg, Barclay Jones, Marjorie Greene, and others. My husband Peter and I meeting up with Bill, Norma, and their daughter Candice in Rome a couple of years later, when a group of hooligans ran up and ripped off Norma's necklace while we were taking a late evening walk, causing some of us to go into fits of rage, while Norma took it all in stride, observing placidly that "it wasn't real gold anyway." Bill as an NSF program officer participating in more than two decades of annual Hazards Workshops in Boulder, which always took place just about the time NSF awards were being decided, when numerous grant applicants would hang around, watching for him and trying to appear cool and detached. Seeing successive groups of shy, intimidated graduate students warm to Bill's attention, kindness, and solicitude, just as I and my fellow research assistants had so many years before.

I have many fond memories of a trip I took with Bill to Japan in 1997. I was at the University of Delaware and Bill was still at NSF at that time, and we both received travel fellowships from the Japan Society for the Promotion of Science (JSPS) to visit universities and research facilities, talk with researchers, especially about the 1995 Kobe earthquake, and attend various meetings. We spent most of our time in the Kansai region, and during our visit we stayed at a pleasant but very Spartan ryokan in Kyoto. I think we drove our indefatigable landlady crazy, because even though she was always up at dawn cleaning and cooking and then had to manage the operations of the inn throughout the day, she also stayed up late into the evening to make sure the bathtub remained hot and to keep watch until all her guests had safely returned "home." Every day, after eating the superb fried-egg breakfast she prepared and setting out early for meetings and site visits, Bill and I would generally be busy all day, and then we would spend the evening hours dining and discussing a variety of research topics with Hiroyuki Kameda, Yoshiaki Kawata, Haruo Hayashi, and other researchers and their students. Sometimes when we returned for the night, we would find our innkeeper standing out on the street, seemingly waiting for us. On our last night in Kyoto, when we returned even later than usual, she was again waiting at the door. Bill had found an exquisite bouquet of fresh spring tulips, which he gave her, thanking her profusely for her hospitality. Such acts of kindness were typical for Bill.

Thanks to this wonderful series of interviews, which touches on so many topics, trends, events, and relationships over four decades, readers of this oral history will have the opportunity to see Bill Anderson's many sides: the consummate professional who cares deeply about advancing the science and practice of disaster loss reduction; the unfailingly supportive colleague and mentor; one of the key architects of our current science and engineering research infrastructure; and a loving husband and father. Bill is all those things, and much more.

Kathleen Tierney
Department of Sociology and Institute of Behavioral Sciences
Natural Hazard Center, University of Colorado
Boulder, Colorado
October 2010

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William A. Anderson

Growing Up in Akron, Ohio

That was a real turning point in my life, when Sam said, “When you go to college. . . .”

Anderson: I was born on May 28, 1937, in Akron, Ohio. My mother’s maiden name was Ruby Browner, and my father was William Warren Anderson.

For many years I thought I was a “Jr.” I recall giving my name as “William Anderson Jr.” when I was introduced. I thought that was a cool-sounding name. But I’m not a “Jr.,” because my middle name is different than my father’s. In fact it’s quite different—I think it’s something my father concocted. It’s Averette.

My paternal grandfather was also named William Anderson, but his middle name was also different, so although I was proud of having the same first and last name as my father and grandfather, it wasn’t a case of being William Anderson III. My father had five sisters: Margaret, Mary, Louise, Thelma, and Patricia.

I grew up in Akron, Ohio, and went to grade school, junior high, and high school there.

We lived on Lods Street. I was born in a house on a street about two blocks from where I spent most of my childhood. This was on the north side of Akron, which at one point had a lot of Italians,

but they had moved to another section of town, North Hill. We lived on the banks of the Little Cuyahoga River, a branch of the same river that runs through Cleveland. That river became newsworthy when many years ago it was said to have caught fire from all the pollution in it. As you probably know, Akron is about an hour's drive south from Cleveland.

Living With Grandparents

Anderson: My parents separated when I was very young. I have a sister, Janice, who is three years younger. We went to live with my maternal grandparents, George and Roxie Browner. They had migrated some years before from a small town in Georgia called Elberton. They came to Ohio during the great migration of blacks to northern cities prior to the Second World War, looking for jobs, greater freedom, and a better quality of life. Initially they went to Cleveland, as did some of my other relatives. My grandfather died when he was in his early 70s, and my grandmother in her late 80s, after spending most of their adult lives in Akron in the same house on Lods Street.

Reitherman: Have you been back to see the house?

Anderson: Sure. My oldest maternal uncle, Raleigh, lived there until 2006. We had what I thought was the nicest house in the neighborhood. Extremely well maintained. My grandmother had roses growing over the whole front of the house and a garden on the side and back.

My grandparents, George (papa) and Roxie (grandma), in addition to raising my sister Janice and me, brought up three other grandchildren at the same time, two sisters (Barbara

Jean and Bonnie) and a brother (Jimmy) who were children of our Aunt Louise—as well as raising six of their own kids, four girls (Sanoy, Ruby, Louise, and Lula Belle) and two boys (Raleigh and John Henry). Grandma was the central force in the family. She was quite a person. A wonderful person, an absolutely marvelous person. So in one sense, our grandparents became our parents. When my grandparents were at the time in their lives when they should have been relaxing a little after having reared their own children, including my mother and my cousins' mother, they took on the responsibility of raising five grandchildren.

The five of us who grew up together were essentially siblings. My grandparents weren't wealthy people by any stretch of the imagination. They were working people. Grandma worked as a housekeeper for a family for many years, and papa had a janitorial job in a large department store in downtown Akron. Yet they were able to take on the five of us and rear us, with modest financial contributions from their grown children.

Reitherman: You kids could have formed your own soccer team.

Anderson: Yes. [Laughter.] Of course, this was in the 1940s when soccer was uncommon in the U.S. I first played it in high school and none of us could figure it out. In terms of another physical education activity, I recall dreading the test we had all heard about waiting for us in high school—you had to climb to the top of a rope in our very tall gym and back down. When I was in Jennings Junior High School, after finishing at Bryan Grade School, we all heard, "When you go on to North High School, you'll have to face the coach. You'll

have to reach the top of the rope. If you can't, you'll lose face and everybody will know about it." I was small and wiry and had no trouble climbing the rope on the first try—I don't know why I ever worried about it.

Grade School

Reitherman: When you went to high school, you probably never took a course in your eventual specialty, sociology, because it would be rare for a high school to offer a sociology course.

Anderson: If you had asked me then what sociology was, I couldn't have told you. I don't believe I had heard the term, unlike psychology. Things have changed a little now. When my daughter Candice went to Paint Branch High School in Silver Spring, Maryland, there was a very popular sociology teacher on the faculty.

I was a good student, worked hard, and I really, really enjoyed school. I enjoyed teachers, and some of the best times I ever had were in school, right from the beginning. Our neighborhood was overwhelmingly black, so almost all the kids in our grade school were black. Maybe there were one or two white kids in the school. But up until the last year or so in grade school, all of the teachers were white. I recall when Mr. Chapman, a black man, was hired as the physical education teacher. I think he felt part of his job was to provide tough love. Maybe he felt he had a special responsibility to encourage us. He would make fun of somebody whose hair wasn't combed, but everyone liked him. I mention him because he later became one of the first black principals in Akron—quite a feat back then.

Another teacher I remember, in fifth grade, was Mr. Otto. He read to us, and after being in his class I became very interested in reading. I remember buying issues of—what was the magazine, *Saturday Post*? I got that magazine because it always had two short stories in it.

Reitherman: It was the *Saturday Evening Post*. My family had a subscription to that when I was a kid, but I recall the cartoons in it more than the literature.

Anderson: Developing an interest in reading was important for me. If you can't read and don't enjoy reading, you can't learn much, and you can't really write much if you don't read much, so Mr. Otto had a big effect on me.

Reitherman: Do you remember what you actually wrote with in grade school—pencil, ballpoint pen, fountain pen?

Anderson: In grade school, we still had inkwells in our desks for dipping pens into. The desks were bolted to the floor in neat rows. Then they invented the ballpoint and they got rid of the inkwells.

As I went further in the school system, I was exposed to more diversity, with increasing numbers of white students in junior high and then high school. We lived in a black neighborhood, which was not uncommon, but in the larger Akron setting there was a racial mixture.

Influence of Sam Barner

Anderson: One of the wonderful things that happened to me when I was growing up was having a family friend named Sam Barner. Sam loved to read; he was always reading

newspapers. He was one of the significant black businessmen in Akron. He owned a hotel and a bar, where some of my relatives worked from time to time. We became very good friends, apart from his being a family friend. He would tell me to come around to show him my report card. He would look at it carefully and ask me about my classes and tell me I was doing well. You have to understand that my grandparents never finished high school, nor did my mother, maternal aunts or uncles. It's difficult sometimes to understand the value of academics if you haven't had a chance to experience it yourself. There were high school graduates on my father's side of the family, though, and one of his sisters, Aunt Thelma, attended the University of Toledo.

But Sam came into my life at just the right time. I recall way back in grade school Sam saying, "When you go to college..." I didn't know what college was; I had never heard anybody in my family talking about college. That was a real turning point in my life, when Sam said, "When you go to college..." In my mind was the thought: if Sam assumes I'm going to college then I'm going to college.

Even though it was a northern city, Akron had a mixture of segregated and integrated circumstances in the 1940s and 1950s when I was growing up. This was, of course, before the emergence of the civil rights movement, which eventually fostered major changes throughout the country. For example, we had some black bus drivers whereas some other cities even in other parts of the north didn't; I already mentioned the rarity of black teachers back then. The YMCA was also a mixture of segregation and integration. Black kids could swim at the

pool and play basketball with others, but the summer camp was segregated.

Reitherman: I'm reminded of what a social psychology professor, Thomas Pettigrew, said in a class I took as a freshman: "It's not logical, it's psychological."

Anderson: I have no idea what the logic was. In any event, black kids were allocated the last week of the summer for camp—not the most desirable time because it was already getting cold at night. But the camp was marvelous. Camp Y Noah was on a beautiful lake and had horses and nice cabins. We took what was available, and we enjoyed it very much. I say all this just to come back to Sam. He paid for me to go to camp each summer. It got me out of the neighborhood, to see some nature, travel a little, see kids from all over Akron. It may seem like two small things—the way he gave me a vision about pursuing my education, and how he sent me to camp—but they were big influences on me.

So now, every year, I always donate to programs to take kids out of the city to send them to summer camp, thinking about Sam.

Sometime after I became a professor at Arizona State University I visited Sam and told him how important he was in my life. And he had no idea—no idea at all. He had helped me just because he was a nice person. He was so touched he started crying. I think about Sam a lot.

My grandmother was also supportive of my desire for more education, though she didn't really understand what education was all about. I worked for a year and a half saving up money after high school to go to college, but

told her I had changed my mind because she needed me to stay home and help out financially. She said, “Bill, that’s not what I want you to do. You go to college.” She was very happy when I graduated from college, from the University of Akron, which was then a small municipal school and is now a large state university.

When I told her I had a bachelor’s degree and wanted to go on to get a master’s degree at Kent State University, she asked me, “Bill, what is a master’s degree?” I tried to explain and she shook her head, saying, “Okay, if that’s what you want to do.”

When I attended the University of Akron I lived at home, as I did when working on my master’s at Kent State University. After I earned that degree, I taught for a year as an instructor at Kent and then told my grandmother I was going on to get a PhD at Ohio State University. She said, “Bill, what is that?” And she said again, if that’s what I wanted to do, she supported it. Later, she would tell friends that her grandson was getting a doctorate at Ohio State and from their reaction, she could tell how important this was.

An Undergraduate at the University of Akron

The early social science research on disasters, spearheaded by the disciplines of geography and sociology, hadn't yet become well established by the 1950s.

Reitherman: You were at the University of Akron from 1956 to 1960. Did you go there straight from high school?

Anderson: No, I graduated from high school in January of 1955. My school counselor told me I had enough credits to graduate a semester early. I loved high school and didn't want to leave it, so in a way I wished he hadn't let me know I had the option. The University of Akron was not going to be very expensive, but I still needed to save some money, plus contribute to my family's income. I worked as a janitor, silkscreen printer, various jobs, for a year and a half. My sister received some Social Security money when my father died. I think I had a few months of payments until I reached 18. But my sister, three years younger, was still receiving these small Social Security checks and she loaned me the additional money I still needed so I could start at the university in the fall of 1956.

Majoring in Sociology

Reitherman: The University of Akron was where you started becoming interested in sociology. How did that happen?

Anderson: Like a lot of young people, I didn't know what I wanted to do. If you had asked me what kind of job I wanted, I would have said I wanted a white-collar position. I simply wanted to wear a tie to work. Akron at that time was a huge producer of tires—Firestone, Goodrich, Goodyear, and other rubber companies were located there. A lot of the high school students before or after graduation would go straight to work at one of the rubber factories in Akron, make good wages, and be able to buy a house and a car. I was too small to do the physical labor in the factory—I only weighed about 105 pounds back then. Besides, I just knew I wanted a white-collar job, not a factory job.

I started to major in psychology, but I didn't like the psychology faculty members. It was a small university, only 2,500 students at the time, with a small faculty, only about three in that department, and I decided I didn't want to study under them.

I took a sociology class from a young woman with a master's degree, about twenty-five years old, who was a dynamic teacher. That was my earliest exposure to sociology and it was a very positive experience. There were two other members in the department and the chair, Professor Charles C. Rogler, was also very good. I liked the subject matter. I liked to do research and write papers.

I couldn't type yet; I taught myself that skill later on when working on my dissertation. So

I wrote my senior thesis in longhand and then had a friend type it for me. For my sociology degree I had to go out and do some research and write it up as a senior thesis. I was working twenty hours a week as a janitor for the University, working my way through school. Since I knew all the janitors on the campus, I interviewed them about their occupation and their attitudes toward their work, which is one of the traditional subject areas in sociology, the sociology of work.

I had to present that senior thesis to the sociology faculty and the other graduating seniors in the department. My first instructor in sociology, whom I mentioned earlier, was there, and when we were having a conversation about her upcoming marriage she said to me, "You know, you're probably going to marry someone who is college educated." I hadn't even thought about getting married, but it struck me that she had an insight on what might happen to me, about my future wife, even something about what would affect a future child of mine. It really made me think.

Reitherman: That was a sociologist's insight that another sociologist could appreciate. Sitting next to a person you know in terms of personal traits but also noting the significance of social characteristics — religion, occupation, education, and so on. Perhaps we all start out psychologists and philosophers, meaning that we are preoccupied with our internal selves when we're young, and as we mature we also become sociologists, realizing our social traits and external interactions also mold us.

Anderson: Exactly. And that statement, "You know, you're probably going to marry

someone who is college educated,” came true when I married my wife, Norma.

In my senior year I didn’t know what I was going to do. I was thinking of maybe becoming a high school teacher, so I took a few extra courses in education, just so I had a profession if that was the end of my college education. I went into a seventh grade classroom to do my student teaching. Boy was that hard! I was quite young, and looked younger, about as young as the students. Now I was all of about 110 pounds, no facial hair yet. That experience was enough to make me decide not to teach in junior high.

Edgar Toppin, First Black Professor at University of Akron

Anderson: In my senior year, a black professor, Professor Edgar Toppin, the first to teach at the University of Akron, joined the faculty of the history department. While the faculty had been all white up to then, African-American students had a strong presence in the student body. The fraternities and sororities were segregated. A few years earlier they were all white, then by my time one black fraternity and one sorority had been established. I felt pretty comfortable there at the university, all in all, but it was still somewhat of a segregated era in the 1950s.

The impact of that black professor, Dr. Toppin, was profound. He had come from a historically black college in the South. In those days, you would learn about black history at those colleges, because the professors were black and interested in that history. You wouldn’t learn about black history at the majority universities because the professors were white and hadn’t studied that subject. Professor Toppin

started a Sunday lecture series in a community center downtown—they were mesmerizing, well-attended lectures. He was only in his mid-thirties. It turned out a little later that he had an effect on my life in making me think about going on to graduate school.

Short History of Social Science Study of Disasters and Hazards

Reitherman: Before we leave the time when you were an undergraduate at the University of Akron and started graduate school in 1960 at Kent State University, let’s discuss the subject of disasters and sociology, which was soon to be such a big part of your career. At this point in this oral history, you are becoming a sociologist, but as an undergraduate, did you also have any exposure to the disaster subject?

Anderson: No. No courses, no mention of that theme in any of my courses.

Reitherman: And let’s benchmark the status of the study of disasters from a social science perspective as of 1960. The Ohio State University Disaster Research Center (DRC) you were to become associated with had not yet been established—that was three years in the future. There existed the often-cited early social science research on the massive explosion in 1917 of the *Mont Blanc*, the ammunition ship in Halifax, Nova Scotia, in World War I and the social response to that disaster, so in a sense the field had begun. But would you say there was a well-established disaster research tradition in sociology?

Anderson: No, not yet. It was Samuel Prince, a Canadian, who did his PhD dissertation on the 1917 Halifax disaster when he was at

Columbia. His dissertation was published back in 1920,¹ but the field did not grow rapidly in the following few decades. The early work of Prince was more of an anomaly than the beginning of a continuous stream.

It was in the post-World War II era that disaster research started to build up some momentum. For example, important work was undertaken at the University of Chicago, and involved such sociologists as Charles Fritz and E.L. Quarantelli, who would later become one of the three co-founders of the Disaster Research Center. There was also disaster research carried out at the University of Oklahoma and the University of Maryland and even at the National Academy of Sciences in the fifties before Ohio State University's Disaster Research Center was established in 1963. DRC moved from Ohio State to the University of Delaware in 1985 where, as you know, it continues to carry out a major program of research in the field. The late geographer Gilbert White founded the Natural Hazards Research and Applications Information Center (later the Natural Hazards Center) at the University of Colorado in 1976, where he had already carried out hazards research for several years as well as previously at the University of Chicago.

The University of Colorado center in Boulder, usually referred to as the Natural Hazards Center, continues to be a major force in the hazards and disaster field to this day. Other centers involving social scientists were also established later. For example, in 1988, Dennis

Wenger, who was a graduate student at the Disaster Research Center when I was at Ohio State, became the first director of the Hazard Reduction and Recovery Center at Texas A&M.

We can trace the current field of social science disaster and hazard research back to two basic streams. When we consider the hazard aspect, we think of Gilbert White and his work beginning in the 1940s.² White was a geographer who was interested in what happens before a disaster occurs. When we talk about the subject in terms of disasters, we can trace the lineage back to Prince and later social scientists such as Charles Fritz and the co-founders of the Disaster Research Center—Quarantelli, Russell Dynes, and Eugene Haas—about whom I will talk more later on.

These two branches have essentially merged and it's difficult to neatly separate them today. For example, the career of Kathleen Tierney has combined work on “hazard” themes like mitigation of risks, as well as “disaster” themes such as how organizations respond to disasters. Kathleen was a PhD student of Quarantelli's at Ohio State and later served as director of the Disaster Research Center after it moved to the University of Delaware, succeeding Joanne Nigg. Kathleen then became director of the

1 Samuel Prince, *Catastrophe and Social Change*. Columbia University, New York, 1920.

2 Gilbert White, *Human Adjustment to Floods: A Geographical Approach to the Flood Problem in the United States*. University of Chicago, 1945. In this PhD dissertation, White summarizes the theme he was to pursue in his subsequent career with regard to various hazards: “Floods are ‘acts of God,’ but flood losses are largely acts of man.” (p. 2)

Natural Hazards Center at the University of Colorado. Dennis Mileti, who preceded Kathleen as director of the Natural Hazards Center, studied under Gene Haas, who had moved to the University of Colorado from Ohio State.

In addition to these two merging disciplinary streams, we have today a confluence of political scientists, anthropologists, planners, decision scientists, economists, public administration researchers, and others making up a diverse social science hazard and disaster research community.

Reitherman: In 1983 I met Gilbert White while visiting his Natural Hazards Center. There was a project to develop a computerized multi-hazard field survey program for FEMA to assess the hazard vulnerability of facilities such as fire stations and city halls to earthquakes, tornadoes, hurricanes, and floods. On my way to the DRC library to visit Professor Quarantelli, I used the Boulder library and made an appointment with White. He made a very perceptive observation, more of a sociologist's insight than a geographer's. He said that if the only clientele for the FEMA multihazard analysis program was the local emergency

services agency, the program would be weak, because the emergency services bureau was typically a weak organization with a tiny staff as compared to local government agencies such as police, fire, planning, or public health. That multihazard program—FEMA TR-84³ was the guiding manual—was nixed for reorganizational reasons internal to FEMA, so we won't know how it might have turned out, but White had a valid point. Later on, FEMA's HAZUS program was to sustain itself partly because it developed a following among agencies such as planning and building departments, not just emergency services bureaus.

Anderson: White always said that if you want to reduce the risk, you have to put the information about the hazard into the hands of those who can reduce societal vulnerability.

Reitherman: We'll revisit this subject of social science work on disasters and hazards when we get to your doctoral student years and subsequent work at the Disaster Research Center at Ohio State University. But first, to keep to some chronological structure, let's discuss how you went to Kent State University to get a master's degree.

3 National Multihazard Survey Instructions. FEMA TR-84, March 1987.

Studying Disasters in Graduate School

*“You haven’t thought about graduate school?
Well then, think about it.”*

Anderson: I mentioned earlier Professor Edgar Toppin, the black professor who was hired at the University of Akron when I was a senior. I wasn’t sure what I was going to do after I got my degree. Two of my closest friends at the university, Edwin Parms and James Williams, made plans to teach school and then attend law school, which they did and later became a practicing attorney and judge, respectively. Dr. Toppin stopped me in the hall one day. I had a minor in history but had finished those requirements before he came and hadn’t taken a course from him. But he still took an interest in me and said, “Hi, Bill, have you decided what you are going to do after you graduate?” I said I didn’t know. He asked me if I was going on to graduate school, and when I said I hadn’t thought about it he said, “You haven’t thought about graduate school? Well then, think about it.”

So I thought about it. He was another person who had an impact on my life and my career. I mentioned the idea of graduate school to Professor Charles Rogler, the chair of the department of sociology at the University of Akron. At the time, the chair of the sociology department at Kent State University, James Laing, had recently

called our chair to see if there were any candidates to fill a research assistant post.

My name was passed on to Professor Laing, who telephoned me and had me bring one of my papers to an interview with him so he could read it. After the interview he called me and said if I enrolled I would get a research assistantship. That was the somewhat sudden way I started graduate school. Professor Laing may have conferred with his fellow faculty, but basically it was a very quick, streamlined process by which I entered graduate school.

Master's Degree At Kent State University

Reitherman: You then studied for your master's degree at Kent State. That would have been in the fall of 1960?

Anderson: Yes, getting that degree a year later.

Reitherman: At this point, you are studying in your master's program and are going down the path of becoming a sociologist—but do you have any contact at this point with the subject of hazards or disasters?

Anderson: No, not yet. I can recall seeing the title of a book by Pitirim Sorokin, a prominent sociologist, *Man and Society in Calamity*,⁴ but hadn't read it. I understood that big upheaval events could cause social change, but I wasn't interested in that. I was interested in social organizations. And at the master's level you are a generalist anyway.

At Kent State, there was a young professor with several young children who was working on his PhD in sociology at Ohio State University while teaching two courses on Kent's campus and one at an off-campus location for Kent. On one of his trips to the off-campus site, he was killed in an automobile accident. The chair of the sociology department asked me if I would be willing to teach one of his courses. I was frightened to death, but I said yes.

At this point, I was basically one semester beyond undergraduate school and had to face my students, who were only slightly younger than I was, to teach a course on the sociology of community. It turned out OK, but it was a challenge.

Teaching Full Time for a Year

Anderson: Towards the end of that semester, the chair of the department came to me again and asked me what my plans were. At that time, Kent State University only offered a master's degree in sociology. He wanted me to continue teaching in the department. So after finishing my course work, completing my thesis—which was a case study of the Black Muslim movement when Malcolm X was a prominent figure—and receiving my master's in 1961, I started that fall as a full-time instructor, teaching two courses on the main campus and one evening a week at another campus in a town twenty miles or so away. I did that for the next year.

In my first semester of full-time teaching, in 1961, I was drafted by the military and went for my physical. The chair said he really needed me and wrote a letter to my draft board, and

4 Pitirim A. Sorokin, *Man and Society in Calamity*. E.P. Dutton and Co., New York, 1942.

they rescinded the order. At that time, there were no wars involving the U.S.

John Brouillette was a friend who was also a graduate student while I was at Kent State, and he too would later go on to the graduate program in sociology at Ohio State and work at the Disaster Research Center as a research assistant. Doris Wilkinson and Ronald Akers were two young instructors I became friends with in the department while I was teaching there, and they went on to have outstanding careers in sociology after earning doctorates at other institutions.

First Trip Abroad

Anderson: During that year, 1961, I took a trip out of the country. It was only the second time I had been outside of Ohio. A friend and colleague, Bill Rice, who taught French at Kent State, was doing a thesis on black literature in the diaspora. The term for that literature movement was *negritude*. Part of this movement could be traced to Haiti, so he asked me if I wanted to come along. We drove to Florida, and rather than going directly to Haiti, we flew to Puerto Rico where we stayed for a few days, and then went on to the Dominican Republic for a few days more, where Trujillo had just been overthrown.

In Haiti we stayed with a Haitian friend of Bill's, who had once taken courses at the University of Akron, and his family in Port-au-Prince, then on the weekend stayed in their country place, something like the second home in Russia, the rustic weekend spot. What do the Russians call it?

Reitherman: A dacha?

Anderson: Yes, a dacha. We had a very interesting time in Port-au-Prince and out at our friends' country place during the nearly two weeks we were in Haiti. It was a great experience for an emerging sociologist.

Bill Rice collected the data for his thesis, and I was able to get a glimpse of another society, an extremely poor one. This was during the time when Papa Doc, Francois Duvalier, was in power. The Tonton Macoutes, the bogeymen, the dictator's strong-arm militia, were around. We were in a nightclub one night when some of them entered and dragged some poor guy out. People we met during our stay were very kind, but no one wanted to engage in discussions about political issues. Already beset by so many problems throughout its history, we could not imagine that, decades later, Haiti would be impacted by the devastating January 12, 2010, earthquake, which resulted in so many deaths and put the country's fragile development further behind.

Applying to a Doctoral Program

Anderson: I was encouraged by my department head at Kent State to apply to a doctoral program. I applied and was accepted by the University of California at Berkeley and Ohio State University. Berkeley admitted me, but offered no funds for support; Ohio State offered a teaching assistantship.

Even when I went to Columbus, Ohio, to start to work on my PhD at Ohio State in the fall of 1962, I wasn't sure what career I wanted. I wasn't sure I wanted to stay in academia, though I had enjoyed teaching.

As you know, in a big school, a teaching

assistant often handles discussion sections with a professor in charge who does the lectures. But about my second quarter there, I was offered a course to teach on my own, on the topic of social problems, because of my prior year of teaching experience at Kent State.

In terms of my own course work, I liked the people who taught the courses on large organizations and criminology. J. Eugene Haas was a professor in the former subject area, and Walter Reckless was in the latter and a leading figure in the field.

Reitherman: Just to get the chronology straight: was Haas already “in the disaster business”?

Anderson: Not yet.

Reitherman: So did you go to Ohio State to study disasters, or were you recruited into that field while you were there?

Anderson: The latter. Haas was teaching a course on large, formal, or complex organizations, not disasters. At the end of the course I took from him, Haas told me that he and a couple of other faculty members had developed a proposal to set up a center to study disasters, to send social scientists into the field wherever disasters happened. It was to be a large center with a large budget. Haas asked me if I was interested in being part of it, if it was funded, and gave me the proposal to read. It had been submitted to the Office of Civil Defense.⁵

I said to myself, this is a pipe dream; nobody will fund this. I thought it was just a dream, but I told Gene, “Count me in if it gets funded.”

Later he told me that they did indeed get the funding—welcome to the Disaster Research Center (DRC). They obtained about one million dollars—the largest grant the department of sociology had ever received. This was 1963. Back then, this was a huge amount of money.⁶

5 In this period, the Office of Civil Defense was within the Department of Defense; when the Federal Emergency Management Agency was established in 1979, that function was transferred to FEMA.

6 About \$6.5 million in 2006 dollars.

Early Days of the Disaster Research Center

Yes, extreme events can shed light on many important aspects of a society that might be less noticeable during more normal times. . . .

Anderson: There were three of us doctoral students who were initially recruited to work at the Disaster Research Center (DRC). The other two were Dan Yutzy and Tom Drabek. Yutzy was a doctoral student ahead of me by a couple years. He was ABD, all but dissertation. Yutzy had been working with Enrico L. Quarantelli, or as we called him, Henry Quarantelli. Quarantelli was a co-principal investigator on the proposal, along with Eugene (Gene) Haas, and Russell Dynes. Drabek continued in the disaster research field after he received his doctorate and I'm sure you know of his work because he has been remarkably productive.

Actually, since the time it was established, DRC has produced over thirty PhDs, many of whom have become well known in the disaster field, including Dennis Wenger, Robert Stallings, Gary Kreps, Kathleen Tierney, and Benigno Aguirre. Two of my graduate school housemates, James Ross and David Adams, also worked at

DRC and received their doctorates from Ohio State.

Reitherman: Wow! As of 1962 there's no Disaster Research Center. Then in 1963, there's not only a Disaster Research Center, but the notable founding professors and graduate students you just mentioned, along with yourself, are all together in one place.

Anderson: Quarantelli, Haas, and Dynes were all in their mid-thirties. We called them the Young Turks.

Reitherman: Explain the backgrounds of those three professors. I think we have to go back a few years and bring the University of Chicago into the story, before going on with the narrative of this Ohio State development in 1963.

E.L. (Henry) Quarantelli

Anderson: Henry Quarantelli worked under a very famous sociology professor at the University of Chicago named Herbert Blumer, whose areas of expertise included social psychology and collective behavior—the study of nonroutine or noninstitutionalized behavior such as social movements. Quarantelli was the only one of the three DRC co-founders with a disaster research background.

Quarantelli's involvement with disaster research came from his work with the National Opinion Research Center (NORC) at the University of Chicago, a well-known survey research program that also developed projects on disaster research. Henry was interested in social psychology at the time. It is through the NORC disaster studies that Henry first teamed up with the incomparable disaster scholar

Charles Fritz. Charlie, as everyone called him, was also a graduate student at the same time as Quarantelli, but a little further along in the graduate program.

In the 1950s then, the NORC, where both Fritz and Quarantelli worked, had a major disaster research program. Work in this area had some salience at the time, growing out of Cold War concerns following World War II. For example, one of the topics of interest to the federal government was the attitude of the public toward civil defense as well as research findings on how the American population might react during a possible nuclear war with the Soviet Union. Quarantelli got his PhD at Chicago in 1959. After leaving the University of Chicago, Fritz served on the faculty at the University of Florida, then worked at the National Research Council (NRC) in Washington, D.C. At the NRC, Fritz worked for the Committee on Disaster Studies, along with Harry Williams, another social scientist.⁷ There were several social science disciplines involved, and scholars went out and did field work on disasters. That NRC research group was an important early development in our field, preceding the establishment of the Disaster Research Center.

Russell Dynes

Anderson: Russell Dynes's specialty was the sociology of social organization and the sociology of religion. Gene Haas's specialty

⁷ See Charles E. Fritz and Harry B. Williams, "The Human Being in Disasters: A Research Perspective," *Annals of the Academy of Political and Social Science*. Vol. 309, January, 1957, pp. 42-51.

was formal and complex organizations. Russ earned his PhD at Ohio State and became a member of the faculty there. Gene received his PhD from the University of Minnesota. When I decided to do a dissertation in the disaster research area, Gene became my official advisor, but all three served as my mentors. What a tremendous break that was for me.

We've mentioned the work of Prince back in 1920, but you can see that as of the time when Quarantelli and Fritz were at Chicago, and then with the founding of the Disaster Research Center in 1963, the field made major advances, building on and moving beyond Prince's earlier work.

Reitherman: Would you reminisce about the personalities of the three co-directors of the Center?

Anderson: They were very different from each other. All three were highly productive from the very beginning of DRC. The graduate students felt they could go to all three to talk with them and get advice. All three spent a lot of their time nurturing their protégés. That was certainly true in my case—all three helped me a great deal.

Eugene (Gene) Haas

Anderson: Gene enjoyed travel and field work. He mixed well with people in other disciplines and later was one of the key social scientists who developed influential ties to the earthquake engineering research community in California. We worked together in the field following the 1964 Alaska earthquake, and I learned a great deal from him about conducting field work.

Henry was very organized, conceptual, and could also keep track of details. He was the one the sociology students most admired as a teacher—a fantastic lecturer. Everybody wanted to take his collective behavior course. His courses were very organized and integrated. He would start every lecture giving a brief summary of his last lecture. Then he would tell you what he was about to cover. At the end he would summarize what he had covered. The students had a very clear idea of how each lecture tied to the one before or after it. I picked up many of my teaching techniques from Henry and used them when I was a professor at Arizona State University, although I am sure not as effectively as Henry did.

Russ, like Henry and Gene, was extremely smart and a gifted writer. The graduate students perceived him as more relaxed than the other two. He has a marvelous sense of humor—a wonderful person to travel with and have dinner with. He has such a backlog of jokes and anecdotes to tell—a great storyteller.

I'll tell you, all the other graduate students in the sociology department, where the DRC was located administratively, were very jealous of those of us who had the privilege of working with the three co-directors. They were seen as being on the cutting edge of research and great mentors, which was all true. The impact of Russ and Henry as mentors has been long lasting for me. For example, they helped pave the way for my getting positions at both Arizona State and NSF.

Reitherman: Why did the Disaster Research Center move from Ohio State to the University of Delaware?

Anderson: Quarantelli moved it. By that time, Haas wasn't in the field any more. Dynes, with a stop at the American Sociological Association as its executive officer, had moved to the University of Delaware and was chair of the sociology department. So Henry rejoined Russ there.

Some time later, Dennis Wenger became a co-director of DRC along with Henry and Russ after it moved to Delaware. And still later Joanne Nigg became the director of the center. Joanne had been a PhD student of Ralph Turner's at UCLA—Turner was a leading figure in collective behavior and disaster research. Dynes and Quarantelli tapped Nigg to head up the Center when they decided it was time for them to step down from managing it. Joanne would later become the first social scientist and first woman president of the Earthquake Engineering Research Institute. Kathleen Tierney, who was Quarantelli's student at Ohio State, succeeded Joanne as DRC director at Delaware.

Purpose of Disaster Research Center

Reitherman: What were the basic research questions the DRC was designed to answer?

Anderson: It focused on a number of key questions. How do groups of people, organizations, and communities cope with disasters? How do established organizations respond and how do new groups emerge if the established groups are not meeting emergency needs? How do existing organizations expand to cope with a disaster? How do organizations change as a result of their disaster experience? What are the most effective ways organizations

and communities can prepare for disasters? How accurate are common beliefs about how individuals, organizations, and communities respond to disasters? DRC was designed principally to conduct field studies, both in the U.S. and abroad, to answer such questions. And this is still its thrust today.

Reitherman: All of those seem quite relevant to the recent Hurricane Katrina of 2005.

Anderson: Exactly. And during over forty years of existence, DRC, as well as other researchers, has significantly advanced our knowledge on these issues. Part of the problem is that too often decision makers don't apply what we already know from studying disasters, perhaps because they don't have access to the scientific information or because they respond more readily to other demands on their time and resources. In the case of Katrina, there was already a tremendous amount of research from the physical science and engineering standpoint, and from the social science side, that pointed out the problems that could arise following a major hurricane like Katrina, especially in New Orleans, and what might be done to reduce and prepare for it, including evacuation planning.

Earthquakes and Other Disasters and Hazards

Reitherman: While we will soon get to your experience with earthquakes, such as the 1964 Alaska earthquake, and your many years in the National Science Foundation earthquake research program, we should point out in this oral history that your interests have spanned all hazards.

Anderson: Yes, which is typical of social scientists. Windstorms, chemical plant explosions, terrorist events, floods—many of the same social issues are present. All of these risks were in our purview at Ohio State. When I was a program officer at NSF in the research unit that was part of the National Earthquake Hazards Reduction Program (NEHRP), we also funded social science research that dealt with other hazards because the findings were also instructive for the earthquake field. We made the argument that you could use NEHRP money in the NSF program to study hurricanes if the lessons were applicable to earthquakes.

My interest in multiple hazards is why I served on the advisory committee for the University of Maryland's National Consortium for the Study of Terrorism and Responses to Terrorism (START) when it was funded by the Department of Homeland Security in 2005.

Reitherman: Can you transfer the same concepts and even terminology from the natural hazards to terrorism?

Anderson: There are similarities and differences. With regard to terrorism, instead of mitigation, experts in the homeland security area usually talk about prevention, not mitigation. To a point, you can think of all-hazards preparedness or all-hazards recovery as relevant to terrorism, but there are differences as well. This is discussed in the National Research Council study published in 2006.⁸

Reitherman: Prior to the injection of terrorism into social science research of disasters, there was the new field of hazardous materials. Hazardous materials of one kind or degree had been around for centuries, but in the 1970s, the hazard became more prominent. The 1979 Mississauga, Canada, train derailment with exploding propane tank cars and chlorine rail containers that might have burst was a key event, as was the damage to the Three Mile Island nuclear power plant, also in 1979. People started to talk about “natural and technological hazards” rather than just “natural hazards.” Has September 11 and other terrorism instigated by violent strains of Islamism tended to pull social scientists who have been known as earthquake researchers into the study of terrorism?

Anderson: People tend to go to where the research funds are. I was at an EERI meeting a few years ago where Dennis Mileti was talking about his concern for the sustainability of interdisciplinary research, which includes the social sciences, after the three NSF-funded earthquake research centers no longer received funding from the agency. Dennis said that with that decline of funding, social scientists will tend to migrate to the homeland security topic. Evidence of that is already appearing. At the START Center⁹ at the University of Maryland, the social scientists funded were people like Dennis Mileti, formerly with the University of Colorado, Kathleen Tierney of the University of Colorado, Susan Cutter at the University of South Carolina, and Linda Bourque at UCLA.

8 National Research Council, *Facing Hazards and Disasters: Understanding Human Dimensions*. National Academies, Washington, D.C., 2006.

9 National Consortium for the Study of Terrorism and Responses to Terrorism.

Perhaps this could to some extent divert their attention from the natural hazards area.

Reitherman: If sustaining multidisciplinary research is an important goal, is a place like the Natural Hazards Center at the University of Colorado going to begin to fund and include engineers in its research program and staffing?

Anderson: The Natural Hazards Center has always had a social science focus, so that probably won't change. But it has also worked with engineers and physical scientists on its interdisciplinary studies and has long vigorously promoted the need for more interdisciplinary research. Today there are more connections between social scientists and scholars and practitioners from other disciplines than in the past.

Reitherman: There seems to be an analogy between seismologists and the social scientists in their study of earthquakes. In both cases, some have studied earthquakes to learn about earthquakes; some have studied earthquakes to learn about something else. Many seismologists have spent their careers analyzing seismograms not to better understand how the rock ruptures and the surface of the earth shakes—not to study the earthquake, *per se*—but to conveniently use the earthquake waves propagating through the earth to better understand what the planet is made of—like using X-rays to see the interior of a person. Similarly, perhaps the analogy holds true that some social scientists have studied earthquakes not for the primary goal of improving knowledge about societal response to earthquakes, but to use the disruption of an earthquake propagating through society to better understand what society is made of and how it behaves.

Anderson: Yes, extreme events can shed light on many important aspects of a society that might be less noticeable during more normal times, including its politics and how it is governed, its social structure and underlying value system, and the differential vulnerabilities of the various groups that comprise it. Many social scientists are drawn to the study of disasters and other extreme events precisely for this reason. Such situations are a mirror into understanding society more broadly as well as understanding how people, organizations, and institutions function during crises.

Speaking of extreme events, the social science disaster research tradition had some roots in studies of war and conflict situations, including for example the early study by Prince of the munitions ship explosion during World War I, and numerous studies during World War II of how populations react to war, as when aircraft bombed cities for the first time on a large scale. Then, after World War II, civil defense during the Cold War was a new motivation for conducting research on how people reacted to disaster situations.

Reitherman: Quarantelli has an interesting recent paper in which he says that “the establishment of DRC owes as much to major Cold War happenings such as the Soviet blockade of Berlin and the Cuban missile crisis, than it does to the initial research proposal written by the three faculty members at Ohio State University. . . .”¹⁰ And as another historical item

¹⁰ El. L. Quarantelli, “The Earliest Interest in Disasters and the Earliest Social Science Studies of Disasters: A Sociology of Knowledge Approach.” Disaster Research Center, University of Delaware. Draft paper, June 29, 2005, p. 349.

of interest in that paper, Quarantelli reports a little-known social science study of a disaster—an earthquake in fact—that pre-dates the well-known Prince work on the 1917 explosion of the *Mont Blanc* in Halifax harbor. It was a study of residents who went through the 1908 Reggio-Messina earthquake, a study conducted by a Swiss psychologist, Eduard Stierlin, who was getting his PhD from the University of Zurich.

You mentioned that the Office of Civil Defense was the original funding agency for the DRC at Ohio State. That seems to expand “disasters” to include wars.

Anderson: The funding possibilities provided by the government influenced the research social scientists undertook, in addition to their own research inclinations. The Office of Civil Defense funded the DRC just to study natural disasters, based on the premise that you could tease out of that body of knowledge the lessons that were relevant to civil defense. The Office of Civil Defense was really the big player, the big funder, for social science disaster research, restarting the work

pioneered at the University of Chicago and at such institutions as the National Research Council in the 1950s.

There was an official in the civil defense office named James Kerr, who later moved over to FEMA after it was formed, who was a big supporter of the civil defense-funded research at DRC.

Reitherman: Jim Kerr was a friendly man, casual in his demeanor rather than bureaucratic. He had a bushy beard, twinkling eyes. Always wore a bolo tie, not a regular tie.

Anderson: Yes, Jim had a nice friendly manner. In 1979, FEMA was established, incorporating the former Office of Civil Defense, the Federal Disaster Assistance Administration that was in the Department of Housing and Urban Development, and various other disaster-related offices in the federal government. When NEHRP was established in 1977, the National Science Foundation became the big player in the arena of social science research on disasters, and remains so to this day. The fact that NSF research grants were peer-reviewed added cachet to the social science study of disasters.

Field Director at the Disaster Research Center

However, people haven't fundamentally changed in the way they process information about disaster risks, and some patterns of response have been fairly consistent.

Reitherman: What was your first role at the DRC—the Disaster Research Center?

Anderson: My first role was research assistant, participating as a member of the research team in the collection of field data, carrying out analyses, and preparing reports. These were tasks that all graduate student research assistants performed. The focus then, as it is today, was on fieldwork, to document the actions of organizations during disasters. The first couple of years the DRC also did laboratory simulation research.

When we were first set up, we were housed in what were called “temporary structures,” then twenty years old from the World War II era. Then the university built a new facility for the DRC underneath the sports stadium. Ohio State had a long history of social science laboratory research, and a laboratory was included in the new facility.

Reitherman: Describe what one would see when walking into a social science laboratory. What kinds of things are in such a laboratory?

Anderson: A lot of tables for simulating an office or emergency operations environment, telephones, one-way mirrors for observing the behavior of subjects, and recording devices. Tom Drabek was given resources to carry out his dissertation project, which involved bringing in a large number of Columbus, Ohio, police officers to simulate a disaster response.¹¹

Reitherman: Were they scenario-based exercises?

Anderson: Yes, they responded as if they were in a real disaster situation. For some reason, that was the only simulation-based research DRC did, but the field studies continued.

Field Work

Anderson: We would get word of a disaster and then go out to interview people in different organizations. Everything was tape recorded and later transcribed. The pool of typists had their favorites and less-than-favorites among the interviewers to transcribe, based on their enunciation. I had the good fortune of being one of their favorites, and my tapes were always promptly transcribed. We used machines that were about this big [gestures to indicate an object the size of a thick briefcase]. It weighed about thirty pounds.

¹¹ The DRC laboratory research method is described in Thomas Drabek and Eugene Haas, "Realism in Laboratory Simulation: Myth or Method?" *Social Forces*. March 1967, pp. 337-346.

Reitherman: There weren't cassette tapes yet, right? That would have been a reel-to-reel machine?

Anderson: Yes, reel-to-reel. It was the Uher brand from Germany. It was in a leather case with a shoulder strap. It became part of the signature of the DRC. We would notify the police to say we were coming, or sometimes just go and contact people in the field. We would initially collect news media stories and when we got to the disaster-struck community, we would proceed with a snowball technique in selecting our interview sample. For example, if we interviewed a police captain or the chief of police, he might mention names of other people we should talk to for other details and we would locate them, and so on. We were trying to build up case studies documenting what the organizations did in the disaster.

Nursing Home Fire in Norwalk, Ohio

Reitherman: What was the first disaster you studied in the field?

Anderson: It was in the small town of Norwalk, Ohio. A nursing home fire that killed several people. We went out mainly to practice techniques and to train our staff members. We realized we were going to have many such disasters to visit on the spur of the moment.

Several months after that, in December of 1963, when I was back at my home in Akron visiting my grandparents, I was at a party when my grandmother called me. She said someone from the Disaster Research Center said for me to call back immediately. I think I spoke with Quarantelli. He said, "Bill, you're going to go

out to Los Angeles to study the Baldwin Hills Dam failure.”

Reitherman: I remember seeing live helicopter views of it on TV as a junior high student when I was growing up in LA—a reservoir that failed, letting loose surging water and mud that flowed down through a residential neighborhood. It looked like a big, continuous, muddy ocean wave, with cars “surfing” down the street.

Anderson: An interesting aspect of the disaster was that the city council member for that area was Tom Bradley. I recall being at a public meeting after the event where Bradley addressed the homeowners, and I was very impressed. I said, “This guy is going to go somewhere,” and he did. He became the multi-term mayor and later made a strong run for governor of California. Bradley also became a strong advocate for earthquake risk reduction in Los Angeles and encouraged his staff and city agencies to exert leadership on such matters to reduce the risk to the community.

Alaska Earthquake, 1964

Anderson: Shortly after the Baldwin Hills disaster, the Alaska earthquake occurred on March 27, 1964. By that time we had established interview protocols, a library, a nice-size team of graduate student field workers, three co-principal investigators, and a pool of people to transcribe interview tapes.

When we heard about the earthquake, Dan Yutzy and I were told that we would be the advance team. We didn’t know if we could get into Anchorage or not, but as it turned out,

we were on the first commercial flight into Anchorage after the earthquake.

Reitherman: Remarkable. Even today that’s quick. And the control tower at Anchorage had suffered a complete pancake collapse.

Anderson: You recall that we were funded by the Office of Civil Defense, which was in the Department of the Army. Based on military protocol, I was a captain. I was a doctoral student, but I had the status of an Army captain. There were no hotel rooms available in Anchorage, but we could get a room at the bachelor officer’s quarters at Elmendorf Air Force Base. We had a laminated identification letter that said we had a contract with the Office of Civil Defense, and that’s all we needed for access.

Reitherman: There was some significant damage at Elmendorf—concrete block walls badly fractured, tilt-ups with roof- or wall-collapses. What do you recall of the scenes of destruction there, or in Anchorage itself?

Anderson: Our team focused on the impact of the earthquake on Anchorage, although DRC later collaborated with an anthropologist there, Nancy Davis, to collect information on other communities, including native villages, in other parts of Alaska. We observed significant damage throughout downtown Anchorage, including collapsed buildings and severely damaged streets, and in places like the upscale residential community of Turnagain Heights. The emergency period was in full swing, and thus emergency organizations were in action carrying out their duties. In addition to police, fire, and public works personnel, one could also observe the work of

military troops, who manned various checkpoints throughout the city.

Reitherman: In the many disasters you studied, was it generally easy or difficult to gain access to people you needed to see and interview?

Anderson: Very easy. I don't remember a single time when we were turned down. In some cases, people would hear we were in town and would call us to provide information.

We tried to avoid creating additional work for people acting in emergency roles. We liked to go to the emergency operating center and just watch for several hours. If someone had some spare time, we would ask a few questions, then go back to our hotel room and tape record our observations. We were trying to find out how different organizations responded in different situations. We were trying to compare normal-time behavior with emergency-time behavior. Before Yutzy and I left, all three co-directors came up to Alaska too.

Reitherman: Excuse the interruption, but please comment on that fact—that there were three co-directors. It would seem like each of those prominent researchers could have been a strong-willed horse pulling the wagon the way he wanted. But they somehow managed to be a troika pulling in the same direction?

Anderson: The graduate students thought that they got along well and saw many advantages in working with all three. The co-directors seemed to us to collaborate very well, and at any rate DRC was a smoothly functioning enterprise.

Remember, too, that this was 1964. The three

are in their eighties now, but they were associate professors in their thirties then. They weren't "stars" yet, and they all had teaching duties as well as DRC research roles.

Reitherman: When you were in Anchorage, did you run into any other earthquake or disaster research people?

Anderson: That was where I saw earthquake engineering pioneer George Housner for the first time and a young Howard Kunreuther, a pioneer in his own right in the area of the economics of risk and disaster. The Alaska earthquake became the most studied earthquake in the U.S. up to that time. The National Academy of Sciences became involved. That involvement resulted in a set of documents I'm sure you've seen.¹² The DRC did a series of case studies, some of which are in the National Academy of Sciences volume on Human Ecology. I wrote an article based on that research on organizational change induced by the earthquake. That was the topic of my dissertation, which I completed in 1966, which focused on lessons learned by a sample of Anchorage organizations for coping with the threat of future disasters.

Reitherman: The National Academy of Sciences report on the Alaska earthquake includes every "ology" you can think of: not just geology, seismology, biology, but also human ecology, sociology. The Lawson Report on the 1906 San Francisco earthquake, while a great accomplishment, contains almost nothing on the effects of that earthquake on society. That's

12 National Academy of Sciences, *The Great Alaska Earthquake of 1964*. Washington, D.C., National Academies Press, 8 volumes, 1972.

understandable when you think that the American Sociological Association (though it was called the American Sociological Society then) had only been established the year before that earthquake. Maybe it takes a while for disciplines to mature.

Anderson: You will recall that a tsunami disaster occurred in Crescent City, California, as a result of the 1964 Alaska earthquake. I was involved with a DRC study of tsunami warnings in Crescent City related to that disaster and compared it with tsunami warnings and response that occurred in Hilo, Hawaii, in 1960 when several people were killed following an earthquake that occurred in Chile. Gene Haas actually pulled rank on me on this study—he sent me to Crescent City to collect data there, while he got to go to Hawaii to do the same! I authored a paper on that study that is also in the National Academy of Sciences report. Perhaps this was the first social science study on tsunami warnings and responses in the U.S.

After the December 26, 2004, Indian Ocean tsunami disaster, I pulled that forty-year-old National Academy of Sciences volume off the shelf and reread my article on the Crescent City tsunami disaster. It was interesting how back then I talked about the scientific warning infrastructure in the U.S. and how it related to societal issues. The names of the scientific organizations and their technologies have changed, but many of the societal issues related to preparedness and response to warnings during a tsunami emergency have remained largely the same and may even apply to many foreign locales.

Human Reaction to Disasters

Reitherman: Are people mostly the same, as related to the subject of disasters? The organizations change but people stay the same?

Anderson: The idea of change is an important issue in many respects. The implication of the work that we do is that people can and do change, that they can learn to make better decisions about mitigation, preparedness, and response based on scientific knowledge. In fact, we do see evidence that some decision makers, groups, and organizations engage in more effective disaster risk reduction actions once they become better informed or have relevant experience. That is why many of us are in this business in the first place.

However, people haven't fundamentally changed in the way they process information about disaster risks, and some patterns of response have been fairly consistent. For example, when someone receives a warning, they usually look to family, friends, respected leaders, and organizations to see what they are doing and what actions these significant others might recommend. Another consistency that we have found, starting with disasters studied as early as the 1950s and 1960s, is that people tend to support each other in times of disaster. September 11, 2001, confirmed this. People helped each other. Firefighters acted like firefighters. Employees listened to their supervisors. The bosses didn't abandon their responsibility to provide leadership and help subordinates take protective actions, such as to evacuate from the attacked buildings.

In this regard, people haven't changed all that much. However, one thing that has changed is

technology. Communication is an important part of the way society responds to a disaster or an impending disaster, and the speed of communication has of course greatly increased with the new technology. It doesn't solve all the problems. Technology by itself will not enable people to be safe, but it can be very helpful when properly used.

Take the example of Hurricane Katrina. Scientists basically knew, engineers basically knew, what to expect in a direct hit on New Orleans by a major hurricane. And yet in terms of mitigation, preparedness, and response, we had tremendous failures. We have the technology that enables the National Weather Service to say more precisely, "this is the area that is threatened." But we then need to take appropriate actions—actions that require resources, and political will.

Another change is that today's disasters don't look exactly like yesterday's. We have more of them, and they can be bigger, because society's exposure is greater. That's a major change, and populations at risk need to adjust to such conditions. At the time of the 1964 Alaska earthquake, the largest city in the state, Anchorage, had only about 25,000 people. Today, it's not a huge city, but still the population is ten times greater. The same earthquake today, even with better construction in place, could cause huge losses.

Other DRC Field Investigations

Anderson: You'll recall that soon after the 1964 Alaska earthquake there was an earthquake in Niigata, Japan. What I recall about that disaster is that it was when the engineers really started to worry about liquefaction.

Reitherman: Soon after the Niigata and Alaska earthquakes, the Fourth World Conference on Earthquake Engineering was held in Chile in 1965. Bob Whitman read all the geotechnical papers and later summarized them for one of the annual UCEER conferences.¹³ Bob noted that the 4WCEE was the first to have significant coverage of liquefaction, which he said was due to the Alaska and Niigata earthquakes.

Anderson: The three DRC co-directors involved in fieldwork in Anchorage also visited Niigata. They later became a little concerned about what would happen to their students back at Ohio State when they went flying off to disasters here or there around the world. And that affected my career. From then on, the DRC just used graduate students for the field studies on a regular basis, so the faculty could stay on campus. It was the best thing that could have happened for the graduate students involved, such as myself. You get excited about the fieldwork. You write preliminary papers, you refine your case analyses, you write articles or your PhD dissertation or your master's thesis.

I recall my fellow graduate students were jealous of me, with the ability to fly off to disasters, with my own office at the DRC facility. When I wrote my dissertation on organizational change in Anchorage following the earthquake, I was given resources to make six trips to Anchorage, and to have interviews transcribed.

13 Universities Council for Earthquake Engineering Research (UCEER), *Report on NSF-UCEER Conference on Earthquake Engineering Research*. March 27-29, 1969, University of California at Berkeley.

The engineering professors at Ohio State could also get a little envious. There was a big bush fire in Tasmania, Australia, that I went to study in 1965 with another DRC graduate student. The campus news office always covered this sort of research, because it was newsworthy. Here was a case where the social scientists, at least at Ohio State, were out studying disasters before the engineers were. The engineers wanted to know how to go out and do that kind of quick response fieldwork.

Reitherman: In the space of a year, you made half a dozen trips to Alaska, then to Tasmania—quite a span of geography. Too bad there were no frequent flyer airline programs then.

Anderson: I would have cleaned up! I also did field work in El Salvador following the 1965 earthquake there.

I became the DRC field director after I received my PhD in 1966, and served in that role through 1969, until I left for Arizona State. Field director literally meant that I went out into the field to do the research and to supervise the graduate students assigned to a particular disaster.

Other natural disaster fieldwork I was involved in while at DRC included studies of the 1965 earthquake in El Salvador, and the 1967 Fairbanks, Alaska, flood. The former involved my working in Central America for the first time, and the latter took me back to Alaska. By the time that this field work was done, the DRC was really gaining a great deal of momentum.

Research in Curaçao

Reitherman: A disaster of the non-natural sort in 1969 led to a book you co-authored with

Russell Dynes, *Social Movements, Violence and Change: The May Movement in Curaçao*.¹⁴ Tell me about that.

Anderson: Russ Dynes and I went to Willemstad, Curaçao, capital of the Dutch territory of the Netherlands Antilles, to study a labor movement protest. We made field trips in 1969, 1970, and 1971 to see what could be learned about that kind of collective action. More specifically, our aim was to study the social conditions on the island that led to what we called the May Movement (it started in May 1969), which began as a labor dispute, and we were in the field to study the movement's career—or evolutionary phases—and its consequences, one of which was the fall of the government.

My wife Norma accompanied me on two of the research trips, and we had a chance on a vacation to re-visit Willemstad in 1999. Russ's wife, Sue, and two of their children also traveled with us to the island on our first trip, with our families enjoying themselves while Russ and I worked. I tell you, Bob, Curaçao is a wonderful place to do research. Wonderful people, beautiful place. When Russ and I did the research, staying up to a month on one trip, it had the second highest standard of living in the Caribbean, with only Puerto Rico having a higher one. Out of a population of about 141,000, about 90 percent was of African descent. Dutch was the official language, but the common form of

14 William Anderson and Russell Dynes, *Social Movements, Violence and Change: The May Movement in Curaçao*. Ohio State University Press, Columbus, Ohio, 1975. In May, 1969, increasing oil revenues that had led to increasing wealth inequality, racial tension, and labor strife, precipitated riots.

discourse was Papiemento, a mixture of several languages. Shell Oil and tourism provided most of the jobs. When we went back on that 1999 visit, I said to Norma, “This is really strange. Look at all these people. Most of them weren’t born when we were here thirty years ago.” It was an odd feeling.

Unless someone sees a typewriter in a movie, most people today don’t know what one is and haven’t ever touched one. When Russell Dynes and I wrote the book on Curaçao, it was before computers were used for word processing. He was at Ohio State, I was at Arizona State, and we mailed typewritten manuscripts back and forth.

U.S. Urban Civil Disturbances in the 1960s

Anderson: Around that time, in the mid- and late 1960s, the DRC also studied urban unrest—the riots with racial overtones that affected several U.S. cities.¹⁵ In the book Russ and I co-authored, we made comparisons between the riot in Curaçao in 1969, a labor conflict, and the riots that occurred in the U.S., which had a racial basis. These studies of urban riots were intended to identify the consequences of these forms of collective action and to highlight the similarities and differences in the way groups and organizations respond to

them in comparison with natural and technological disasters.

Reitherman: I’ve been to half a dozen earthquakes, and the fieldwork can be stressful and make you fear the danger when you’re going inside damaged buildings, but it must be especially tense and stressful to go out to study a riot. What was that like? Were your usually cooperative sources, like police officers, tense and defensive?

Anderson: We were usually there after the disturbance had quieted down. Even the police were rather open about talking. It was a time when people took you at face value. You were an academic doing research, and they generally accepted that and accepted you. Things are different today and people are more defensive, more worried about how what they say may be used against them.

The real challenge was researching the community groups, not the formal organizations like police and fire. Being black, I was generally the one who went to the local community groups to find out what they had done and why. I was in my twenties, young-looking, clean-shaven. On at least a few occasions—and this happened in Curaçao too—people would say, “You’re probably with the FBI or CIA,” but they figured they were being watched anyway, and I guess I seemed like an okay person, so they still talked to me. Once, in Los Angeles, I interviewed Maulana Karenga, the black community activist who created Kwanzaa, the now widely celebrated African American holiday. This was before he created the holiday. In Curaçao, Russ and I had the experience of interviewing one of the protest leaders while he was lying in a hospital bed recovering

15 In the 1960s, violent protests and riots broke out in African American districts of several American cities, such as: Chicago and Cleveland, 1961; New York, 1964; Los Angeles, 1965; San Francisco, 1966; Baltimore, 1967; Detroit and Newark, 1967; Washington, D.C., 1968.

from a gunshot wound that he suffered during the protest march that evolved into the May Movement.

I was concerned that I looked too young to be who I said I was, the Dr. Anderson who was in charge of the field studies of the Disaster Research Center. So to look older, I grew a beard, and I've had it ever since.

I stopped using the tape recorder and took notes by hand instead, which made it easier to talk to community groups. In 1969, the last year I was at the Disaster Research Center, I was frequently out traveling “my beat,” studying communities all around the country, in New Orleans, Topeka, Los Angeles, and elsewhere, to see how people were trying to solve social problems. It was baseline information, community profiles, that would be needed when we might go back to study a natural disaster or civil disturbance. The Disaster Research Center continued studying urban unrest and the social factors that bred it after I left, such as the violence in Los Angeles in 1992.

Working with the University of Colorado Hazards Team

Anderson: When Gene Haas moved from Ohio State University to the University of Colorado, he started working with Gilbert White, the foremost geographer conducting research in the field. So we have Haas, who was in the “disaster” tradition of sociologists studying what happens during and after a disaster, together with White, who was in the “hazards” tradition of geographers studying vulnerability and adjustments to hazards. Gene and Gilbert helped to merge these two traditions.

Gilbert was very interdisciplinary-oriented and pursued such research. The first thing they did was to submit a proposal to NSF to do an assessment of natural hazard research, especially in the social sciences, but to some degree covering other aspects as well, such as engineering and physical science.

They asked the questions: What do we know? What do we need to know in order to further hazard reduction? They considered both basic and applied research.

In 1973, while they were carrying out this assessment, which resulted in a very influential book,¹⁶ White and Haas asked me if I could give them an independent perspective on their work. So I moved with my family, Norma and our year-old daughter Candice, to Boulder for the summer to work with them. It was a very fruitful period in terms of the development of human resources in the field. There were graduate students in various disciplines—sociology, economics, geography, psychology—working together on this assessment project. That interdisciplinary interaction helped create a marriage of the hazard and the disaster aspects of the field that I have mentioned. Many of the people who worked on that assessment project are still in the field and now at the height of their careers, unless they've retired. There were people such as Dennis Mileti, sociologist; Hal Cochrane, economist; Mike Lindell, psychologist; Patricia Bolton, sociologist; and John Sorensen, geographer.

16 Gilbert White and J. Eugene Haas, *Assessment of Research on Natural Hazards*. MIT Press, Cambridge, Massachusetts, 1975.

Collectively this group went on to advance the field intellectually, further the application of knowledge, and produce many PhDs who went on to contribute to the field themselves.

It is interesting that many years later this cohort of University of Colorado graduates participated in what was called the Second Assessment of Research on Natural Hazards, which updated the original assessment. The Second Assessment, which was led by Dennis Mileti after he succeeded Gilbert White as the director of the Natural Hazards Center, took place in the 1990s and involved over 100 researchers and practitioners. It resulted in the publication in 1999 of the influential book *Disasters by Design* authored by Mileti. It summarizes the results of the assessment, including insights on engineering and physical science as well as social science issues. As in the case of the original assessment, NSF was the leading sponsor of the Second Assessment.

Reitherman: Susan Tubbesing, EERI's Executive Director for many years, told me she got into the disaster field at Colorado, after moving from Washington University, where she was in the environmental field as a research assistant to Barry Commoner. She was hired by Gilbert White to work on a six-month water resources project, then worked on another six-month project of his that dealt with natural hazards in coastal zones. When White got the initial funding to start the Hazards Center, he cautioned her that her work in the hazards field might not be a steady line of employment. Today, the Center in Boulder is so well established it's easy to forget that its sustainability was far from certain in its early days.

Anderson: Susan was there right after the

original assessment report came out. One of its recommendations was to set up a clearing-house activity, which became the Natural Hazards Center, and she became a member of the staff, where she stayed for several years before going on to EERI. Susan was one of the reasons that the Natural Hazards Center became the focal point for the dissemination of information on natural hazards that it is today.

The Sociology of Knowledge

Reitherman: Reflect back on your graduate student days for a moment. Do you think some of the mechanisms by which science and technology have developed in the past are still active today, even though technology has changed a great deal? For example, after the 1906 earthquake in California, the most influential person in academia to emerge at U.C. Berkeley was Andrew C. Lawson, and at Stanford it was J. C. Branner. You can trace an extensive "seismic genealogy" through the decades from those two individuals. Professors mentor students and younger faculty who go on to become leaders in the field in the following generation. You've pointed out the personal effect Dynes, Haas, and Quarantelli had on their students. You in turn supervised numerous graduate students. Technology has changed a great deal, but people still pass on their knowledge, their inspiration, in personal ways.

Anderson: Social scientists find the transmission of knowledge, of culture, very interesting. We like to study the sociology of knowledge.

Actually, the former student I am most proud of was not one of my graduate students, but

Ronald Perry, who was an undergraduate when I went to teach at Arizona State. I was offering a graduate level course, which would include material on disasters, and Ron, who was an undergraduate sociology major at the time, found out about it and asked if he could enroll. After thinking about it for a while, I gave him my okay, which turned out to be a great decision because Ron was the best student in the class and it sparked his career-long interest in

disaster research. He later received his doctorate in sociology at the University of Washington and returned to Arizona State University as a faculty member, from where he retired in 2009. He soon became one of the leading figures in the field, and the author or co-author of numerous books and articles. He and my former mentor, Quarantelli, have even co-authored important works. So I am really proud of Ron.

Professor at Arizona State University

One of the things that I have been concerned about over the years is the need for developing minority talent. This was a chance to not only say something about it, but do something about it.

Reitherman: In 1969 you left the position of field director at the Ohio State University Disaster Research Center and became a professor at Arizona State University. How did that happen?

Anderson: Russ Dynes knew sociology faculty members at Arizona State. When I finished my PhD, Russ told me about a position at that university. Gene Haas had at that time moved to the University of Colorado. I interviewed for sociology faculty positions at both places and was made what I considered to be a better offer at Arizona State, so I went there.

Actually, I went to Tempe to interview at Arizona State twice. The first time was in 1968 and I turned them down and stayed at DRC. Later the chair of the sociology department there, Tom Hoult, asked again if I might consider a move there. I guess they had found out from Russ that I had recently gotten married. Tom called in February of 1969, when it was cold in Columbus, Ohio, and said

bring your wife, Norma, and visit us again—we would still like to hire you.

It was seventy-five degrees and sunny in Tempe. Tom Hoult had a beautiful home where we stayed during our visit with a view of Camelback Mountain. It was a good, large sociology department. The faculty members were very friendly and enthusiastic about my joining them. Norma and I thought it would be a good life there, so I decided to take the job at Arizona State and started in the fall of 1969. In many ways, I also continued my close collaboration with DRC, including working with Russ Dynes on the Curaçao research. The courses I taught while at ASU grew out of my experience at DRC and Ohio State and were related to my interest in both non-routine and routine group and organizational behavior and included courses on collective behavior and social movements, social problems, and complex organizations.

Meeting His Wife-To-Be

Reitherman: How did you meet Norma?

Anderson: When I was working on my doctorate, and was a research assistant at DRC, Gene Haas was teaching a large lecture class in introductory sociology with about 400 students. As it turned out, the Vaiont Dam disaster occurred in Italy in 1963. Gene decided to go out and investigate it. He said, “Bill, I have this lecture to give,” and he asked me to do it for him.

Coincidentally, my future wife Norma was in the class, among the 400 students. She told me later that she was up in the balcony somewhere. This was two years before we actually met. So she knew slightly who I was and saw me a few times on campus, and I had seen her

occasionally on the campus too in those years, and I wondered, “Who is that pretty woman?”

We had a mutual friend, Harriet Scruggs, who set up a blind date. Though, as I said, we had seen each other around campus a few times. So we went out, and as they say, the rest is history—now over forty years of marriage.

Reitherman: Her maiden name?

Anderson: Norma Jeanne Doneghy.

Starting as an Associate, Not Assistant, Professor

Reitherman: If I have this straight, looking over your c.v., your first position at Arizona State, your first job as a professor, was associate professor. Wouldn't it have been more typical to have been hired as an assistant professor?

Anderson: Yes, that's the usual pattern. They gave me the associate professor position based on all the work I had been doing at the Disaster Research Center, supervising graduate students, publishing, and so on.

Reitherman: What a big jump—your first job on the faculty and you already had tenure.

Anderson: That's what I thought—that I already had tenure! [Laughter.] Normally, the big deal about the rank of associate professor is that you have passed your probationary period as an assistant professor and have earned tenure.

As it turned out, five years later, the chair, Tom Hoult, came to me and said, “You know Bill, you are about to come up for review for a promotion...and for tenure.” I said, “Tenure? I already have tenure, right? I'm an associate

professor.” He said, “When we hired you, the exact position was ‘associate professor without tenure.’ I thought you knew that.” I said, “I had no idea, Tom.”

I got the tenure and the promotion to full professor. For the five preceding years I had never worried about it one bit because I was completely in the dark. I went about my business, teaching, publishing, getting involved with academic societies, serving on committees and enjoying my work very much, and had no worries. It was a strange way to get tenure, not knowing I was being evaluated for it, but it worked out for the best.

Aspects of Social Movements

Reitherman: In your years as a professor of sociology at Arizona State University, you co-authored *Sociology and Social Issues*.¹⁷ Did you take current issues or conflicts of the day and provide material that a student could analyze from a sociology perspective?

Anderson: It was a basic sociology textbook, and we put the handle of “social issues” on it. In my case, I wrote up material on non-routine behavior—or what sociologists refer to as collective behavior—which includes the behavior that occurs in social movements, emergent organizations, and disasters. The co-authors of the textbook, Ronald Hardert, Howard Parker, and Erdwin Pfuhl, were great colleagues at Arizona State. They were on the faculty when

I arrived and asked me to collaborate with them, which was exactly what a new, young faculty member needed to hear. They encouraged my enthusiasm for disaster research and work in the area of collective behavior and social movements, and we all became great friends. All three are now retired.

Reitherman: Many social scientists, such as Talcott Parsons, Daniel Bell, Robert Merton, Richard Hofstadter, William Kornhauser, and Seymour Martin Lipset, have studied extremist movements, bigotry, and anti-social trends, finding many cases to examine. But when you study social movements in the context of disasters, aren't you usually investigating positive rather than negative social themes? You mentioned earlier the common social science finding that disasters typically bring out the best in people, not the worst.

Anderson: That's right. Disasters usually bring out altruism or the best in people, rather than selfish or anti-social behavior. The Disaster Research Center and other social science disaster research groups have corrected several myths about anti-social behavior in disasters—the myth that there is panic, a breakdown in societal norms, it's everybody on their own, that crowds become uncontrollable, etc.

Reitherman: Who was the French sociologist—first name Gustave—who wrote *The Crowd*,¹⁸ theorizing that a group would quickly become a mob, assuming a collective identity,

17 Ronald Hardert, Howard Parker, Erdwin Pfuhl, and William Anderson, *Sociology and Social Issues*. Rinehart Press, San Francisco, 1974. Second edition: Dryden Press, Hinsdale, Illinois, 1977.

18 Gustave Le Bon, *The Crowd: A Study of the Popular Mind*. 1896.

moving and thinking as if it were almost a single organism?

Anderson: That was Gustave Le Bon. What you actually have in disasters is not a breakdown but an emergence of new organizations and leadership, as well as continuity in many pre-existing organizations. Of course, in a disaster you still have so-called routine behavior and organizations—the police and fire departments for example, doing law enforcement and firefighting. But you may also have a pre-existing group like the Boy Scouts doing things Boy Scouts don't usually do—helping in search and rescue, or distributing emergency food and water. Such groups often further adaptive responses to disasters in communities. So the DRC and other researchers had to debunk a number of myths and counteract earlier social science perspectives that characterized social movements and other forms of noninstitutionalized behavior as inherently negative or dangerous.

Where would we be today if the civil rights movement had not developed in this country? How would we fare after disasters if ordinary people did not organize themselves to immediately accomplish search and rescue tasks in their neighborhoods? Often, family members and neighbors or others who happen to be on the scene are able to locate and rescue people before police and fire personnel can arrive. Citizens in emergent groups are often the true “first responders” in disaster situations.

As I mentioned before, while at Arizona State, I also continued my collaboration with DRC. Russ and I finished our research in Curaçao and our book, and Russ and Henry and I collaborated on other publications. Also, one

summer I was invited back to Ohio State with a few other DRC graduates to work with the DRC staff. In some ways this was sort of a research reunion.

Needed Re-Examination of Social Science Generalizations

Reitherman: In the earthquake engineering field, prior to the Northridge earthquake in 1994, most structural engineers would have generalized that the welded steel frame building was at the top of the list of construction types in terms of earthquake resistance. Then, brittle rather than ductile joint behavior in such buildings required re-thinking of that generalization.

Have there been any new insights in the social sciences that require a re-examination of generalizations formerly thought to be beyond doubt?

Anderson: Yes, like in any area of research, social scientists need to periodically revisit their previously established theories and findings, either to test and modify existing theory and conclusions, or to take into account changes in the society that current theory is unable to explain or predict.

For example, take the topic of risk communication. We thought that we understood how disaster warning worked—we thought we had it down cold. We probably did, up to a point, for the social conditions we knew about. But society has changed. If you had asked me ten years ago, where should we put our research priority? I wouldn't have said warning and risk communication. Now we have new technologies that may lead us to question previous

conclusions. We have cell phones, the Internet, chat rooms, and social networks like Facebook and Twitter. People today get information from many places, not just CBS, ABC, and NBC. Today you have emergency managers talking about interoperability in order to further technological and social connections in a disaster. I would suggest that Hurricane Katrina will make us re-examine a number of social science conclusions regarding how people prepare for and respond to disasters.

Many of the studies done prior to Hurricane Katrina were studies of events that were not regional catastrophes. The 1989 Loma Prieta and 1994 Northridge earthquakes caused severe damage, but in a localized and spotty way, not covering a whole region with devastation. Some have argued that even the September 11, 2001, terrorist attacks had their greatest immediate impact on two locales, rather than having a regional or national scale of loss.

Katrina was different in that respect because it affected several states, many communities, and was the most costly disaster this nation has experienced. The times I was in New Orleans in my role at the National Research Council, which we will talk about later, I saw, like others, unprecedented destruction caused by the hurricane. As a result of Katrina, social scientists are now reexamining previous conclusions about such issues as disaster social vulnerability and resilience, risk communication, preparedness, evacuation, response, and recovery. And even social science studies of foreign events, such as the 2004 Indian Ocean tsunami disaster and the 2010 Haiti earthquake, may cause us to consider revising our thinking to some extent.

So, yes, the social science research community has to periodically re-examine what it has learned.

Technological Impacts on Social Science Methods

Reitherman: You've mentioned how technology has affected society. What about how technology has affected how social scientists study society? What's different about Bill Anderson at DRC in the sixties, lugging an Uher tape recorder to a disaster, then having tapes transcribed by a pool of typists, compared with you or another social scientist studying disasters today?

Anderson: The opportunities for doing excellent quantitative as well as qualitative studies are much greater today. Computers have made a tremendous difference in obtaining and analyzing huge amounts of data. Techniques for modeling, visualization, and gaming simulation in the social sciences have advanced significantly. We have web-based surveys now in addition to face-to-face or telephone interviews or mailed surveys. Geographic information systems have made a big difference. GIS allows geographers such as Susan Cutter at the University of South Carolina and others to do many more things with regard to research and also risk communication. You've been involved with the development of HAZUS, so you understand how central GIS is to that enterprise. This has enabled social scientists to contribute significantly to loss estimation modeling.

Reitherman: At the initial meeting in 1994 of the panel chaired by Bob Whitman that oversaw the development of HAZUS for NIBS,

the National Institute of Building Sciences, the question of computers came up. FEMA had provided the funding for the project, and at our first meeting we read a letter from Gary Johnson of FEMA that said our charge was to develop a standardized national earthquake loss estimation method. It was partway through that first meeting when we started to wonder whether the end product was a thick manual or whether it was this standardized method that might have a little bit to do with computer software.

As it turned out, of course, software was absolutely central to the whole effort. Keeping up with GIS platform updating, desktop computer capabilities, and other developments in the computer world is what has kept HAZUS from becoming obsolete. Imagine how foolish we would have looked if we had said, “Nah, there’s nothing involving computers here. We just need to oversee the writing of a thick manual.”

Teaming Up Social Scientists With Engineers

Anderson: The software also gives social scientists the opportunity to work with engineers. Urban planning researcher Steven French at the Georgia Institute of Technology, for example, has been able to work with engineers like Anne Kiremidjian at Stanford and engineers at the Mid-America Earthquake Center.

Reitherman: Now there are places like the Inter-University Consortium for Political and Social Research at the University of Michigan that can almost instantly provide the equivalent of reams of data—data that are also searchable and can be sorted and organized

easily. It’s easier to make connections across disciplines with such easy access to different sets of data.

Aside from the technology of interdisciplinary collaboration, what about the effect of how people are grouped? Are there examples where putting social scientists together with engineers in particular kinds of groups leads to effective cooperation?

Anderson: The three NSF-funded earthquake engineering research centers are a good example. The engineers and social scientists working on a particular research topic were a collaborating group, and the members of that group learned to trust each other and accommodate each other’s needs. MCEER, the Multidisciplinary Earthquake Engineering Research Center at Buffalo, provided funding to Joanne Nigg and Kathleen Tierney to integrate work on the societal aspects of earthquakes into its research program, including the research led by renowned earthquake engineer Masanobu Shinozuka. Economist Howard Kunreuther at the University of Pennsylvania, public administration researchers William Petak at the University of Southern California and Daniel Alesch of the University of Wisconsin at Green Bay, and planning researcher Stephanie Chang of the University of British Columbia have been similarly engaged, the latter following in the footsteps of her mentor, the eminent late economics researcher Barclay Jones. Political scientist Peter May of the University of Washington successfully collaborated with engineers through the Pacific Earthquake Engineering Research Center (PEER) for a number of years.

As a member of the Mid-America Earthquake

Center's (MAE) executive advisory board several years ago, I came to appreciate how they made significant progress in teaming up engineers and social scientists like Steve French. I have seen MAE engineers change their plans, requiring significant extra work on their part, to take into account the data needs of the social science colleagues they were working with. However, it takes time for interdisciplinary collaboration to work well, and sometimes it is not as successful as one would hope. It has so much to do with experts being able to build solid professional relationships with those in other relevant disciplines.

Developing Minority Talent

Reitherman: Tell me about the time you took off from Arizona State, the 1974-1975 academic year, to become the director of the Minority Fellowship Program at the American Sociological Association (ASA).

Anderson: My wife Norma and my daughter Candice and I moved to Washington, D.C., where the ASA is headquartered. One of the things that I have been concerned about over the years is the need for developing minority talent. This was a chance to not only say something about it, but do something about it as well. I took a leave of absence from Arizona State to become the first full-time director of the Minority Fellowship Program, which funded PhD students from groups underrepresented in science, including Hispanics, blacks, and Native Americans. I organized review committees to evaluate fellowship applications and then monitored the progress of fellowship recipients. I would visit the schools the fellows were attending and meet with them and their professors.

The funding came from the National Institute of Mental Health, NIMH. The program, which became a model for similar ones at other social science professional associations, including the American Psychological Association, still exists at the ASA under different sponsorship. Many of the former fellows of the program have become leaders in sociology. After serving as director of the program on my leave of absence, I returned to Arizona State.

Reitherman: Here's a purely personal "data point," a survey with $n = 1$ (me). Going to conferences such as EERI's annual meeting over the past thirty years, I don't see significantly more black people in the room now than then. Or considering Hispanics, most of the people I see in that ethnic category at professional and academic meetings are immigrants from Latin America, not Hispanic Americans who grew up here. Progress has been very slow in those instances. With regard to Asians, I come into contact with a large contingent, both immigrant and those who have lived in the U.S. all their lives. Women? A very big increase also over the past thirty years, not up to the 50/50 point, but a noticeable increase, and a number of women are now in positions of power in the earthquake field. The engineering departments I deal with are still in the active recruitment mode to just get to the point of having twenty or thirty percent women faculty, but on the other hand, there are more women than men undergraduates in this country and that disparity is increasing yearly. How do you size up the type and pace of all these demographic changes?

Anderson: In recent years, women have

made significant progress in the social science hazards and disaster research field. Their numbers have increased, and they have had increased success in receiving research support from NSF. They have also come to play very important leadership roles in recent years, with Kathleen Tierney serving as head of the Natural Hazards Center, Susan Tubbesing serving as executive director of EERI, and Joanne Nigg serving as president of EERI exemplifying this trend. The same cannot be said of minorities. For example, there are only a handful of Hispanics and African-Americans involved in social science research on hazards and disasters.

Going back to your example, you rarely see more than a few persons from such groups at professional and technical meetings that discuss earthquakes and other types of hazards. Clearly much needs to be done to change this picture in all disciplines relevant to developing and applying knowledge on earthquakes and other hazards. We need many more researchers like sociologist Havidan Rodriguez at the University of Delaware and civil engineer Reginald DesRoches at the Georgia Institute of Technology.

National Earthquake Hazards Reduction Program

The Newmark-Steever report was a very successful marriage of convenience between the engineers, earth scientists, and social scientists.

Reitherman: Talk a little about the events that led up to the passage of the National Earthquake Hazards Reduction Act of 1977. What were the origins of the National Earthquake Hazards Reduction Program (NEHRP)?

Anderson: In addition to the 1964 Alaska earthquake, the 1971 San Fernando earthquake provided added momentum to those who championed a national earthquake program. But let's focus on the Alaska earthquake, which clearly got the ball rolling.

The big impact of the Alaska earthquake when I was at the DRC was that it made earthquakes a new focus for social scientists. And that, in turn, was significant because it put in place another piece of support—from the social scientists—for the eventual passage of the 1977 Earthquake Hazards Reduction Act. There were the earthquake engineers like George Housner and Nathan Newmark championing such a program, and Frank Press and other earth

scientists, and then you had social scientists like Gene Haas who, because of Alaska, started to do research on earthquakes—years before NEHRP. He began to know the key earthquake engineers and seismologists in California.

Reitherman: When you were at Arizona State, you worked with Gene Haas in 1973 and 1974 on a project called “Anticipated Socioeconomic Problems Following A Major Earthquake in California.”

Anderson: Yes, and Gene kept working on research topics related to the earthquake hazard in California after that as well. His work there was what enabled him to make his connections with the California earthquake engineering establishment and was what built his reputation and trust with those engineers.

Newmark-Stever Report

Anderson: In the 1970s, when Nathan Newmark was involved in developing a plan for a national earthquake research program, the green-covered Newmark-Stever report was produced.¹⁹ It spelled out what a national earthquake risk reduction program should look like. In the report, the social science activities were labeled as “research for utilization.”

19 NSF and USGS, *Earthquake Prediction and Hazard Mitigation Options for USGS and NSF Programs*. US Government Printing Office, Washington, D.C., 1976. The “Newmark” part of the name was for Nathan Newmark (1910-1981) of the University of Illinois. The “Stever” was for H. Guyford Stever, who was director of the National Science Foundation 1973-1977 and was the President’s science advisor in the Nixon and Ford administrations. In 1976 Stever became the first director of the Office of Science and Technology Policy.

Conceptually, earth science, engineering, and social science elements were all part of the package and NSF and USGS were projected as the two key federal agencies.

The fact that social science was included in the Newmark-Stever report, and that the social sciences provided another source of support for NEHRP, was in part because of the Alaska earthquake. Gene Haas was involved in the discussion, and his earthquake connection, as I previously said, goes back to 1964, along with the other two DRC co-founders, Russell Dynes and Henry Quarantelli.

Reitherman: The title of the Newmark-Stever report had “earthquake prediction” prominently in its title. Today’s reader might be nonplussed as to why a policy report describing a comprehensive earthquake risk reduction program featured that topic. Perhaps you could explain how much optimism and excitement there was about earthquake prediction in the 1970s.

Anderson: I’ll try, but, as you know, I’m no seismologist. There was a great deal of enthusiasm about earthquake prediction then. And the interest may revive at some point. I’m told that some earth scientists are getting excited about it again. In the 1970s, it was very newsworthy and captured a lot of attention. Of course, earthquake prediction is in the earth science domain, but the mitigation of vulnerabilities, the engineering element, was still valued in the context of earthquake prediction because even with prediction you would still have devastation if buildings and other structures in at-risk cities were not designed to withstand seismic forces. And social scientists like Gene Haas, Ralph Turner, and Joanne Nigg—who was working as a graduate student at UCLA under

Turner—were doing research on the social consequences of earthquake prediction in the 1970s.

Reitherman: That three-part way of dividing up the field—earth science, engineering, social science—still seems a valid way to describe it. The research on the 1994 Northridge earthquake, for example, sorted out that way. And then in all three basic disciplines, there are practitioners on the one hand and researchers or educators on the other.

Anderson: In the 1970s, the Newmark-Stever report met the various advocates' needs. Earthquake prediction was a perfect subject to bring the three disciplines together, because in that context you could also talk about such related issues as earthquake mitigation, preparedness, and response. The Newmark-Stever report was a very successful marriage of convenience between the earth scientists, engineers, and social scientists.

Policy Plans Leading to NEHRP

Anderson: When seismologist Frank Press, who would later become the president of the National Academy of Sciences, was President Jimmy Carter's science advisor, he set up a working group that produced *Earthquake Hazards Reduction: Issues for an Implementation Plan*.²⁰ He appointed Karl Steinbrugge to develop an implementation plan—a blue-cover implementation plan for the green cover strategy report, the Newmark-Stever report. It was an analysis and also an outreach effort to mobilize support for a sustainable program

within the federal government. The working group was staffed by officials from the National Institute of Standards and Technology—which was then the National Bureau of Standards—USGS, NSF, and FEMA predecessor agencies.

Reitherman: Others have recalled that Steinbrugge personally called up key people at all the major agencies to introduce the project, stop by to see them, make sure they were part of the process and didn't feel threatened. Karl, of course, was a structural engineer with the insurance industry and an architecture department professor at Berkeley, not a sociologist, but he obviously had a keen awareness of how organizations work.

Anderson: Karl Steinbrugge moved to Washington, D.C., during that time. Phil Smith was on Frank Press's staff and worked on the project. Charles Thiel was the focal point for NSF. By then, I was at NSF and was assigned to the working group and had an office over at OSTP (Office of Science and Technology Policy) in the New Executive Office building just off Pennsylvania Avenue. Ugo Morelli was also part of the working group and had an office there too. At that time, Ugo was with the Federal Disaster Assistance Administration, and would later go to FEMA when it was created in 1979. Robert Hamilton was the key person for USGS. For a year, several of us were part-time at OSTP, loaned out from our home agencies. It was a lot of fun. I was new in town, a junior member of the staff at NSF, and suddenly I was in the middle of something I thought was really important.

We would meet with Frank Press, and he would say that he had just met with the President. It was quite impressive for a new guy in Washington to suddenly be so near the center of things.

20 Karl V. Steinbrugge, *Earthquake Hazards Reduction: Issues for an Implementation Plan*. Office of Science and Technology Policy, Washington, D.C.

It was also impressive for my young daughter, Candice—a bit too impressive. I remember she saw one of my business cards that said “Executive Office of the President” on it, and she thought that I had a desk in the White House, right next to the oval office. I think Candice told her teacher at school this. You should have seen the respect I received at parent-teacher conferences!

Pre-NEHRP Policy Developments in California

Reitherman: What was the influence of the earlier California state government policy developments on the development of a federal earthquake program? In California, there had been a steady stream of seismic public policy developments after the 1971 San Fernando earthquake, as well as some pre-San Fernando significant policy work. The Joint Committee on Seismic Safety of the California Legislature was established in 1969, for example. Steinbrugge’s *Earthquake Hazard in the San Francisco Bay Area: A Continuing Problem in Public Policy*, was published back in 1968.²¹

Anderson: There was significant influence because of the leadership roles that many earthquake policy champions from California played in furthering federal action. Steinbrugge’s serving as chair of the federal effort demonstrates this connection since he was a key person in the California developments you mentioned.

Reitherman: Was the 1972 Office of Emergency Preparedness Report still influential?²² It would only have been a few years old then.

Anderson: It could have been. But in Washington, sometimes if a report is even a few years old, it’s old. It loses impact. You can recycle an old report’s valid recommendations into a new one, but it needs a new date and a new cover to appeal to a new audience. We are re-inventing the wheel all the time. And to some extent, it’s necessary—not to come up with new findings, but as a socialization process, to familiarize new people.

Effect of Funding Boosts After Large Earthquakes

Anderson: After a significant earthquake in the U.S., such as the 1989 Loma Prieta and 1994 Northridge earthquakes, we (NSF) would be notified that Congress was going to provide special funding, some millions of dollars perhaps, to do research on that disaster. The program officers at the NEHRP agencies—NSF where I was, the National Bureau of Standards (now the National Institute of Standards and Technology), the U.S. Geological Survey, and the Federal Emergency Management Agency, would get together. The social scientists, earth scientists, and engineers in the community were excited and well-funded during those post-earthquake times. Workshops would be held and

21 Karl Steinbrugge, *Earthquake Hazard in the San Francisco Bay Area: A Continuing Problem in Public Policy*. Institute of Governmental Studies, University of California, Berkeley, 1968.

22 Office of Emergency Preparedness, *Disaster Preparedness: A Report to Congress*. January 1972.

new research would be funded, which would further the development of the field. The post-earthquake funding would be on top of the regular NEHRP funding. It seemed you needed an earthquake to boost the field.

The boost was partly because there was more money to do needed research. But it was also because new people were brought into the

field. The earthquake would get the attention of some people who had not previously studied the subject. This still happens. For example, more recently professors and graduate students in the social sciences who had not studied disasters before have been conducting research on Hurricanes Katrina and Rita with funding from NSF.

National Science Foundation Earthquake Research Program

A lot of academics stay at NSF a year or two, and I thought I might do the same. I started there in 1976 and ended up staying at NSF over twenty years in positions that included program director, section head, and acting division director.

Anderson: As I mentioned, I had long-term ties to the Disaster Research Center and its co-directors, even when they moved from Ohio State to the University of Delaware. They also encouraged me on my move from Arizona State University to the National Science Foundation (NSF).

Charles Thiel, we all called him Chuck, was a division director at NSF in the late 1960s, and he was looking for a program officer to start a program on societal response to earthquakes. I had met and talked to him a couple of times at Boulder at the Natural Hazards

Center's annual hazards workshop. I even remember sharing a cab back to the Denver airport with him at least once, and he talked to me about NSF. With encouragement from Henry Quarantelli and Russell Dynes, Chuck suggested that I apply for this program director position in his division. Chuck didn't really know me, so I think the support of Henry and Russ gave him confidence I could do the job.

I applied and was offered the job. A lot of academics stay at NSF a year or two, and I thought that I might do the same. I started there in 1976 and ended up staying over twenty years in positions that included program director, section head, and acting division director. Joanne Nigg, who was destined to become the first woman and first social scientist to serve as president of EERI, was recruited by Arizona State to replace me. My first office, for seventeen years, at NSF had a great view of the National Mall. Did you ever visit me there?

Reitherman: Yes. In the building on the south side of G Street, north of the Mall. Your office was near the top—the eleventh floor?

Anderson: Yes. When NSF later moved to its current Arlington, Virginia, location by the Ballston Metro station, in 1993, it was like going into exile in Siberia for me. In the G Street building in Washington, I had a panoramic view out over the Mall toward the Washington, Lincoln, and Jefferson monuments. At the NSF building in Arlington, my office had a view of the International House of Pancakes restaurant, so that says it all. In the Washington, D.C., NSF building, when you went out for lunch or an errand, there was an active urban scene all around you. It was a great place to work.

Reitherman: Can you say a little about what it was like being a social scientist hired by the engineering branch of NSF?

Anderson: Throughout my many years at NSF, I was one of the few social scientists in the Engineering Directorate. Chuck Thiel recruited me to manage the new societal response program because I was a sociologist and had experience conducting social science disaster research. It became very interesting later on when my responsibilities broadened to include supporting interdisciplinary as well as social science research on hazards, and eventually serving as the head of the Hazard Mitigation Section.

Being a social scientist in the Engineering Directorate was never a real problem for me, since I was always accepted by my colleagues and superiors in the roles that I was assigned, which at one point included not only serving as head of the section, but for nearly a year also as acting director of the division we were in, at the time called the Biological and Critical Systems Division. This division supported a broad range of interesting engineering research activities. For example, there was research on tissue engineering, the use of artificial means to augment natural biological materials and processes. I guess I fit in so well in the Engineering Directorate that many of my NSF engineering colleagues often forgot that I was a sociologist, no matter how many times I reminded them. This was also the case with many of my external colleagues.

Mission and Organization of NSF

Reitherman: Perhaps you should give the readers of this oral history an overview of the National Science Foundation for those who are not familiar with it. How does NSF work?

Anderson: NSF is a very interesting federal agency. With around 1,400 employees when I was there, it is a relatively small organization with both a permanent professional staff and scientists and engineers who come in mainly from academia for a few years as visiting staff. NSF is an independent agency. In other words, the director of NSF is the head of the agency and does not report to a federal department, like the U.S. Geological Survey does to the Department of Interior. NSF was established in 1950, so compared to many of the boxes on the federal organization chart, it is not an old agency. There was concern about the status and future of science and engineering in the United States when it was established in 1950. The notion was that something should be done to further the capacity of the nation to advance science and maintain a leadership role in science and technology internationally.

NSF has two basic missions. One is to enable researchers to advance knowledge for the benefit of the U.S. and others. The other is to help—universities in particular—train the next generation of scientists and engineers. NSF considers the university community as its primary clientele, though it does fund some nonacademic research. The focus of NSF funding has been on what it calls basic research, or “curiosity-driven” research.

NSF awards grants on a competitive basis using a peer review system. Sometimes proposals are submitted in response to a particular solicitation, and sometimes they are submitted as unsolicited proposals. They are reviewed by peers, experts in the given area of the proposal. There are two benefits to obtaining an NSF grant. One is obviously to obtain the research funds. But

the other is the stature or credibility it lends, because by virtue of being awarded a grant you have demonstrated you have made it through a highly rigorous and competitive review process.

Medical research of a clinical nature is funded by the National Institutes of Health, NIH, rather than NSF. In contrast, the life science research funded by NSF would be classified as basic research.

NSF supports individual investigators, but more recently, funded collaborative research involving groups of investigators has been given significant emphasis. Perhaps the various research centers that NSF funds best exemplify this.

Normally, from the standpoint of researchers who submit proposals for consideration to NSF, the review process at the agency can seem like it takes an excruciatingly long time. An important exception was made after the eruption of Mount St. Helens in 1980 because of the opportunities it offered the scientific community to collect perishable information on the impacts of that event on both the physical and social environments. Within several days of the event, NSF issued a special notice to the research community that it would provide short-term funding in an expedited fashion for a relatively modest amount for research related to the effects of the eruption.

Program officers had to notify applicants for research funding within seven working days after receipt of an abbreviated written proposal. Most of the one-time proposals funded were around \$10,000 or less, and researchers had to submit regular proposals for peer review if they wanted to be considered for additional

funding later. All of the directorates at NSF participated in this special and highly successful activity, and I was selected along with another colleague to coordinate our directorate's participation in the program.

NSF-Funded Earthquake Engineering Research Centers

Anderson: The intention of the Engineering Directorate to support the establishment of an earthquake center was made public when Nam Suh, who was on leave from MIT, was serving as head of the directorate. The competition for a center to conduct integrated multidisciplinary team research and outreach had a proposal submission deadline of January 1986. A proposal from a consortium of California universities led by the University of California at Berkeley and one from a consortium of universities led by the State University of New York at Buffalo ended up as the two finalists. The award went to the Buffalo consortium, which was led by engineer Robert Ketter, a charismatic former president of the university who was able to obtain a commitment from the state of New York for the required matching funds in a timely fashion.

This outcome greatly disappointed the California engineering community because it felt it was deserving of the award because of its more recognized earthquake risk, world-class researchers, and historic leadership in the field. As a result, a rift developed in the earthquake community, and NSF felt some heat from California colleagues who were sometimes not hesitant to express their disappointment. No one knew at the time if there would be NSF funding for other earthquake centers.

The two U.S. Senators from California, Pete Wilson and Alan Cranston, asked the General Accounting Office (GAO) to assess NSF's management of the review process. In its assessment, the GAO concluded that NSF selected competent and objective panel reviewers, but that the agency could have been clearer about some issues such as the precise due date for matching funds. It took a while for the controversy in the community to settle down, but fortunately during this period needed research continued to be conducted throughout the country with NSF support.

The NSF grant to the Buffalo consortium, which became the National Center for Earthquake Engineering Research (NCEER), provided the consortium \$5 million per year for ten years. The creation of NCEER demonstrated the value of a coordinated multidisciplinary approach to earthquake research and education. Thus, near the end of NCEER's funding period, NSF held an important workshop for earthquake researchers and educators where consensus was expressed by the community that the center approach was a good one, though multiple centers were recommended by attendees.

As a result, in 1996 NSF issued another center solicitation that required research, education, and outreach using a multidisciplinary approach. By this time I was head of the Engineering Directorate's Hazard Mitigation Section, which included both the earthquake program and the natural and man-made hazards program. I actually held multiple jobs for several years because while section head I also continued to be the program director for the societal response component of the earthquake

program, and at one point even simultaneously served as the acting director of our division. Shih Chi Liu and Clifford Astill were the other program directors in the section's earthquake program, and Eleonora Sabadell was program director for the natural and man-made hazards component in the section.

As you know, the result of the center competition was that three centers, which included several collaborating institutions since the centers were consortia, received awards for at least ten-year periods. The three winners in the competition were Buffalo again, which became MCEER, the Multidisciplinary Earthquake Engineering Research Center; the University of Illinois, heading up the Mid-America Earthquake Center, or MAE; and the University of California at Berkeley, the lead in the Pacific Earthquake Engineering Research Center (PEER). As with the first competition, a condition was for each center to provide one-to-one matching funds, in this case \$2 million in non-NSF funds to match the \$2 million we would provide each center. The NSF funding periods for the three centers are now over and the centers have the challenge of finding full support for their activities from other sources.

Hopefully, through the advanced planning they initiated before the NSF support ended, the three centers will be able to transition to other sources of funding and remain viable for many years to come. Over the years of their existence, they have carried out important research, including that of an interdisciplinary nature, nurtured the next generation of researchers, and furthered the application of knowledge for earthquake hazard reduction. They have been a vital resource for the nation.

National Network for Earthquake Engineering Simulation (NEES)

Anderson: Another approach to research that evolved toward the end of my tenure at NSF was NEES, the George E. Brown Jr. Network for Earthquake Engineering Simulation. The earthquake research community became concerned about the status of its experimental facilities, especially seeing how Japan and even some European countries were building major earthquake engineering facilities that made those in the U.S. look behind the times.

NSF had been involved back in the 1970s in funding the shake table at Berkeley, then one of the world's premier facilities of its kind, and various other laboratory improvements at other universities. But by the 1980s and into the 1990s, it was necessary to re-visit the issue of what support was needed from NSF to modernize earthquake engineering experimental facilities in the United States. EERI was involved in meetings in a major way to develop a consensus on what was needed. Jim Jirsa at the University of Texas, Austin, and Dan Abrams at the University of Illinois, Urbana/Champaign, played key roles for EERI in getting consensus on what stakeholders in the field thought was needed.²³ Usually to have any success at promoting the funding of large projects, research communities have to be organized as effectively as possible and speak with one voice, and EERI has provided leadership for

23 Earthquake Engineering Research Institute, 1984. *Experimental Research Needs for Improving Earthquake-Resistant Design of Buildings*. EERI, Oakland, CA.

this to happen for the earthquake community over the years, including in the case of NEES. The National Research Council was helpful later by conducting an analysis on needed NEES research.²⁴

After the 1994 Northridge earthquake, Congressman George Brown Jr. inserted language into the NEHRP re-authorization legislation to fund an NSF and NIST workshop on earthquake engineering experimental needs. Brown believed that if more experimentation had been done prior to the Northridge earthquake, we could have prevented a lot of damage. For example, he thought we could have avoided the surprising damage to welded steel frame connections if we had done more research ahead of time.

That workshop generated another report.²⁵ Then NSF had another workshop and prepared an action plan, based on the identified needs. The vision of those active in earthquake engineering research was later modified when Eugene Wong, a computer scientist by background from U.C. Berkeley, became head of the Engineering Directorate, after Joe Bordogna left that post and became the deputy director of NSF. Wong saw the development of experimental facilities across the U.S.

for the earthquake engineering field fitting into his vision of combining computer modeling and simulation and information technology with physical modeling, and so NEES planning turned in that direction. NSF funded large construction projects like telescope facilities or nuclear physics installations through what it called—when I was there—Major Research Equipment and Facilities Construction (MREFC) projects. The Engineering Directorate had never received funding for such a facility before, and NEES became that big project. EarthScope in the Geosciences Directorate was the MREFC that followed, and there was also a biosciences “big science” initiative in development.

Reitherman: Was there any resistance from the community when Wong modified the NEES concept?

Anderson: Yes, there were those who disagreed with, as well as those who supported, the approach he championed. When the NEES idea was initially presented to the National Science Board, it was conceived as an integrated system of distributed facilities to conduct physical simulation.

However, this changed significantly when Gene Wong became assistant director for Engineering. His vision, which was subsequently accepted by the National Science Board, was the creation of a system that moved away from a total reliance on physical simulation to one that involved integrated computer simulation through a dedicated network and data repository. In terms of Wong’s new approach, a cyberinfrastructure would become the integrating core of the distributed system, allowing for collaborative and simultaneous

24 National Research Council, 2003. *Preventing Earthquake Disasters: The Grand Challenge in Earthquake Engineering, A Research Agenda*. National Research Council, Washington, D.C.

25 Abrams, Daniel et al., *Assessment of Earthquake Engineering Research and Testing Capabilities in the United States*. Earthquake Engineering Research Institute, Oakland, California, 1995.

research by teams of researchers at various sites. At first, some in the experimental earthquake engineering research community were not pleased with this new direction, but most finally came around and were willing to give it a chance after Wong made efforts to explain its advantages for advancing new knowledge, and it became clear that NSF was committed to this new approach to earthquake engineering experimental research.

As head of the Engineering Directorate's Hazard Mitigation Section at the time, I had the privilege of making two presentations on NEES to our governing body, the National Science Board, for the purpose of indicating what we were proposing, including the costs involved and how we had engaged the relevant stakeholders in the earthquake community. It was an interesting experience, asking approval for an activity that would involve over \$80 million. By the time that the George E. Brown Jr. Network for Earthquake Engineering Simulation became operational in 2004, I was no longer at NSF. But it was great fun and a singular honor for me to have been involved in the initial two-year planning for this program along with my colleagues at NSF, Shih Chi Liu and the late Clifford Astill, and with the earthquake community at large.

Reitherman: It's interesting that the two most innovative aspects of NEES—a distributed collection of fifteen different university facilities expected to operate as one “collaboratory,” and the heavy investment in computer science, are its biggest challenges. We shall see in the years ahead how it eventually pans out. The history of earthquake engineering

is interesting to see first-hand as the script is being written.

NEHRP Component Within NSF

Anderson: From its origin in 1950, NSF's primary mission has been to support basic research. Thus there has always been a little tension between NSF's basic research role and its participation in NEHRP, a program that emphasizes applied research and knowledge implementation. Of course, this issue of applied research had come up at NSF in a major way before. For example, in the 1960s, there was both internal and external support for NSF to fund more applied research, leading to the creation in 1969 of the Research Applications Directorate, more commonly known as the Research Applied to National Needs program or RANN, which was discontinued after several years.

First, I should explain the organizational terminology. A directorate is the largest administrative entity within NSF. They are re-organized from time to time, but the basic disciplinary breakdown has been biology, computer science, engineering, geosciences, math and physical sciences, and one for social and behavioral science and economics. There are also directorate-level branches in charge of polar research, international programs, and education. The terminology for the executives in charge of these directorates is somewhat confusing to outsiders. The head of a directorate, who reports directly to the director of the entire agency, is akin to a vice-president reporting to a president, and is called an assistant director, for example the assistant director

for engineering, which makes it sound like a lower level position than it actually is.

The Research for National Needs (RANN) program was established in 1969 and operated until 1978.²⁶ You still had most of the funds at NSF set aside for basic research, but with RANN you also had a program dedicated specifically to applied research. In the late 1970s, when NSF pulled back from this venture, this didn't mean that it wasn't funding any more applied research. However, the greatest visibility given that kind of research at the agency [NSF] was when RANN existed. NSF also sometimes referred to basic research as curiosity-driven research, and applied research as problem-focused research.

In recent years, NSF has changed its basic criteria for evaluating proposals. Other criteria may apply for specific solicitations and programs, but proposers must demonstrate that

they will advance knowledge, and second, make a contribution to society and advance the infrastructure of science. In a sense, these two criteria are an expression of the continuing tension between NSF's primary mission as a funder of basic research and the need to also provide evidence that it is supporting research that contributes to the well-being of society in a more general way.

NEHRP was established with the idea that advancing knowledge would be one goal of the program, while the other goal would be the application of knowledge to further earthquake hazard reduction. NEHRP has evolved over the years, but it has kept these two goals. If you look at the four agencies that comprise the NEHRP federal effort—namely FEMA, NIST, USGS, and NSF—you see how their overall missions affect their goals within the NEHRP program. FEMA, for example, has the responsibility for advancing disaster preparedness and response, with many operational tasks. Until a few years ago, FEMA had been the lead agency for NEHRP, and with its perspective tried not only to encourage applied research under NEHRP but to also ask if there was enough research in a given area so that the emphasis could shift to the application of that research knowledge.

At NSF, the staff in the hazards program was convinced that there was a continuing need for basic research to supply a solid knowledge base for decision making, and also that there should be focused research and technology transfer activities. So the hazards program not only funded universities, the traditional clientele of the agency, but also provided grants to organizations like EERI and ATC, the Applied

26 As documented by George T. Mazuzan in *The National Science Foundation: A Brief History* (NSF 88-16), the 1968 amendment to NSF's basic law, authored by House of Representatives Member Emilio Daddario and Senator Edward Kennedy, authorized NSF to conduct applied rather than only basic research, which became a stepping stone to RANN. The amendment also changed NSF's continuing authorization mode of funding to annual review by Congress, and explicitly called out the social sciences as eligible for support, whereas those disciplines had previously been included in a vague "other sciences" category. The predecessor to RANN, set up in 1969 in response to the Daddario-Kennedy amendment, was Interdisciplinary Research Relevant to Problems of Our Society (IRRPOS).

Technology Council, to move information into practice. That's actually rather unusual at NSF, to have close relationships with practitioners, again because of the primary mission of the agency to support basic research.

Now consider the fact that a large portion of the NEHRP program at NSF was centered in the Engineering Directorate. That made it easier to advance applied research because engineering is fundamentally an applied science. So NEHRP has been pulled in more than one direction by different agency missions, and different disciplinary outlooks.

The other branch at NSF that had NEHRP funding was the Geosciences Directorate. Hazards-related social science research was within the domain of the Engineering Directorate and was part of NSF's contribution to the NEHRP program, although there is a separate directorate just for the social science disciplines. The legislation authorizing NEHRP in the very beginning called for these three elements of research—earth science, social science, and engineering.

There was some funding for hazard-related research in the social sciences provided by the Social, Behavioral, and Economic Sciences Directorate, but I would estimate that 95 percent of the funding in that area was in the Engineering Directorate budget when I was at NSF.

Reitherman: As a very round number, can we say NSF was spending about \$25 million per year in NEHRP funds?

Anderson: The earthquake budget in RANN, where the earthquake engineering and earthquake-related social science

activities were initially located, climbed from about \$8 million per year before NEHRP to a high of nearly \$20 million in 1989. By the late 1980s, these activities were in the Engineering Directorate and well after NEHRP had been created. The earthquake-related social science activity was typically allocated about \$4 million per year through the Engineering Directorate. The NSF Geosciences Directorate, which supported earthquake science research under the NEHRP umbrella, usually had another \$6 million in funds.²⁷

Each significant, newsworthy earthquake provided more salience for the NEHRP research program at NSF, motivating researchers to enter the field and also bringing more funds to the NSF budget from Congress, which was also true of the other NEHRP agencies.

27 The noninflation-adjusted budget total for NEHRP has averaged slightly over \$100 million in the years since its establishment, with about 50 percent allocated for USGS, 30 percent for NSF, 20 percent for FEMA, and 2 percent for NIST. In the FY 2007 budget, in which NEHRP funds totaled \$121 million, the addition of \$21 million to NSF for its NEES program made the NSF and USGS shares equal at about \$45 million, the two summing to about 90 percent of the NEHRP total; FEMA's budget was \$9.1 million (7½ percent) and NIST's was \$1.7 million (1½ percent). In addition to NEHRP funds, these and other federal agencies have funding for earthquake research and risk reduction activities. (*NEHRP Annual Report, Overview for Advisory Committee on Earthquake Hazard Reduction*. National Earthquake Hazards Reduction Program Office, National Institute of Standards and Technology, October 2007.)

After NEHRP was established in 1977, there was quite a spell when there were no major events until more than a decade later, in 1989, when the Loma Prieta earthquake occurred. The 1985 Mexico earthquake, because it was in a country neighboring the USA, also had somewhat of an effect on boosting funding for NEHRP. The coordination of joint U.S.-Mexico research and reporting on the earthquake by EERI was also notable. Every earthquake brings out its own surprises or themes. For example, in addition to the long-distance propagation of damaging ground motion from Mexico's west coast to Mexico City, there were instances of pounding where adjacent buildings impacted each other. This earthquake resulted in significant collaboration between U.S. and Mexico researchers and the leveraging of funds by NSF and the World Bank.

Then there was the 1994 Northridge earthquake, which was a big boost for earthquake research in the U.S., followed a year later by the 1995 Kobe, or Great Hanshin, earthquake. Joint research with the Japanese has always been an important endeavor, and the Northridge and Kobe earthquakes facilitated such collaboration.

The earthquake program at NSF had three components within the Engineering Directorate: Siting, Structures, and Societal Response—Societal Response was later given the title of Earthquake Systems Integration. Siting, which involved geotechnical engineering, was led for many years by Clifford Astill. The Structures component was led for the longest period of time by Chi Liu, and for several years Jack Scalzi was also a program officer in that area until reassigned elsewhere within the agency. And I was responsible for Earthquake

Systems Integration, which was the social science and multidisciplinary studies component.

I was program officer from 1976 to 1989, and then I became section head over the three areas I described earlier: Siting, Structures, and Systems Integration in the earthquake program, as well as the component that funded research on other natural hazards managed by Eleonora Sabadell.

Reitherman: Can you comment on how you were involved in EERI's Learning from Earthquakes Program (LFE)?

Anderson: Yes, for much of my time at NSF, I directed the agency's funding to and provided oversight for LFE, one of EERI's signature activities. As you know, through LFE, the organization sends multidisciplinary reconnaissance teams comprised of earth scientists, earthquake engineers, and social scientists to major earthquakes in the U.S. and abroad to collect perishable data. When you think of EERI, you also think of LFE, since for so many years it has been such a key mechanism through which the organization has contributed to the understanding of earthquake ground motions, how soils, lifelines, and buildings perform during earthquakes, and how communities and societies respond to such disasters. By 1976, when I arrived at NSF, the agency had been supporting LFE since 1973.

My background in disaster field research made me keenly interested in LFE, and I was delighted to work with EERI on this important program, which during my tenure involved many earthquake events. What I particularly recall were the reconnaissance and related activities carried out by EERI through LFE on

the 1985 Mexico earthquake, the 1989 Loma Prieta and 1994 Northridge earthquakes in the U.S., and the 1995 Kobe, Japan, earthquake. EERI's efforts related to these events helped set the stage for crucial complementary follow-up research supported by or carried out by NSF, the other NEHRP agencies, and the research community, which significantly advanced both knowledge and practice.

Reitherman: Let's mention that for your role in the Learning from Earthquakes Program, as well as your other activities at NSF, EERI awarded you and your NSF colleague Chi Liu the first Special Recognition Awards (now the Alfred E. Alquist Special Recognition Medal).²⁸

Anderson: Yes, Chi and I both felt greatly honored to receive this award from EERI. It has always been a privilege for me to work with EERI over the years.

Reitherman: I also understand that you recently received an honor from the social science disaster research community.

Anderson: Yes, I was given the 2010 Charles E. Fritz Award for Career Achievements in the Social Science Disaster Area, named after that pioneering disaster researcher we talked about earlier and who was the first recipient of the award. The award is made by the International Research Committee on Disasters of the International Sociological Association. Other previous awardees include Henry Quarantelli, Russell Dynes, Joseph Scanlon, and Burke

Stannard. It is a great honor to be included in such a distinguished group of awardees.

Reitherman: Comment on your colleagues who were involved with the earthquake and hazards programs during your time at NSF.

Notable People at NSF

Charles C. Thiel

Anderson: Chuck Thiel was at NSF when the RANN (Research Applied to National Needs program) emerged, and he played a major role in getting earthquake topics included in that program. He had a broad vision and was very loyal to his colleagues. I enjoyed working with him very much when he was our division director, and I learned a great deal from him. As I mentioned, he was the person at NSF who hired me.

Reitherman: Did Chuck come from Purdue?

Anderson: He got his PhD at Purdue. The thing that struck me about Chuck was that he was a very capable and involved manager. He was appointed a RANN division director, and part of his portfolio was the NEHRP-funded earthquake program. He had a very good relationship with the head of RANN, Al Eggers.

I remember that as our division director, Chuck oversaw all kinds of programs—engineering, social science, land use planning, and so on—about fifteen of them in all. And Chuck would have to periodically brief Al Eggers on them. So he would bring these fifteen program officers together and ask each of us to talk about our activities for ten or fifteen minutes. Then he would go off and make a presentation. On those occasions when I was present during

28 That award was given in 2007. As of 2010, the EERI Special Recognition Award was merged with the pre-existing Alfred E. Alquist Special Recognition Medal.

such briefings for our big boss, Chuck's presentations were better than the insight he had previously received collectively from the several program officers in our division. He was extremely verbal and could absorb a vast amount of information, understand and synthesize it, and present it in the most coherent fashion. He was really missed by the staff when he eventually left NSF.

Clifford Astill

Reitherman: Cliff Astill passed away in 2004. What was Cliff like?

Anderson: Cliff was an engineer who came to the earthquake program from another NSF division a couple years after I arrived. He was a very dedicated worker and was very close to the research community. He saw that the worldwide web would be a key way to communicate across the research community, and he was one of the first avid users of this technology and used it as a means to forge ties among the researchers he served. For example, Cliff helped the tsunami research community in the U.S. collaborate with overseas colleagues. He contributed a great deal to the international coordination of tsunami research. As program director for the Siting program, Cliff deserves a lot of credit for contributing to the advancement of geotechnical earthquake engineering.

Shi Chi Liu

Anderson: Chi Liu has been at NSF for over thirty years now, and was there before I arrived in 1976. He came in 1975 from Bell Labs. Chi has always been a very bold thinker and was a vital member of the earthquake team at NSF. He was responsible for many of NSF's

coordinated earthquake activities while I was there, including the precast seismic structural systems (PRESS) initiative, the repair and rehabilitation research for seismic resistance of structures initiative, and the structural control research program, all of which were launched in either 1990 or 1991. He was always interested in exploring the design and development of new technologies such as sensors to detect structural changes in buildings and other structures. Chi was also our key link with researchers in China, particularly at the Ministry of Construction. In the 1980s and 1990s, he developed a number of important coordinated programs with the Japanese. He facilitated the use of Japanese experimental facilities—which were so extensive and advanced—by American researchers. After the Mexico earthquake in 1985, he set up a focused program on seismic retrofit technologies and methods—a program that enabled researchers to investigate first reinforced concrete, then steel frames, masonry, and pre-stressed concrete. The coordinated and cooperative programs that Chi helped initiate spurred important advances in the field of earthquake engineering.

John Scalzi

Anderson: The late Jack Scalzi, whom I mentioned earlier, was in the earthquake structures area early on. He came to NSF in 1975 from U.S. Steel, and before that served on the faculty at Case Western Reserve University for many years. Jack's efforts at NSF particularly furthered research on bridges and masonry. He played a major role in supporting the activities of the U.S. Coordinated Program on Masonry Building Research. Because of his

leadership, the Masonry Society inaugurated the John B. Scalzi award and made him its first recipient. Both Jack and Chi were hired by Chuck Thiel.

Mike Gaus

Reitherman: What about Mike Gaus? He was at NSF when the earthquake program was beginning, wasn't he? He is mostly a wind engineer by background, isn't he?

Anderson: Mike had a strong interest in both wind engineering and earthquake engineering, and sometime after he left NSF he became president of the American Association for Wind Engineering. Mike was made head of the natural hazards section, which included the earthquake research activities, when Nam Suh became head of the Engineering Directorate. Mike was also in the position of section head in 1977 when NCEER was inaugurated. While Mike was at NSF, he also taught in the college of engineering at nearby George Washington University.

Mike was a very astute person and widely respected in the field. He was one of the early leaders, along with Chuck Thiel, in getting earthquakes hazards on the agenda at NSF—even before the creation of NEHRP.

To show you how astute he was, when Mike was section head we were frequently challenged by a congressman who didn't have a university in his district and so wasn't receptive to higher education and research. Whenever we would go to the Hill for a hearing, he would ask why NSF was doing social science-related policy research because other agencies had "policy" in their missions. At one point

Mike suggested we change the name of that research area to Earthquake Systems Integration, and after doing so we never had any problems. When Joseph Bordogna was made the assistant director of the Engineering Directorate at NSF, he mentioned to me that he particularly liked the "Systems Integration" title. I found out later that when he was dean of the school of engineering at the University of Pennsylvania, he was known as the "systems man" because he strongly advocated that approach.

Henry Lagorio

Anderson: Another NSF person I recall from the early days, actually from my first or second day on the job, was this tall gentleman, an architect, which is a rather unusual professional background at NSF. It was Hank Lagorio who stopped by my office to introduce himself. He was a U.C. Berkeley faculty member at NSF in one of the visiting staff positions. He said, "Let me show you around," and he spent a day giving me a tour. He showed me where the proposals arrived, how they were distributed to program officers, introduced me to the division of grants and contracts, and so on. No one else took me under their wing that early, except perhaps for Herman Harvey, a colleague in another division who became one of my closest friends. I have always remembered Hank's kindness. Later, when someone new came on our staff at NSF, I tried to offer the same favor. Lagorio also later taught at the University of Hawaii at Manoa for a year and went off to Italy for a couple years as a Berkeley faculty member for the year abroad program Berkeley runs there for graduate students. And then Hank returned to NSF for another

two-year term. Both times while at NSF, Hank was assigned the role of working with architects and planners and bringing them into the program.

Reitherman: Sounds like Lagorio was a recidivism problem! I had a very similar positive experience when I met him. I recall my first week in the graduate program in architecture at Berkeley when he kindly loaned me some publications about earthquakes, generously spent time one-on-one explaining seismic policies and regulations in California—and that’s when I got hooked on the subject.

Anderson: My initial impression of him always stayed the same—so pleasant to work with.

Frederick Krimgold

Anderson: After Hank left NSF the first time and went back to Berkeley, another architect, Frederick Krimgold, who had been in Robert Whitman’s earthquake research program at MIT, was hired. Fred remained at NSF for several years before he took a faculty position at Virginia Polytechnic Institute. Fred had an interest in worldwide disaster risk reduction as well as risks facing the U.S. He and I later had the opportunity to work together again when I was at the World Bank, where he served as a consultant while at Virginia Polytechnic and put to use his many international connections. He had strongly encouraged me to take the World Bank assignment, which we can talk about later.

Both Hank and Fred had the assignment of bringing in more architects to the NSF earthquake research program. A tough sell, because

as you know, architects don’t really have a strong tradition of doing research. However, architect Chris Arnold was funded by NSF—perhaps one of his projects was related to the building configuration and seismic design book you, Bob, worked on with him early in your career.

Earle Kennett, another architect, was then with the American Institute of Architects (AIA) Research Foundation where there were some efforts at disseminating seismic design ideas to architects. Donald Geis was at the AIA during the time of the Mexico earthquake, and he received funding from NSF to carry out cooperative research with Mexican earthquake experts. This was all in the latter half of the 70s and the early 80s, but as of today, I don’t see a significant development of an architectural research component, but there is the excellent research that architect Mary Comerio at the University of California at Berkeley has been doing over the years.

A. J. Eggenberger

Anderson: A.J. Eggenberger is another important name to mention in the annals of NSF’s earthquake program. Previously on the faculty at the University of South Carolina, he was appointed to the earthquake team during Mike Gaus’s term as section head after many years in the private sector. He was a fine colleague. Like Jack Scalzi, A.J.’s many contributions at NSF included working effectively on seismic issues with the masonry community. After serving as an NSF earthquake program director for several years, in 1989 he received a presidential appointment from the first George Bush to be vice-chair of the newly created Defense Nuclear Facilities Safety Board,

where he later became chair and continued his connections with many leading earthquake engineers in his new role.

M. P. Singh

Anderson: During my tenure, M. P. Singh came twice to NSF as a visiting engineer from Virginia Polytechnic Institute. He was involved primarily in the structures area, working closely with Chi Liu. I spent a great deal of time with M. P. He is a delightful guy and a hard worker and contributed significantly to the agency.

Working with the visiting faculty at NSF was one of the pleasures of the job. I started out thinking that I would only be at NSF for a few years myself, but ended up working there for over twenty years, which indicates how much I enjoyed the job and the agency.

Robert Hanson

Anderson: In 1989 and 1990, Bob Hanson was the president of EERI and a visiting engineer at NSF on leave from the University of Michigan. Bob served as director of our division, which was then called the Biological and Critical Systems Division. Bob was one of the best people I have ever worked with. His philosophy was that if you have experienced and good people, your job is to enable them to work effectively. You don't stifle the creativity of the staff. You give them room to work. This is certainly the approach he took with the earthquake team, as well as with others in the division.

He was a pure delight to work with. I don't know how he did it, because he still had

continuing responsibilities back at the University of Michigan, such as overseeing the work of his PhD students. He was president of EERI, and in that role facilitated the hiring of Susan Tubbesing as executive director, and at the same time served as director of a large division at NSF. In spite of all the demands, he was very effective.

The only gripe I have with Bob is that once he was flying off to another meeting on the day when we had a big management meeting at NSF with the Director, Erich Bloch, the Assistant Director for Engineering, John White, and other top staff. Bob had to leave the meeting at about four o'clock to make it to the airport. The meeting was running late. He had a presentation he had prepared on all of the civil and mechanical engineering programs, and he leaned over to me and handed me his slides and said, "Here Bill. I have to go. Since you are section head, you make the presentation."

So, I had to get up and make the presentation with those unfamiliar slides to the top NSF executives. I was a little apprehensive about it, but later John White joked with Bob and me that it was a good thing Bob had to catch a plane, because I did a good job since I brought a needed fresh perspective to the presentation Bob had been expected to give.

When Bob left NSF following his two-year assignment, White tapped me as Bob's interim replacement. I served as acting division director for nearly a year while also retaining my section head and other duties.

Let me mention that during this period, Erich Bloch, who came to NSF as director from IBM, was supportive of the earthquake program. This

was also true of Neal Lane who succeeded Bloch as director. For example, when we were planning NEES, Lane could be relied on to give us strong encouragement. In 1998, Lane left NSF to become President Clinton's Science Advisor, and has since returned to academia as a physics professor at Rice University. Lane's support for NEES was essential because, as I've noted, the Engineering Directorate had never received major research equipment funds before.

Eleonora Sabadell

Anderson: As I mentioned before, the hazards research activity in the Engineering Directorate was broader than the NEHRP earthquake component. Nora Sabadell was the program officer for nonearthquake hazards, the Natural and Man-Made Hazards Program. One of the main activities she was responsible for was the support for the wind engineering program, a collaborative activity involving Texas Tech engineers and wind scientists at Colorado State University. This was a multiyear effort initially funded only by NSF, with FEMA providing additional funding later on. When Nora went on sabbatical to Johns Hopkins University for two years, I managed the wind engineering program along with my other duties, since I had become section head by that time.

One of the people I got to know during that time was Kishor Mehta, a fine and talented guy at Texas Tech who was the lead in this collaboration. I put Kishor in the same category as so many people in the earthquake field, someone who is a delight to work with.

James Whitcomb

Anderson: You'll recall that I explained how the NSF NEHRP funds were divided between

the Engineering and the Geosciences Directorates. When I was at NSF, Jim Whitcomb was the manager of the geosciences portion of the NEHRP program. When NSF needed to make a report on NEHRP, such as to congressional committees, he and I shared the task. Jim is a geoscientist. He was the key program officer during the evolution of the "big science," or Major Research Equipment and Facilities Construction (MREFC) project, that came after NEES—namely the EarthScope program. He has also been a key player for NSF in terms of the Southern California Earthquake Center (SCEC), which is headquartered at the University of Southern California. Like the earthquake engineering research centers, SCEC is a consortium of research institutions. It has been funded jointly by NSF and USGS to further learn about earthquakes in Southern California and other regions at risk.

Other NEHRP Agencies

Anderson: I worked with the other NEHRP agencies. At FEMA, a key staff contact was Ugo Morelli. Ugo and I got to know each other when the Steinbrugge working group²⁹ was established, prior to the creation of NEHRP. Later, Jane Bullock was another key FEMA staff member I worked closely with, along with Gary Johnson. When James Lee Witt became director of FEMA in 1993, Jane was appointed

29 Working Group on Earthquake Hazards Reduction, Office of Science and Technology, Executive Office of the President. Working Group's report: *Earthquake Hazards Reduction: Issues for an Implementation Plan*. Executive Office of the President, 1978.

his chief of staff and Gary became the agency's chief financial officer.

I worked with several NIST colleagues during my twenty plus years at NSF. Richard Wright led NIST's NEHRP activity then, and was later inducted into the National Academy of Engineering. Riley Chung, a geotechnical engineer, also worked on earthquake problems during two terms at NIST, with an appointment at the National Research Council in between. I also worked with H. S. Lew, who probably has the longest tenure of anyone I worked with at the agency. Also on the NIST earthquake team at the time was Noel Raufeste, whose role from 1985-1991 was to manage the U.S./Japan Panel on Wind and Seismic Effects. Towards the end of my tenure at NSF, Shyam Sunder was appointed chief of the Structures Division, which housed NIST's NEHRP activities.

At the U.S. Geological Survey, Robert Hamilton was instrumental in not only managing the USGS component of NEHRP for many years, but was instrumental in getting NEHRP off the ground in the first place. Because of our earlier collaboration, Bob was instrumental in my later assuming a position at the National Research Council, as I mentioned before.

I would say that Bob Hamilton and Chuck Thiel were two of the key federal officials during the creation of NEHRP. Later, Rob Wesson assumed a leadership role in integrating USGS's activities with the other agencies, and Walt Hays also emerged as a major player. I was always amazed at Walt's knack for identifying people who could develop into champions of the NEHRP program and earthquake risk reduction, even if they weren't part of the

earthquake community to start with. John Filson was another key leader at USGS for many years while I was at NSF. His role in NEHRP was recently recognized when he was given the Alfred E. Alquist Special Recognition Award by EERI in 2010.

Presidential Administrations and Congressional Leaders

Reitherman: Did the succession of presidential administrations—during the years from the founding of NEHRP in 1977 to 1999 when you left NSF—have a noticeable effect on the earthquake program? That time frame starts with Jimmy Carter, whose term began in 1977, then proceeds through Ronald Reagan (two terms), George H. W. Bush, and William Clinton (two terms).

Anderson: It is hard to say. It was fortuitous that seismologist Frank Press was Jimmy Carter's science advisor and was able to advance the creation of NEHRP with the president's blessing. I remember a few times when the earthquake working group was preparing to meet and Frank Press arrived and indicated that he had just left a meeting with the president. That was heady stuff to hear for a young guy like me who grew up in Akron, Ohio!

But to answer your question more directly, after Carter it was probably whether or not there were particular influential elected leaders with a knowledge of and support for the earthquake program rather than what political party controlled the White House or House or Senate. For example, I look back on the period when Senator Alan Cranston from California was in the Senate as the good times. Cranston was first elected to the Senate in 1968 and served four

six-year terms. He was not only a key legislator for getting the NEHRP bill passed, but maintained his support over the years. While at Arizona State, I was invited to present testimony at a congressional hearing chaired by Senator Cranston on the need to establish a national earthquake program. The hearing was held in California where, of course, there was interest in the establishment of such a program. This turned out to be quite an experience for me and my first venture into the policy arena.

George Brown Jr.

Anderson: Congressman George E. Brown Jr., chairman of the House Science Committee, and his staff person Carrye Brown, were very supportive of our approach at NSF, and Brown should be singled out. Brown, who represented a congressional district in Southern California in the San Bernardino area, was a steady source of support for the federal earthquake program. But at the same time, he was not shy about speaking his mind when he saw deficiencies in the program. If he thought the emphasis was misplaced, he said so. He made it plain that each agency was accountable. He could be a critic as well as champion.

He was a very wise man. As I mentioned earlier, in 1977 when Buffalo won the competition for the first earthquake center, California Senators Pete Wilson and Alan Cranston went to the Government Accountability Office and requested an investigation to see if the process was handled correctly. Brown, by contrast, said publicly that this may be a good thing for the earthquake program because it may make the program more national. He realized that broadening the support for and expanding the

scope of the earthquake program beyond California was in the program's long-term interest.

He was very inclusive and supportive, praising and working for funding when there was good performance. And as I said, he could also be very critical when he thought it was necessary. He was widely admired by his colleagues in Congress and by scientists and engineers for his interest and attention to science and technology. You probably know that his undergraduate degree was in physics. The library at the National Academies is named after him. And, in his honor the full name of NEES is the George E. Brown Jr. Network for Earthquake Engineering Simulation.

I mentioned one of his staff members, Carrye Brown. Same surname, but she was unrelated. Carrye was a very important staff member for Brown's committee. She was the key contact for the earthquake program and also was involved with a portfolio of other committee and subject assignments. She worked on fire safety and helped develop some key fire legislation, for example.

Reitherman: After George Brown passed away in 1999, where did she end up?

Anderson: Interesting that you should ask. She has had an interesting career. When Bill Clinton was elected in 1992, Clinton appointed her to head up the Fire Administration, perhaps because of the fire legislation that she helped craft.

NSF Directors

Reitherman: What do you recall about the various directors of the National Science Foundation? Your time there spanned the

terms of eleven of the fifteen directors over the history of the National Science Foundation.

Anderson: The directors were distinguished scientists and engineers. They came from many disciplines and various types of institutions, particularly academic institutions and, as you can imagine, had varied management styles. For example, John Slaughter and Neil Lane were very people-oriented and friendly, whereas Eric Bloch assumed more of a formal manner. Most of the directors were fairly accessible to the professional staff.

There was some diversity among the directors of the agency while I was there. John Slaughter

and Walter Massey are African Americans and Rita Colwell became the first woman to serve as director. Cora Marrett, an African American woman, served as acting director after I left.

Some of the directors served at very crucial times with regard to NSF's earthquake activity. For example, Richard Atkinson served during the time that NEHRP was created, Eric Bloch was director when NCEER was established, and Neal Lane was at the helm when the three earthquake engineering centers (MCEER, MAE, and PEER) were established. Also, Lane and Colwell were at the top of the decision chain when NEES was being planned and approved and Arden Bement Jr. when its implementation began.

Directors of the National Science Foundation

(NAME, TERM, DISCIPLINE)

- Dr. Alan T. Waterman, April 1951 – June 1963, Physics
- Dr. Leland J. Haworth, July 1963 – June 1969, Physics
- Dr. William D. McElroy, July 1969 – January 1972, Biochemistry
- Dr. H. Guyford Stever, February 1972 – August 1976, Physics
- Dr. Richard C. Atkinson, August 1976 – June 1980, Psychology
- Dr. Donald N. Langenberg, July 1980 – December 1980, Physics
- Dr. John B. Slaughter, December 1980 – October 1982, Physics
- Dr. Edward A. Knapp, November 1982 – August 1984, Physics
- Mr. Erich Bloch, September 1984 – August 1990, Electronic Engineering
- Dr. Frederick M. Bernthal, September 1990 – March 1991, Chemistry/Physics
- Dr. Walter E. Massey, March 1991 – April 1993, Physics
- Dr. Frederick M. Bernthal, April 1993 – October 1993, Chemistry/Physics
- Dr. Neal F. Lane, October 1993 – August 1998, Physics
- Dr. Rita R. Colwell, August 1998 – February 2004, Microbiology
- Dr. Arden L. Bement, Jr., February 2004 – May 2010, Metallurgical Engineering
- Dr. Cora B. Marrett, June 2010 – September 2010, Sociology
- Dr. Subra Suresh, September 2010 – present, Mechanical Engineering

At the World Bank

In the back of my mind, I always thought I might someday be able to do something in the area of disasters and developing nations.

Reitherman: The next chapter in your career, after your twenty-three years at NSF, was your position at the World Bank. How did that come about?

Anderson: I went to the World Bank headquarters in Washington, D.C., in 1999. Gene Wong was then head of the Engineering Directorate at NSF. I told him I had always enjoyed our collaborative international work with developed countries, but that I also wanted to do something that related to developing countries. I had had some interesting experiences at the State Department while I was on leave there from NSF for four months back in the early 1980s, when I worked in the refugee program. In the back of my mind, I always thought I might someday be able to do something in the area of disasters and developing nations. I told Wong I wanted to take a sabbatical to spend a year at the World Bank. He approved the request. His father-in-law had worked at the Bank, and he thought it was a good institution. So I was, in the terminology of the Bank, “seconded” to the World Bank. But even as

someone detailed from another agency for a stint there, I was treated the same as the long-term employees.

At the end of the year, my World Bank colleagues asked me to stay another year. I went back to Wong and said I knew he had only initially approved a one-year stay for me, but would he approve another year? He thought about it and said yes, I could have one more year away from NSF.

Working at the World Bank

Reitherman: What is the World Bank like, from the standpoint of being an employee there?

Anderson: It was a great place to work and I thoroughly enjoyed my time there. In some ways it was like NSF because there were a lot of smart people there, including economists and other social scientists and engineers, and we were working on many interesting projects. On a more personal note, one of the things I liked about being at the Bank was its downtown Washington, D.C., location with a vital, urban scene—unlike the NSF offices had been after we moved to Arlington, Virginia, from downtown.

Working conditions at the Bank were absolutely first rate. When I was going to make a trip to a place like Japan, for example, I would just state the dates of my travel and the appointments I wanted to have set up by our staff there. When I arrived in Japan, I would have a nice place to work in the World Bank building there and a list of my appointments. Such arrangements really facilitated your work.

In 2000, I had my first trip to South Africa while working at the Bank. There was a

meeting in Cape Town, which sociologist Dennis Mileti from the University of Colorado also attended. It was a large meeting of sub-Saharan African professors, researchers, and officials, and it focused on the topic of disaster reduction. I got to meet many of the continent's leaders in the field, and it was a great introduction for me on the types of programs that were being developed there to reduce risks from natural disasters. When I got back, I told my wife Norma that South Africa was a beautiful country. So the following year, in June of 2001, we spent two weeks there on vacation, traveling primarily by bus.

After the Kobe, Japan, earthquake, Hiro Kamada, a geotechnical engineer at Kyoto University, approached the Japanese government about funding a multidisciplinary effort to deal primarily with natural hazards, especially earthquakes and tsunamis, in developing and other countries in the Asia/Pacific region. This became the program known as the Development of Earthquake and Tsunami Disaster Mitigation Technologies and Its Integration for the Asia-Pacific Region. You can see why it was called by its acronym, which was EQTAP.

Funds for the program were provided to the Earthquake Disaster Mitigation Research Center in Kobe. I was appointed to the program's international advisory committee just as I started my work at the World Bank, so I had the opportunity to bring in that experience to the EQTAP activity. Dan Abrams and Shirley Mattingly from the U.S. were also appointed to the committee, along with Neil Britton from New Zealand, who later became a key member of the EQTAP staff based in Japan. We had three meetings a year in Japan and a fourth

one somewhere else in Asia. There was a lot of information developed and a website to disseminate it. Chile, Mexico, China, Thailand, the Philippines, and several other countries were involved besides Japan. Its five-year funding ended before the great 2004 Indian Ocean tsunami.

Reitherman: For the general reader, how would you explain what the World Bank does?

Anderson: It primarily provides loans, along with a smaller number of grants, to developing countries. It was set up after the Second World War to help European countries recover from the war, and then as Europe got back on its feet, the loans and grants were shifted to developing countries. It is the major international financial institution.

Reitherman: Where does the Bank get the capital to make loans?

Anderson: From donor countries, including some that were originally recipients or client states after World War II—Germany, France, Italy, and so on—are now donors. Most of the loans have gone from the Bank to national governments of poor countries for their programs, though now there is some interest in providing funds to nongovernmental organizations. The U.S. is the biggest financial sponsor. Japan is another major sponsor. The top management is roughly proportionate to the level of sponsorship, so the president is from the U.S. and countries like Japan have a director on the board.

The ProVention Consortium

Anderson: I have had a great deal of experience working with colleagues in Japan. So

while at the World Bank, Alcira Kreimer, the disaster reduction expert who managed the unit I was in, made me the contact person for Japan, especially with respect to trying to raise funds for the ProVention Consortium, a new entity organized by the Bank composed of international organizational representatives and experts to help developing countries reduce their disaster risks. The World Bank provided the initial funding for the consortium, which I will talk more about later, then Norway's foreign aid program provided some funds, but more funding was needed. So one of my tasks was to visit Japan and try to pry money loose from their finance ministry. Japan was the key country funding the International Decade for Natural Hazard Reduction. However, I think the Japanese thought that the Bank had enough funds of its own and never came through with funding. Nonetheless, we had enough World Bank and other funding to get the ProVention Consortium started with a significant portfolio of risk reduction projects.

At the World Bank, I worked in the Disaster Management Facility (DMF), which Alcira Kreimer had the major hand in establishing just before I arrived in 1999. I had known Alcira for many years before I came to the Bank. For example, after the 1985 Mexican earthquake, we worked together to facilitate research collaboration between Mexican researchers funded by the Bank and U.S. researchers funded by NSF.

A chance meeting with Alcira set up the opportunity for me to work at the Bank. I ran into her at a meeting at George Washington University where she was making a presentation on the newly established Disaster

Management Facility. We later had lunch where I learned more about her program at the World Bank. From that lunch, it seemed like there was a good fit for me at the Bank, and so we pursued an appointment for me. She recently retired from the Bank. She had wonderful international contacts and was very well respected at the Bank and among disaster reduction professionals.

I should mention that Margaret Arnold was another important colleague at the Bank. Along with Alcira she helped establish both the DMF and the ProVention Consortium, even giving the latter its name. It was a real pleasure for me to work with Margaret and Alcira during my two years at the Bank, especially being part of the team that set up the ProVention Consortium with the support of the distinguished World Bank president, James Wolfensohn.

One of the interesting things about working in the DMF when I did was that it was during the time when it was trying to change the Bank's perspective. The World Bank has traditionally provided loans for disaster reconstruction. Some countries all too frequently find it necessary to repeatedly return to the Bank for loans and grants for reconstruction after earthquakes, tropical storms, floods, and so on.

The DMF launched an effort to make mitigation a priority at the Bank and in developing countries. For example, when a country gets a loan to build a bridge or highway, the new perspective is to get them to assess the risk to that investment from particular hazards and disasters. The aim has been to include in loan packages provisions that relate to the reduction of future disaster losses. In addition to

international collaborations, such as with the United Nations' International Strategy for Disaster Reduction, Kreimer's program had the goal of changing the culture within the Bank with regard to natural hazards.

Disaster prevention was the idea behind the creation of the ProVention Consortium by DMF. Being a part of the creation of ProVention was a highlight of my time at the World Bank. In addition to Kreimer and Arnold, the geographer Maxx Dilly and I were the four people at the Bank most involved in that effort. Alcira Kreimer advanced the idea that the Bank was wasting its capital on repetitive disaster losses and should encourage disaster reduction. One of the projects of that World Bank program was to identify disaster-prone countries and regions in a "hot spots" report.³⁰

30 *Natural Disaster Hotspots: A Global Risk Analysis*. Includes contributions from Columbia University, the World Bank, and the Norwegian Geotechnical Institute. World Bank, Washington D.C., 2005.

The National Academies

I started at the National Academies in August of 2001. Of course, after September 11, 2001, man-made disasters and terrorism were given more attention, and the name of the Natural Disasters Roundtable that I headed was changed to the Disasters Roundtable.

Anderson: Bob Hamilton, whom I had known since the 1970s, had become the head of a commission on earth science at the National Research Council (NRC). This was in the 1990s after he finished his long career at the U.S. Geological Survey. He occasionally asked me if I wanted to explore the possibility of working at the NRC. I casually said I was interested, but didn't really think about it all that much.

Over the years, I had become fairly familiar with the NRC. Even as a graduate student, I knew about the important work that had been carried out there in the disaster research area by Charlie Fritz, who had worked at the University of Chicago with Henry Quarantelli in the early days of the field. Later, when I was on the faculty at Arizona State, I served on the NRC committee—chaired

by sociologist Ralph Turner of UCLA—that wrote the 1975 NRC report *Earthquake Prediction and Public Policy*. This report served as a useful document for providing support for the argument that the social sciences should be included in any future national earthquake program because of the importance of socioeconomic issues in mitigating and responding to earthquakes.

As a member of the study committee, I had the opportunity to work with Charlie Fritz because he was the NRC staff person responsible for the committee. Later, after arriving at NSF, I worked even closer with Fritz and his colleagues at the NRC, with our program providing support for studies that led to such reports as the 1978 NRC report *A Program of Studies on the Socioeconomic Effects of Earthquake Prediction*.

Another important early NRC report our program supported was the 1982 report *Earthquake Engineering Research: 1982*. In later years, NSF supported studies through such NRC units as the Board on Natural Disasters, working with such NRC staff officers as Riley Chung. Thus, I had a pretty good understanding of the NRC, especially its hazards-related activities, before Bob even talked to me about going there.

When Bob found out that I was getting ready to leave the World Bank and return to NSF, he convinced me to first come to the National Academies for a job interview in the Division on Earth and Life Studies, where by this time he was deputy director. So in August of 2001, I ended up at the National Research Council as associate executive director in the same division as Bob, where I remained until my retirement in October of 2008.

One of the things that concerned me about leaving NSF was who the agency might get to replace me—hopefully an experienced person with a strong record of research who could play a leadership role in the multidisciplinary hazards program at the agency. As it turned out, NSF selected an excellent person, sociologist Dennis Wenger, who was director of the Hazard Reduction and Recovery Center at Texas A&M University. I had known Dennis and worked closely with him since our days together at DRC in the 1960s, and I knew he would do an outstanding job at NSF, which definitely has been the case during the several years he has been there. Since arriving at NSF, he has played a leading role in enabling the multidisciplinary hazards research community to make major advances in both research and education.

Organization of the National Academies

Reitherman: Explain what the National Academies are.

Anderson: Four organizations comprise the National Academies: the National Academy of Sciences, the National Academy of Engineering, the Institute of Medicine, and the National Research Council. The National Research Council (NRC) is the organization people may be most familiar with because it is the arm of the institution that produces studies and provides advice to the government. Many countries don't have this type of mechanism. The National Research Council is where you have staff to serve as the operating arm of the National Academies.

In 1863, the National Academy of Sciences

was established under a congressional charter signed by Abraham Lincoln. The role of providing advice to the government goes back to those origins. The National Research Council was established in 1916. Next came the National Academy of Engineering, which was set up in 1964. Last came the Institute of Medicine, in 1970. So you have three academies (though the medical one has the name “institute”) that provide the honorary function for those admitted as members, and one operational arm, the National Research Council—although collectively all four components are called the National Academies.

Reitherman: Readers have probably come across one or more committee or panel reports published by the National Academies Press. Some have been prepared on the subjects of the national earthquake program, liquefaction, earthquake loss estimation. Are all of those panels organized by the National Research Council?

Anderson: Most of the studies of the National Academy of Sciences and the National Academy of Engineering are conducted by panels or committees through the National Research Council, which has a professional staff, but also depends heavily on volunteers to conduct studies and carry out board activities. The Institute of Medicine has its own staff for conducting investigations and also depends on volunteers. And then there are joint studies as well.

The National Academies are independent of the federal government, yet are mostly funded by various federal agencies. The important units within the Academies are its boards—for example the Board on Life Sciences and

Resources. Along with the staff, the boards provide significant intellectual leadership for the institution and include experts from different disciplines. This makes the NRC a great place to work—you’re working with very bright and dedicated people. That’s similar to my experience at NSF.

Reitherman: At NSF, you were on the inside of the National Earthquake Hazards Reduction Program. At the National Academies you were outside it. Do you have any observations on those two different viewpoints?

Anderson: From both inside and outside, NEHRP looks like a very important program to me. Of course, when you’re a member of EERI and still have friends in NEHRP agencies, you never completely leave the program in some respects.

Disasters Roundtable

Reitherman: In what part of the National Academies did you work?

Anderson: I began my work with the Division on Earth and Life Studies, which is part of the National Research Council. That division is multidisciplinary, including physical and social scientists and engineers, and it includes the disaster subject area. I was hired as the associate executive director of the division, and director of its Natural Disasters Roundtable. As I mentioned, Bob Hamilton was the deputy director of the division. Warren Muir was executive director. The post of director of the Disasters Roundtable allowed me to continue my interest in hazards, plus I picked up other responsibilities in my portfolio. At that time, it was called the Natural

Disasters Roundtable, and it was focused solely on natural hazards. I started at the National Academies in August of 2001. Of course, after September 11, 2001, man-made disasters and terrorism were given more attention, and the name of the Natural Disasters Roundtable was changed to Disasters Roundtable. We had a steering committee and a small staff. The purpose of the Roundtable was to bring together stakeholders from the research, policy, and practitioner communities to discuss and consider issues related to disaster mitigation, preparedness, response, and recovery.

We organized three workshops a year—normally held in Washington, D.C., and usually one day long—where these three communities were convened to discuss important issues of the day. Sometimes workshop themes were part of a strategy for the coming year, and sometimes they were based on an event that had recently happened, like the Indian Ocean tsunami of 2004. That workshop of course had a tsunami theme, bringing together people who were researching that event or were involved in tsunami programs here in the U.S., like Eddie Bernard of NOAA. As climate change became a bigger topic in the sciences and public discourse, we ran a workshop on how climate change affected the nature of disasters and natural hazards.

Reitherman: What would be an example of that? In a warmer climate, the ocean is warmer, and warmer water means more hurricanes?

Anderson: Yes, though the jury is still out on whether it is as simple as that, and some scholars question whether hurricane frequency will increase. Possible changes in the location

or severity of droughts and floods were also discussed.

Aside from our own workshops, the Disasters Roundtable served as a focal point for the disasters subject area within the Academies. People would come to me and ask for help in planning studies, workshops, and conferences that related to disasters, and we would help them locate appropriate experts. The Disasters Roundtable spent a lot of time working with various boards and divisions throughout the Academies. We might also provide assistance to agencies that funded National Research Council studies, such as NSF or NOAA. There is a federal interagency group known as the National Science and Technology Council, which has a Subcommittee on Disaster Reduction. The subcommittee often partnered with us on Roundtable workshops. They might ask for a workshop on a particular issue of concern to them, for example.

A Review of NEHRP Research

Anderson: On one occasion, a few years after 2000, several months before an upcoming NEHRP re-authorization by Congress, the NEHRP agencies asked us to conduct a workshop titled “NEHRP: The First Twenty-Five Years.” We brought in speakers from the earth sciences, social sciences, and engineering. It was a look back at what had been accomplished and also provided a way for the NEHRP agencies to prepare for the upcoming congressional re-authorization hearings.

At the end of the workshop, I had the sense that we had learned a great deal about earth science and engineering accomplishments, but not enough about those in the social

sciences because of time constraints. Thus, I approached Dennis Wenger at NSF to determine if the agency might be interested in funding a study on that topic, which turned out to be the case.

We established a committee of experts to conduct the study. The committee was made up primarily of social scientists and those with an interest in interdisciplinary research and practice. Gary Kreps of the College of William and Mary chaired the committee and provided outstanding leadership. I served as study director. Other members of the distinguished committee included Philip Berke, University of North Carolina, Chapel Hill; Thomas Birkland, University at Albany, State University of New York; Stephanie Chang, University of British Columbia; Susan Cutter, University of South Carolina; Michael Lindell, Texas A&M University; Robert Olson, Robert Olson Associates, Inc.; Juan Ortiz, Tarrant County, Texas Office of Emergency Management; Kimberly Shoaf, University of California, Los Angeles; John Sorensen, Oak Ridge National Laboratory; Kathleen Tierney, University of Colorado at Boulder; William Wallace, Rensselaer Polytechnic Institute; and Anthony Yezer, George Washington University.

It was a multiyear study to look at the challenges and opportunities for social science research and related interdisciplinary research on earthquakes and other hazards and the contributions of the social sciences to NEHRP and the nation in furthering the understanding of disaster reduction, preparedness, response, and recovery. Members of the study committee had made such contributions themselves throughout their outstanding careers.

Two workshops were held by the committee at the beginning of the study. The final report was released in 2006.³¹ A draft of the report was actually ready in 2005, but in August of that year, Hurricane Katrina struck the Gulf Coast, and the committee decided to delay publication so as to include consideration of that disaster in its findings. We were interested in comparing our pre-Katrina conclusions with what we thought after having the benefit of the first research findings on the hurricane. For example, within months after the disaster there were some studies published by the Natural Hazards Center at the University of Colorado, Boulder, that began to outline what the big issues were, even though more definitive studies were still to be conducted.

Reitherman: Sounds like an interesting experiment that the committee itself was part of. So what were your conclusions about your work? Did pre-Katrina conclusions get revised?

Anderson: The major principles articulated in the report did not need to be changed. That's not surprising when you consider that there had been twenty-five years of NEHRP social science research up to that point and overall forty or fifty years of research by social scientists. It's not likely that one event, even as catastrophic as Katrina, will suddenly invalidate basic principles.

31 Committee on Disaster Research in the Social Sciences, *Facing Hazards and Disasters: Understanding Human Dimensions*. National Academies Press, Washington D.C., 2006.

However, we did note some crucial issues raised for social scientists by Hurricane Katrina. For example, because of the large number of claims by the media and other sources about such anti-social behavior as panic and widespread looting, which is inconsistent with previous social science research findings, we did recommend that systematic in-depth studies be made of such claims. Also, Katrina was a much larger disaster than, say, the 1994 Northridge earthquake, so we recommended that the scale issue be investigated, which would involve comparing disaster response and recovery following the catastrophic Katrina event with smaller events in the U.S., which make up the bulk of the disasters previously studied by social scientists.

Reitherman: The committee's report couldn't be held up for years, only about a year. But now, with the passage of a few years, have definitive findings been reached on whether Katrina validated previous social science conclusions or cast new light on some?

Anderson: People by and large did not panic. Looting did occur, but was not as significant as was reported.

Reitherman: Was that because the media overstated the dramatic?

Anderson: To start with, the media generally get their information from various sources that are not always reliable. People in the news business aren't scientists. They usually collect their own information, and the usual disaster information sources on behavioral topics aren't scientific. There is also the problem of precision in terminology. Social scientists use terms

like looting and panic precisely and more carefully than do laypersons.

Of course, Katrina was about much more than response, which is what we have been talking about. There is also much to be learned from Katrina with regard to mitigation and recovery, for example. We know more about how organizations and communities respond to disasters than we do about how they reduce their risks. You'll recall I said that there were two complementary strands of social science research going way back to before I got into the field: one strand studied hazards, which leads to the mitigation topic; the other studied disasters, which focuses attention on response aspects.

Reitherman: To review that earlier discussion—Gilbert White would be associated with the hazards approach, E. L. Quarantelli with the disaster emphasis?

Anderson: Right. Initially, it was geographers in the hazards camp, sociologists in the disaster one. When I was at NSF, I realized social scientists had given insufficient attention to disaster reduction or mitigation, so I tried to encourage research on the social science aspects of this topic. Now we know a lot more about the socioeconomic aspects of mitigation, in part because the two streams of social science research in this field have essentially merged, and many more social science investigators are giving attention to mitigation, including those from such disciplines as urban and regional planning, political science, economics, and public administration.

Studies of Katrina will help us understand the societal aspects of mitigation much better.

Also, we are now learning a great deal from Katrina about recovery, since it involves such an important recovery experience for the U.S. and there are other events it can be compared to. For example, researchers like Laurie Johnson and Robert Olshansky have given significant attention to the evolving recovery story in the Gulf Coast following Katrina and are able to make significant comparisons with recovery from the 1995 Kobe earthquake, which they also studied in depth in collaboration with Kenneth Topping, another planning researcher. I would also anticipate that studies of recovery following the devastating 2010 earthquakes in Haiti and Chile will also significantly advance our understanding of disaster recovery, including how it is related to mitigation.

Reitherman: What about the 2004 Indian Ocean tsunami disaster compared to Hurricane Katrina? Was it similar in that there were some early reports that apparently contradicted previous social science research, but after a while it turned out that, by and large, it was another disaster confirming previously held conclusions?

Anderson: The first issue is the extent to which social science research conclusions on disasters can be generalized to other countries. Many social science findings developed in the U.S. seem to apply elsewhere. However, since there is less social science disaster research conducted in most other countries, we can't be overconfident about this. In the case of the Indian Ocean tsunami, you're talking about thirteen affected countries, so it will take a real effort to determine similarities and differences in terms of outcomes across all of them.

Reitherman: Are there countries that have come along rapidly in the disaster field?

Anderson: Yes, but still today most social science researchers around the world interested in disasters consider the U.S. the international leader. This means that English is an important language in which to publish in this research field. Even in Japan, for example, some of the social science disaster research is published in English. Some of the European countries are now doing more research in this area as well as researchers in such countries as Australia and Taiwan.

The NRC report *Facing Hazards and Disasters*³² points out that social science research on hazards and disasters has significantly advanced our knowledge as a result of funding from NEHRP since it was established in 1977, including how households and organizations prepare for and respond to hazards and disasters. The report also points to areas where more social science efforts are needed. It notes, for example, that there is a need for more comparative research, where the outcomes resulting from different types of hazards are compared, and the consequences to different countries are compared. The report also indicates that more diversity is needed in the social science disaster research workforce. Because of their vulnerability, Hurricane Katrina affected many minorities, but there are few minority researchers and practitioners in the field. A minority perspective

32 *Facing Hazards and Disasters: Understanding Human Dimensions*. National Academies Press, Washington, D.C., 2006.

could bring new light to issues that would otherwise go unnoticed. Additionally, the report calls for NSF and other relevant agencies to take action to increase the size of the scholarly workforce in the field in order to meet future needs, especially since the workforce is aging. Dennis Wenger at NSF has responded to this challenge in part by continuing to support the mentoring program Enabling the Next Generation of Hazards and Disaster Researchers, which is for untenured faculty members who have an interest in entering the hazards and disaster research field, with Thomas Birkland at North Carolina State University as the principal investigator.

Facing Hazards and Disasters is the most complete assessment of social science research in the field since Dennis Mileti's *Disasters by Design*.³³ I am told by staff members at the Department of Homeland Security that they turn to *Facing Hazards and Disasters* for guidance, which is also true of staff members at NSF.

Minority Internship Program

Anderson: Speaking of enabling the next generation, as associate executive director of the division, I had the responsibility of running an internship program at the National Academies for minority high school students who envisioned careers in science, engineering, and medicine. While not focusing on disasters, this program involved bringing in promising high

school students to work throughout our institution during the summer. Two schools participated in this very successful program. One was Benjamin Banneker High School in Washington, D.C., a science-intensive magnet school that has a large African American enrollment. The other school was Albert Einstein High School, which is in the Maryland suburbs and has a large Hispanic population.

I also helped initiate a Senior Scholars program to bring minority faculty members to the National Academies to work for a year, but we were unsuccessful in obtaining enough funding to sustain the program.

During all the time I worked at the Academies in my various roles, I had the assistance of an outstanding staff, including my program associates Patricia Jones Kershaw, Byron Mason and Kemi Yai, and financial officer Jackie Prince. Also, for six years William Hooke of the American Meteorological Society provided dedicated service to the Academies as my Disasters Roundtable steering committee chair, with geographer Rutherford Platt of the University of Massachusetts serving in that role during my first year at the institution.

International Programs

Reitherman: At NSF and the World Bank you were involved with various international activities. What about at the National Academies?

Anderson: I frequently got involved in such activities as director of the National Academies' Disasters Roundtable. For example, with support from the Bill and Melinda Gates Foundation, the National Academies launched

33 Dennis Mileti, *Disasters by Design: A Reassessment of Natural Hazards in the United States*. National Academies Press, Washington D.C., 1999.

the African Science Academy Development Initiative (ASADI) in 2004. The purpose of the program is to strengthen the ability of African science and engineering academies, such as those in Nigeria, Uganda, and South Africa, to provide independent, science-based advice to their governments and countries, as is done in the case of the U.S. National Academies. Many African academies are primarily honorary societies. As I have previously mentioned, in addition to their honorary component, the U.S. National Academies carry out studies and offer scientific advice. The premise that objective, scientific, and independent advice should be provided to the government by the National Academies is taken for granted in our country, but is not actually that common in Africa or in many other regions of the world for that matter.

In 2008, colleagues at the National Academies, especially Lauren Alexander Augustine, asked me to help organize ASADI's annual meeting, which was to be held in Senegal. The purpose of the annual meetings was to encourage collaboration among the participating African academies and provide them with a learning forum. The 2008 meeting focused on public health, and my role was to show the relationship between public health and disasters, help identify and bring in appropriate speakers and other participants, and provide an overview perspective at the conference in Senegal, which I did. It turned out to be a very successful meeting.

Also in 2008, working with our Policy and Global Affairs Division, I helped organize meetings that took place in Iran, the first time I had been to the Middle East. Working with

the U.S. State Department, this was part of an effort to initiate collaboration with the Iranians in the field of earthquake hazard reduction. As you know, there has been little progress over the decades in reducing the standoff between Iran and the U.S. The idea of the State Department was that some progress towards cooperation might be achieved by working through scientific channels, discussing common problems. What do we have in common with the Iranians? Earthquakes.

Reitherman: There is almost no other country on earth that is virtually all red on a map depicting the risk of strong earthquakes, with red being the worst level. A map of ground shaking risk of the United States looks more like measles than solid red—most of the country is in rather low seismic areas. Even countries near to Iran, right across the Persian Gulf, have less seismicity. When the population map is laid over the seismic map, Iran really stands out as high risk for earthquake disasters.

Anderson: Right. So we organized an earthquake conference on the seismic performance of adobe and masonry structures. The Bam, Iran, earthquake occurred in 2003, killed thousands, and destroyed many buildings, including a number of historic buildings. Six other Americans and I went to Iran in June of 2008. Our host was Sharif University, which is in Tehran. An Iranian American team member, Yousef Bozorgnia of U.C. Berkeley, was our key academic link to Sharif University.

We had a two-day conference followed by a public meeting on Sharif University's campus. We then visited various other institutions and programs, including a school seismic retrofit project and also toured the beautiful city

of Isfahan. We also made plans for an Iranian delegation to visit the U.S. the following year, 2009, which did successfully occur in spite of major turmoil in Iran at the time. Of all my various trips to other countries, the one to Iran was one of the most memorable.

Reitherman: Was your family apprehensive about your trip? After all, every once in a while an American is imprisoned in Iran on various charges that seem trumped up, and there are the frequent mass “death to America” rallies.

Anderson: My adventurous wife Norma was not apprehensive at all. When I told her about this opportunity to travel to Iran, she said without hesitation that I should go ahead and do it. My daughter said the same thing. The funny thing is that a few friends and my

sister-in-law, Marie Medeck, said, “Don’t go.” She was very concerned about my safety. I had a little bit of concern, too, and in retrospect it was valid. Some months after our successful 2008 meetings in Iran, a colleague from the National Academies went to Iran and had some unnerving experiences.

Reitherman: Since your retirement, have you done work with the National Academies?

Anderson: Some. For example, along with Yousef Bozorgnia, I helped organize the visit of the Iranian experts to the U.S. in 2009, and later co-edited the proceedings of the Iran/U.S. conference that was part of their visit. The conference was held at the National Academies’ conference facility in Irvine, California.

Family, Avocations

I'm a lucky family man, and I could go on and on about my wife and daughter!

Reitherman: You talked a little bit about your wife Norma and daughter Candice. Anything more to add on the topic of your family?

Anderson: Can your tape recorder run for about thirty hours? I'm a lucky family man, and I could go on and on about my wife and daughter! I'll try to be brief.

To review the basic chronology: after Norma and I got married in 1968 upon completion of her bachelor's degree in education, I stayed at DRC at Ohio State and she taught elementary school in Columbus for a year before we moved to Arizona, when I joined the faculty at Arizona State University. Our daughter was born in Phoenix three years later.

Daughter Candice

Anderson: I liked Arizona State very much, and we still stay in touch with friends we made there. One of the reasons we decided to stay after we moved east was that my wife's family was located in the Washington, D.C., area, and mine in Ohio, which meant

that Candice could grow up near family members—so family reasons were also part of the motivation for my move to NSF. We also preferred the greater diversity in the east.

My daughter went to elementary, junior high, and high school in suburban Maryland and then went on to Oberlin College in Ohio, where she made some strong friendships, including with students from Asia and Pakistan in particular. Upon graduation, she and some of her friends decided to move to New York City. Oberlin College is in the tiny community of Oberlin, so they decided to experience the big city. After being in the Big Apple for several years, she went to graduate school and earned her master's in urban policy at the New School University. You've heard of the New School?

Reitherman: Yes. Didn't it attract a lot of European intellectuals fleeing the Nazis in the 1930s?

Anderson: Yes, it was founded by progressives with social change and reform as explicit aims of the school. Oberlin also has a strong progressive, humanist tradition. Students graduate wanting to give service to others. Since she's been out of college she has worked in non-profit organizations that deal with children. Now she's the executive director of an organization called Cool Culture in New York City. With government and foundation funding, Cool Culture makes it possible for young children in over 50,000 disadvantaged families to experience the rich cultural offerings of New York, including its many museums, botanical gardens, and zoos. Candice is now a real New Yorker. She lives in Brooklyn with her husband, Dorian Butts. She has accomplished a great deal, traveled widely, and we are very proud of her.

Wife Norma

Anderson: Like her older brother Joe and younger sister Marie, Norma was born in Toledo, Ohio. They moved to Columbus, Ohio, with their parents, Joseph and Odessa Doneghy, when Norma was fourteen after her father, who graduated from the law school at the University of Toledo, was appointed by the governor of Ohio as chairman of the state's pardon and parole board. After completing high school, Norma went on to Ohio State University where we eventually met, as I mentioned before.

As she had done the previous year in Columbus, Norma continued to teach elementary school when we moved to Arizona. After our daughter Candice was born, she went to graduate school at Arizona State and earned a master's in education. She taught elementary school for several more years after we moved to the Washington, D.C., area following my acceptance of the position at NSF. Then she decided that she wanted to do something different, so she worked for IBM for thirteen years, including a stint as a field manager. Her next professional position was as a program official with Leadership America, a women's leadership organization located at the time in Alexandria, Virginia. The organization provided opportunities for bright and up and coming women to network and advance their professional careers.

So Norma has had a varied and productive career. Now that she is retired, she works from home and is developing a Web-based business called Salon Voices that focuses on research and reputation management. A big plus for me has been that Norma has not only focused on her own work, but also has always been very supportive as I have pursued my career. She

has been a true partner in every way, which is reflected in our long marriage.

Reading

Reitherman: What do you like to do outside of your work?

Anderson: Probably number one is reading fiction. When I had the long commutes to work at NSF, the World Bank, and the National Academies, I used the time for reading. I really enjoy novels. I always have one at hand, at the store, the park, when traveling.

Reitherman: What kind?

Anderson: I like novels that develop characters and represent quality literature. The same is true of films. I like films that develop characters, typically ones from small, independent movie makers, not the big blockbuster Hollywood hits. A novel with interesting characters in a foreign setting is a real treat for me.

A favorite of mine are novels by some of the best British writers such as Japanese-British author Kazuo Ishiguro who wrote *The Remains of the Day*, and Ian McEwan who wrote *Atonement*. I often check to see who won the Man Booker Prize.

Reitherman: That's not a well-known prize in the U.S. You're referring to the one given for the best book written in English by a non-American?

Anderson: Right. I frequently read those. Again, it's partially the foreign element, either the setting is foreign or the writer is. Another favorite writer is the Nigerian Chinua Achebe, perhaps best known for his book *Things Fall Apart*.

Reitherman: You mention your interest in films and books that develop their characters. Have you ever read anything by Willa Cather? Her novels were written in the 1920s, 30s, and 40s. If you ask me what happens in them I'd be stumped. In *Death Comes for the Archbishop*, for example, what happens? A French priest goes to New Mexico in the 1800s. He works hard for his church. He grows old. He dies. He doesn't get run over by a train in a dramatic conclusion to the story, he just gets older and eventually dies. But you get to know him so well you almost feel like his impending death is yours.

Anderson: I like novels of that sort, but I haven't read anything by her. John Updike is one of my favorite authors. He wrote about suburban existence in America. A lot of people would say that's boring. But to me, I find it very interesting. Ordinary people, ordinary stories, but well-done, and you get to know the characters.

Reitherman: Like Rabbit, in the books like *Rabbit, Run*?

Anderson: Yes, and I enjoy contemporary writers like Joyce Carol Oates and John Irving, who wrote *Hotel New Hampshire* and *The World According to Garp*, and classic writers like Ernest Hemingway. I also like socially relevant novels such as Zora Neale Hurston's *Their Eyes Were Watching God*, Ralph Ellison's *Invisible Man*, Richard Wright's *Native Son*, James Baldwin's *Go Tell it on the Mountain*, and Alice Walker's *The Color Purple*, for which she received the Pulitzer Prize.

By the way, I now own a Kindle, given to me as a birthday gift by Norma and Candice. I have a lot more flexibility in my reading of novels now

since I have gone electronic, especially when I travel.

Exercise

Reitherman: What do you do for exercise?

Anderson: I like walking. I try to walk six miles every day. We live next to a very nice wooded area with paved trails where I often walk. There are also nearby parks that I walk in. Now that I'm retired, I have more flexibility in terms of when I take my walk.

Another pastime of mine is rollerblading. When I was a kid I did a lot of roller skating on the street and later as a teenager in the rinks. Then I took my daughter skating a lot, at least until she became a teenager and of course didn't want to go skating with her dad anymore. I stopped skating then, and took up skiing, and the family had ski vacations. Then, years later, rollerblading was invented and became popular.

It's interesting how I started rollerblading. I was on a trip in Japan about twelve years ago. I saw a man who looked to be in his eighties rollerblading, having a blast. This guy was not restrained at all. He had a big smile on his face, twirling around, completely joyful. I was very, very impressed, looking at him. I said to myself, "If he can do it, I can too. He's a lot older than I am." I got home, went to a sporting goods store, bought a pair of rollerblades, and have been rollerblading ever since. I can see why he had a smile on his face. It's such a feeling of freedom. Now I put on my rollerblades, strap on my iPod, and off I go, in my own world. After several years of coaxing, I now have Norma as a rollerblading partner. It is a

lot of fun, and provides us both with needed exercise.

Travel

Anderson: Another avocation is travel, although it's a hobby for which we need more money to enjoy as much as we'd like. Norma and I, early on after our daughter Candice was born, said that as much as possible, within our means, we would travel. Initially, the three of us traveled around the U.S., Canada, Europe, Mexico and the Caribbean. When Candice got to be around nine years old, I decided to take her on one of my business trips each year in addition to our family trips, in this case just dad and daughter for bonding time. A couple of times we traveled to San Francisco together, for example, adding a few extra days to enjoy the city as tourists after the business part of the trip was over. Another trip was to San Diego, another to the Grand Canyon, and Yellowstone where I had speaking engagements. We stopped when she was about sixteen, when going on trips with her old dad wasn't her favorite thing anymore, so I was glad I started the tradition of the trips as early as I did.

We also took international trips for family vacations or in connection with business trips. The three of us went to Spain, Italy, and France together on vacation. Norma has been to China with me three times, and that was a lot of fun. I mentioned that during my time at the World Bank I was an advisor to the EQTAP program centered in Japan, with three trips a year there and another elsewhere in Asia. Norma went with me on some of those trips, including a trip to New

Zealand. On another occasion, the three of us went to Thailand together. The Japanese, like the World Bank, always gave me a business-class ticket. Well, there was no way I could fly up front and have my wife and daughter in coach. I would never have lived that down. So we used up a lot of my frequent flyer miles for business class tickets for them. Earlier I mentioned the visits to South Africa. Norma and I had a wonderful vacation there, which included visits to Cape Town, Soweto, and Kruger National Park. Norma and I have also visited Taiwan together twice in recent years, and took the opportunity each time to also spend time in both Hong Kong and Macau.

Reitherman: Where would you like to visit that you haven't had a chance to go yet?

Anderson: I want to visit Egypt. I have talked to many friends and colleagues who have been there who thoroughly enjoyed it. I always have other places on my list that I want to visit, just like there are always other books I am looking forward to reading.

Reitherman: How do you like retirement?

Anderson: I had a long and gratifying career and worked with some great colleagues, as I have mentioned, and I hope I was of service to others. It was exciting to be able to teach and do research at three different universities, and to serve in three of the elite organizations in Washington, D.C.

Still, after so many years of reporting to work at specific times, at universities and my various jobs in Washington, D.C., it is a real pleasure to have more discretionary time. I certainly don't

miss the long commutes to work that I have had in the past.

Now I have more time to do a little consulting, write articles, review journal submissions, and serve on advisory boards and committees. I have the honor of serving in my third year on the EERI Board of Directors. I also serve on several other advisory groups, including the advisory board for the Natural Disasters, Coastal Infrastructure, and Emergency Management Center at the University of North Carolina, Chapel Hill, which is one of the Department of Homeland Security's Centers of Excellence, and I serve as an advisor to the NSF-funded mentoring project Enabling the Next Generation of Hazards and Disaster Researchers. Thus, I am still quite active—much more so than I thought I would be. So in many ways, I don't feel particularly retired.

This reminds me that I told Susan Tubbesing, after she retired as EERI executive director in early 2010, that she too can expect to remain busy as a result of calls from colleagues in the field, including her successor Jay Berger. Thinking of Susan also reminds me of my long-term association with EERI and its other fine staff members such as Marjorie Greene, and serving on the EERI Board of Directors is the latest chapter. For example, I previously mentioned that when I was at NSF, I was the agency's contact for the Learning from Earthquakes Program NSF funded through EERI.

I also served as the agency's liaison on a number of earthquake workshops EERI sponsored to advance collaboration between U.S. and Japanese researchers. It was in that role that

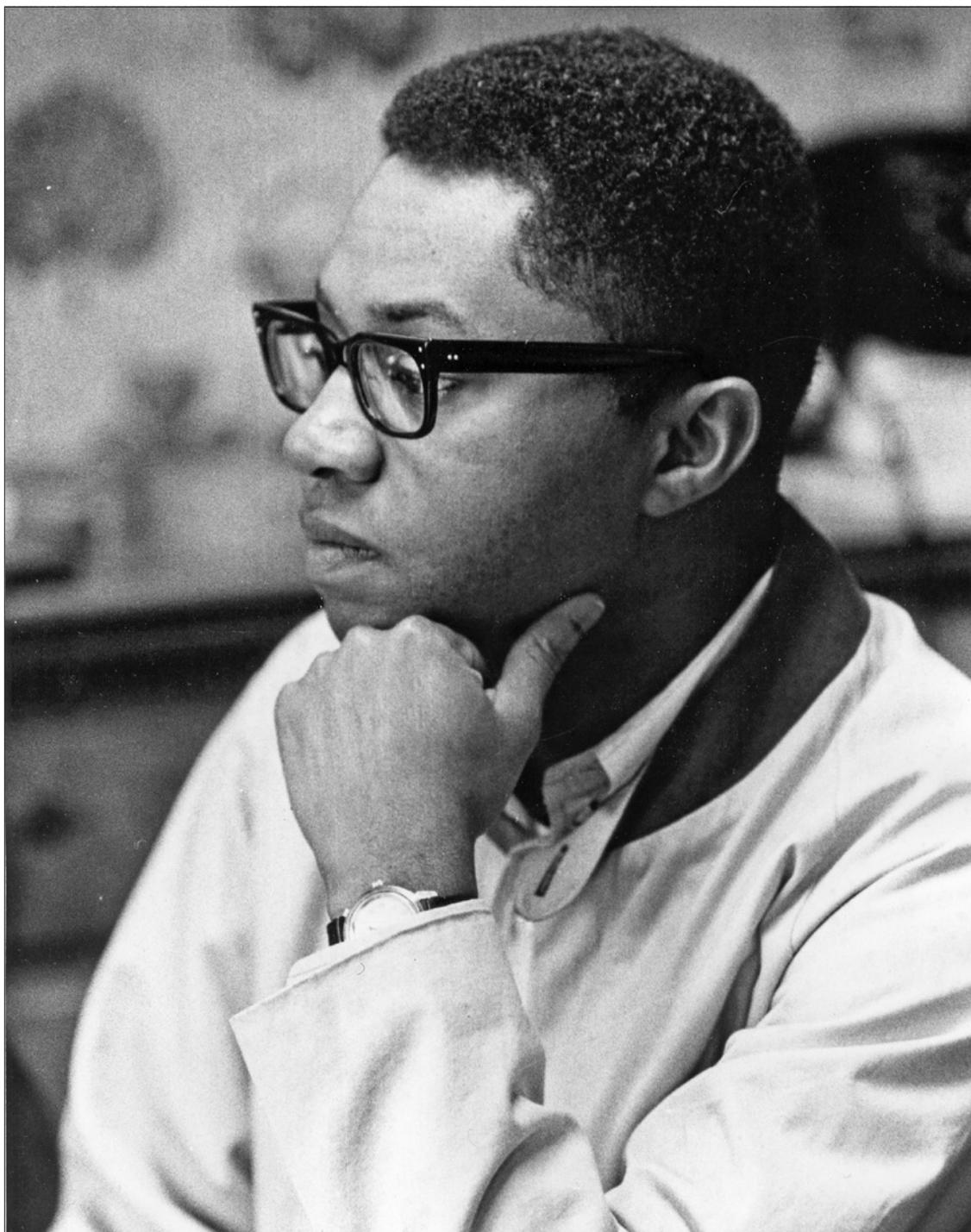
I had the memorable experience of being in Osaka at the time of the 1995 Kobe earthquake with a group of forty other Americans selected by EERI to discuss cooperative earthquake research, including Tom Tobin, Charlie Scawthorn, Joanne Nigg, and Rich Eisner. This visit was recast as an EERI research reconnaissance

trip to take advantage of being so close to such a major earthquake. And representing EERI, Susan served on the steering committee of the Disasters Roundtable that I managed. Thus, my long association with EERI makes it an even greater honor for me to be a subject of the EERI oral history program.

Photographs



Anderson at age six.



Anderson when an Ohio State University graduate student, 1965.



Uher tape recorder on his left side, Anderson deplanes in Mexico City in 1965 on his way to San Salvador to investigate the 1965 El Salvador earthquake.



Anderson at home with daughter Candice in Tempe, Arizona, in 1971, where he had joined the Arizona State University faculty.



Anderson with his grandmother at left holding daughter Candice, and his mother, Ruby Terrell, holding his niece, Tracy, in 1972.

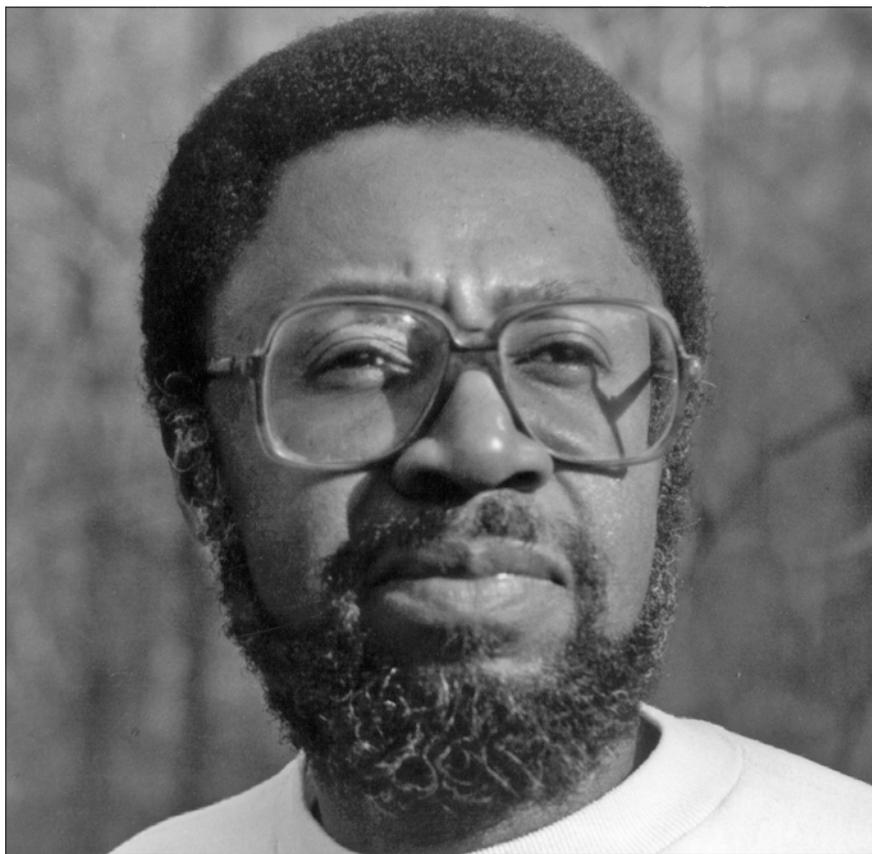


Anderson with NSF colleague Jack Scalzi in Japan attending an earthquake meeting in 1978.



Anderson with former DRC colleagues at the pyramids outside of Mexico City in 1982 during a meeting of the International Sociological Association.

Back row: Robert Stallings, Dennis Wenger, and Gary Kreps. Front row: Anderson, daughter Candice, Loretta Kreps, and DRC co-founder Henry Quarantelli.



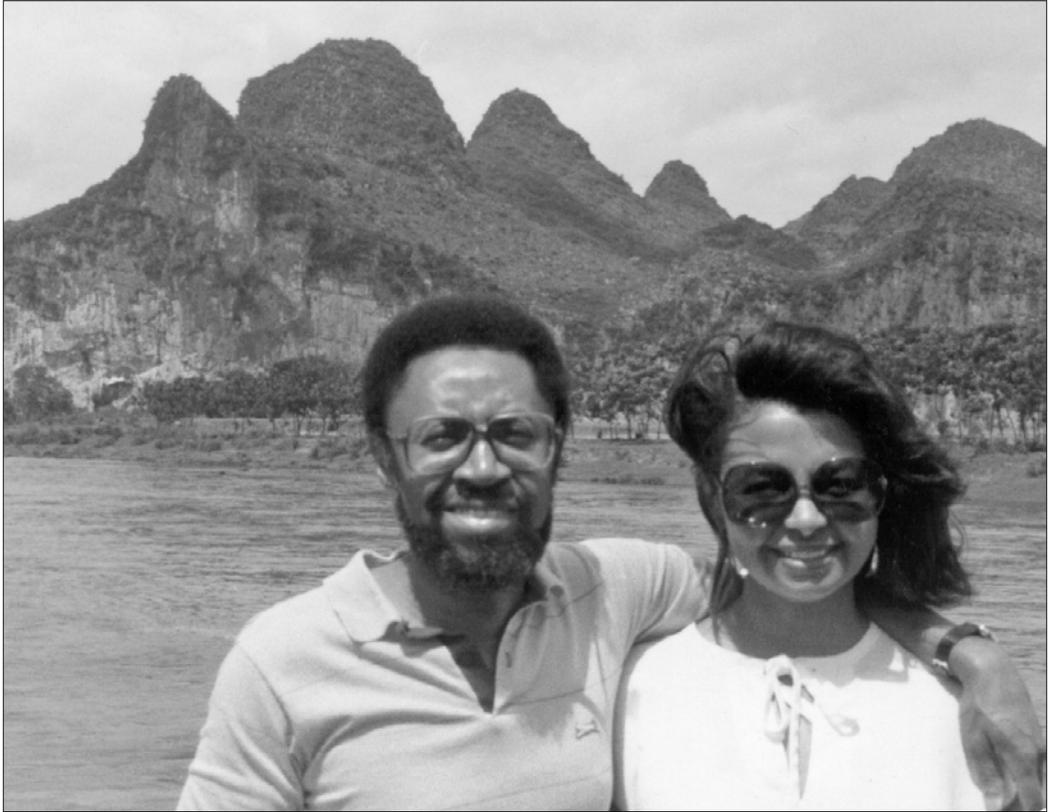
Anderson, photo taken by daughter Candice, 1987.



Henry Quarantelli, at left, with Anderson in Japan circa 1980.



Bill Anderson with his daughter Candice at the EERI Annual Meeting in 1987 in San Diego, California.



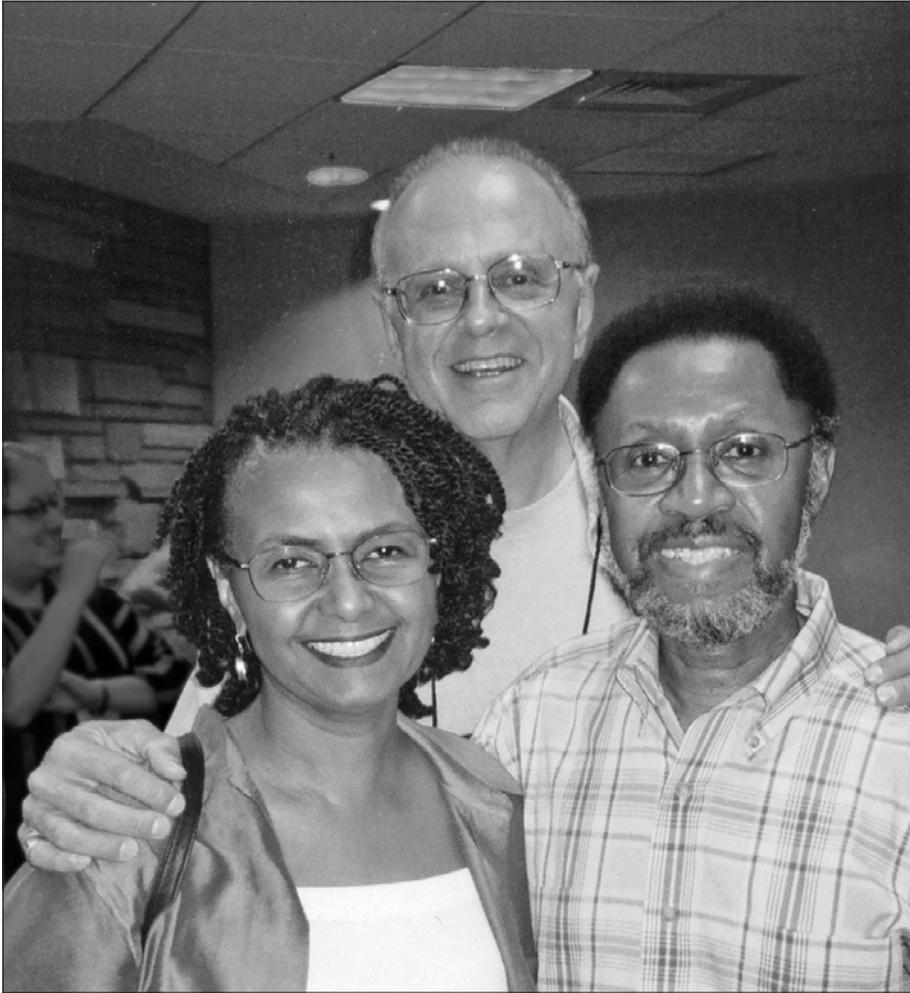
Bill and Norma Anderson in Guilin, China, in 1988.



Bill Anderson in Kobe right after the January 17, 1995, earthquake. He and others from EERI had been at a workshop in nearby Osaka when the earthquake struck.



Norma and Bill Anderson during a Panama Canal cruise in 1998.



Wife Norma, colleague and friend Dennis Mileti, and Bill Anderson at the annual Natural Hazards Center workshop in Boulder, Colorado, in 2002.

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