



*Sept. 27, 1979: Speaking at the groundbreaking of Weeks II, Cam Craddock, Department Chair, front, with Lou Maher, Building Committee Chair, rear. (photo—department archives)*

## An Interview with **Cam Craddock**

January 25, 2003

with John Fournelle

I was born in 1930 and grew up in the city of Chicago on the north side. In 1941 my parents moved out to Glen Ellyn, a suburb. I finished high school there and went to DePauw University in Greencastle, Indiana and graduated there in 1951. I've just had my 50th reunion a year ago.

I was the first one in the family to attend college. My father had come at 17 from Scotland in 1921, and immediately went to work to support his family. My mother had grown up near Duluth, Minnesota, and had trained there as a nurse. My parents got married there in 1927. In 1928 they moved to Chicago, and in 1930 I came along. Actually I was an adopted child. They had been unsuccessful in having children of their own, I came along and was available for adoption, and so they decided to sign me on.

I started out as a chemistry student. In high school I had been encouraged by a chemistry teacher to enter the Westinghouse Science competition. We manufactured plastics working afternoons and Saturdays. We didn't win anything, but

he whetted my interest in chemistry. So when I went to college that's what I studied—until I made the mistake of taking a geology course. After comparing the merits of geology with that of quantitative analysis, titrating away in the lab on spring afternoons, I decided geology would be worth a try. I shifted to geology and never looked back.

At DePauw they had a one-man department. I can't imagine how this one man, Charles Leonard Bieber, ever did all that he did. He was the key player in getting me started as a geologist. I applied to and was accepted by five schools for graduate study. The last letter to arrive was from Columbia, offering me \$1600 as a fellowship. Professor Bieber thought very highly of Professor Bucher, who became my graduate adviser there—I was interested in structural geology by then.

I was lucky enough to have fellowships my first two years at Columbia, so I could take courses, language exams, and the prelims. At the end of the second academic year, I got married. The following summer I finished the dissertation fieldwork on some rocks in the Hudson River Valley, part of the Taconic klippe as it is mapped. I mapped out the area for the first time in detail, and came to an unpopular conclusion that it was possible there was no Taconic klippe, and maybe these disparities could be explained by facies changes and not by the necessity of moving all these rocks 100 or more miles. In my last year I had two job offers, one from Shell, the other from the predecessor of Chevron, then known as the California Company. I decided to go with Shell because they offered a 15-month training program.



*Cam in front of an outcrop of Precambrian diamictites of the Kapp Lyell Group, Spitsbergen, 1978. (photo by Bart Kowallis)*

I went to Midland, Texas to report for work, and they sent me for Stage A (field training) to be a field assistant to a geologist studying reefs in the Sacramento Mountains near Alamogordo, New Mexico. We put in four months there, and then went to stage B, eight months in an office doing actual operations geology in Roswell, and then the final three months at a kind of Shell university, as we called it, in Houston. Finally, I got a permanent job. I was one of two of the group of 13 lucky enough to go to the Rocky Mountain area. I was assigned first to the Big Horn Basin, north central Wyoming. Primarily you were supposed to come up with ideas on prospects that could be drilled. Part of that year I was shifted over to work in the Wind River Basin. I treasure all of those experiences; later when I became a professor I made good use of all that information because I could organize field trips for students to go study the beautiful geology of Wyoming.

I had started thinking about academic jobs in 1954 but there were only two open structure jobs. However in 1956 there were four positions. The one that I took had an ad in *Geotimes*: "Large upper Midwestern university seeking structural geologist." In those days, it was thought to be somewhat demeaning to actually put your name in the ad. I wrote in, and it turned out to be Minnesota. I went there on a February afternoon for a weekend interview—I had to play hooky at the office. But I managed to get out of town without being discovered. Probably the most important thing I did right was to indicate an interest in teaching the summer field course in the Black Hills—by that time the rest of the faculty were far enough in life that they'd lost interest in that, and were desperately hoping to find someone to carry on with the field course. Soon enough I had an offer.

Minnesota was a well-thought-of department. The reputation was built on the backs of a small number of pretty good professors. There were

*Spitsbergen, 1979.*

*Top: CC, Ernie Hauser, and Jorn (Norsk Polarinstittutt) in a Zodiac, Vankeulen Fjorden. (photo by Albert Sun)*

*Bottom: CC and Albert Sun, Hessbreen from E. Ridge of Hermelinberget. (photo by Ernie Hauser)*

three elderly professors close to retirement, some others middle-aged and one other who was quite young. One by one they retired, and by 1961, four of the eight people were gone. They hired recent MIT graduates as two of the replacements. And the Department followed the lead of Physics and transferred out of the Arts College into the Institute of Technology. The Institute of Technology doesn't have chairmen, they have heads, and as far as I can reckon, heads tend to be appointed for life, like popes. The character of the Department was severely altered in ways that did not seem to be mostly positive. After I served a total of 11 years there, I was getting kind of unhappy about the way things were developing. One day I was home and the phone rang. It was Bob Black from Wisconsin, whom I had met down in Antarctica. He said that their structural geologist had left, and he was





*Spitsbergen, 1979. CC offering food to an Arctic fox near Roys Fjellet. (photo by Albert Sun)*

calling to see if I could come down and give a lecture and have a look at the position. I said sure, I'd be glad to come.

In those days the Madison airport was on the east side of the current location, where the National Guard is today. We were met by Bob Gates, the chairman. I gave a talk about some rocks in New Mexico, some strange folds in an area 40 miles west of Roswell, which I think are the result of gravity sliding of sub-horizontal rocks off the flanks of Tertiary intrusions. A week later I got the letter from Gates offering me the position. By this time, I was encumbered by a rather large collection of Antarctic rocks because I was working on a 230-mile mountain range in Antarctica, doing the first study of this range. I needed a place to put them, so he ended up giving me a suite of rooms in Science Hall and other laboratory space at 525 University Ave.

I got involved in Antarctic work by sheer accident. It was 1958 or early 1959, when the International Geophysical Year was ending, the U.S. decided to carry on with this network of seven stations that had been built, and they formed within the NSF a U.S. Antarctic Research Program (USARP). So I put in a proposal and got funded. I went down in the season of 1959-60, and did two things. One was to take part in an airborne traverse, which was operated by Edward Thiel who at the time was a geophysics graduate student at Madison. He and Ed Robinson were going to do the geophysics, and I was going to do the geology. We were going to fly a north-south traverse along the 88th meridian west, and make, if we could, eight

landings—four for geophysics to find ice thickness, and four for geology to see if we could find rocks. We went down to Byrd Station, 80 S 120 W, flew out of there on ski-equipped DC-3's. Sadly, Edward Thiel was killed two years later. He was trying to tie in a gravity station at McMurdo Station to one at a Russian station. On the flight back, the plane (a Neptune) bounced a bit, burst into flames and crashed. He had already been hired at Minnesota as an assistant professor of geophysics. The second half of the first season, I got on a U.S. Navy icebreaker and went down along part of the Antarctica coast which had not been visited before. Also on board that ship was Harold Hubbard from the USGS, so the two of us were charged with doing the geology. We were able to get into several coastal outcrops and we wrote a short paper for *Science* which they eventually published.

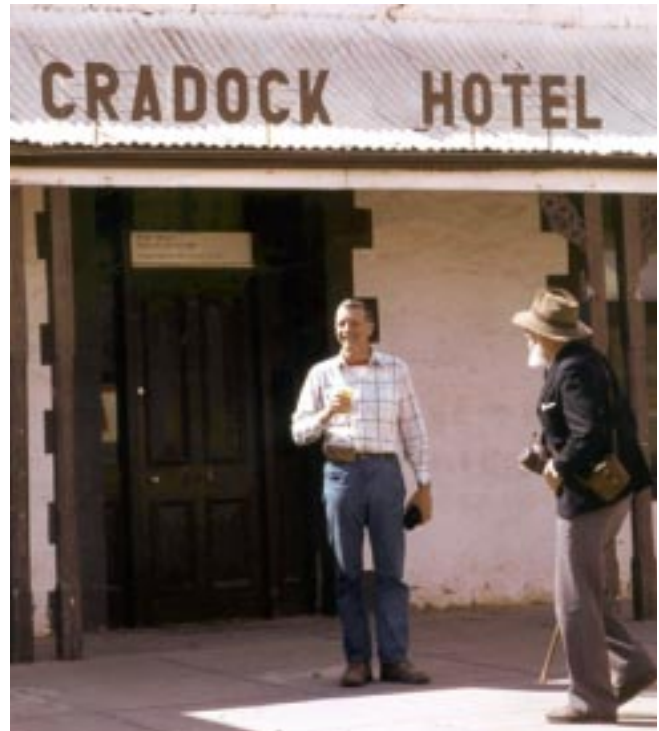
When I was still in Minneapolis, a geologist at Carleton College, Duncan Stewart, was quite involved in Antarctic mineral work. Once he and I came to a meeting in Madison in the early 60s. In the basement of Science Hall, George Woollard had a two-room suite, and eventually we were ushered into his office. We had just gotten started when a figure appeared at the door. Woollard said to him (I forget his name, let's call him Jack) "Jack, what are you doing here. I thought you were in New Guinea!" I thought, this is a strange operation they run. I was quite well befriended with George Woollard and thought a great deal of him. He was one of the leading figures in getting the whole Antarctic program going when they went from IGY into the USARP programs.

One day in 1968, Lewis Cline asked if I could stop in Alaska on my way back from a meeting in Tokyo in the early summer, to check up on a student doing a thesis in the Alaska Range. I said that sounded interesting, I'd never been to Alaska. In the meantime I had a Master's student who got interested in working in the Alaska Range. We (Dottie was with me) arranged to meet them in the field. So that's how it started. The student was Gerard Bond, who's had quite a good career back at Lamont, after he finished getting his PhD from Lewis. My Master's student was Jack Turner. They were working in the Richardson Highway area, where it crosses the Alaska Range. We have one picture of me carrying Dottie across a stream so she wouldn't get immersed in the cold glacial waters. That gave me an opening wedge into working in Alaska. In 1970 I got some Grad School money to go up there, to work along the Nenana River valley, by

McKinley Park headquarters, to study the rocks along the Denali Fault. Later I got NSF money and kept the project going through the early 1980s. At that time, nobody knew anything about the Denali Fault.

One year I went up to visit Wayne Brewer, a grad student. Wayne was quite a spectacular fellow, I'm sorry to say he passed away prematurely. He was teaching at Allegheny College. He pulled off quite an impressive feat—he mapped the Hess Mountain and Mt. Deborah area, by circumnavigating these mountains. I got a helicopter ride in one day to visit them. Wayne said they were out crossing a glacier and looked up at the peak and saw a dark spot that moved—was it a boulder rolling down? No, it turned out it was a Japanese adventurer who somehow had gotten over there and hiked close to the peak of the mountain. Wayne showed him his notes and rock hammer and got across that he was doing geology. The guy, who spoke no English, gave Wayne a couple of rocks from up at the top of Mt. Deborah that he'd collected. Then he continued on his way out...a very strange encounter. Wayne had his family in Seattle drying out fruits in the family oven and he bagged all this up, put it in boxes painted pink with pink streamers, and then got them up by railroad to Cantwell. Then he got them out to Susitna River Lodge where they loaded it into a Piper Cub, flew up into the mountains and he kicked out from the plane four boxes. Then he and two companions hiked in three days to the first box, set up camp and started mapping. They mapped their way around these boxes, circling the mountain. These guys lived up there with no ordinary food for 6-7 weeks; when they got to box #4, this box had cracked on impact and part of their provisions had been eaten by birds. So they had to cut short their work, and walk back out to Susitna River Lodge. They were skin and bones on arrival, but they got the job done.

We were up there for ten summers and saw bears every year but one. There's nothing to get your adrenaline going like a bear sighting. One day I saw five bears—five different bears—I could hardly sleep for a week. Strangely, we never had any real trouble with them. They're such a regal animal, it's like it's almost below their dignity to traffic with humans unless they're desperately hungry. Of course if you come upon one that's resting or mating, it's possible to have a really bad encounter without much trouble. But we always carried some bells on our packs, to let all bears in the neighborhood know that we're there and we



*Cam at Cradock, South Australia, 1982, during a field trip to Flinders Range. On the right is Prof. Tom Gevers, Witwatersrand University, Johannesburg, South Africa. The trip preceded an Antarctic symposium in Adelaide. (photo by Prof. Werner Buggisch, Erlanger University, Germany)*

always carried weapons—rifles in our base camps and everybody carried .44 magnum pistols. I made them fire these guns at the start of every summer, so they'd know what to do if they had to use them. But they never had to fire one in earnest. I felt it was a little bit of insurance, to at least give you a chance, if you had a bad encounter.

NSF decided they'd change the nature of the Antarctic program by making it bi-polar and renamed it the Division of Polar Programs. I sent in a proposal to work in Spitsbergen—it's an incredibly complicated geological laboratory, the Spitsbergen fold-and-thrust belt. By that time I was a good friend of the director of the Norwegian Polar Institute, Tore Gjelsvik, and he could help me logistically if I could get support to go there. We went in the summer of '77, myself and two grad students, with NSF funds. There was one little segment of this fold belt that the Norwegians were happy to give to somebody else because it was messy. It was also a place they felt reasonably comfortable inviting foreign geologists to work, because the likelihood of a polar bear encounter there was low. We didn't actually see a bear, but we saw a fresh bear print which is almost the same.



Cam Craddock, left, and “Lazy RA’s” Jay Nania (center) and Paul Decker, Spitsbergen, 1985. (photo—department archives)

I did a term as Department Chairman from 1977 to 80. The most excitement was building the addition onto Weeks Hall, which had opened in 1974—to get it up at all, we had to make compromises and cut off parts that we thought were quite important. The idea was that as soon as possible, we’d come back and put a wing on it, and finish the job. So Lewis Weeks had given us \$1.8 million, to finish it. Lou Maher was head of our building committee, so I think my term ended just about the right time, we started moving into the new wing, and Lou then became chairman. Now you can see we’re already feeling inadequate with our building facilities.

In 1977, when I became chairman, we learned about the Weeks bequest. Mr. Weeks had done rather a clever thing; he’d put aside \$5 million for a 20-year period, calculated so that it would pay at the going interest rate \$300,000 a year. Of that money 10% would go to his church in Westport, Connecticut, 10% to AAPG, and 80% (\$240,000) would come to his alma mater, this Department. I appointed a committee to come up with a sensible idea of what to do with the money. I tried to pick what I thought were some level heads to come up with a recommendation we could agree upon and present to the board of regents. The regents agreed

with the recommendation that we would use half, \$120,000 a year to advance departmental needs, and save the other half, so at the end of the 20-year period we would have a kind of permanent endowment fund, in excess of \$4 million. Now \$1 million of it, or more, will be spent to put up the new addition.

In February, 1981, I was invited to be a guest lecturer in Nanjing University in China. This came from meeting the chairman of the Nanjing geology department at a meeting in Paris. He had studied in the 1930s for a PhD at Minnesota, and while there he had come to work with Professor Emmons in Madison. I only knew they wanted me to come and give some lectures for three weeks. When I got there, I learned for the first time what they expected from me. They had assembled about 70 mid-career geologists from across China—people who had suffered during the Cultural Revolution by being cut off from the outside world, and they were all starving to know what was going on out in the real world. They wanted me to give a dozen lectures on my own research. They did not pay money for this, but to compensate, they had told me that when the three weeks in Nanjing were over, they’d arrange a tour to see some of China. So Dottie flew over to Shanghai, and we went on a tour around parts of China. When I got home, they sent me a letter a month or two later, saying we are going to publish a book about my lectures, would I be able to send copies of the figures, which I did. A year or two later, here comes two or three copies of the book, the title in English something like *The lectures of Professor C. Craddock, Delivered in Nanjing University, February and March 1981*. I wanted each of my children to have a copy.

If I had to do it again, I don’t think I would change very much. It’s a wonderful life to have lived, and I am very grateful for the opportunities that I’ve had. I guess I’ve been a part of about 90 graduate theses at Minneapolis and Madison, and I’ve enjoyed these opportunities to work with young people as they take their geologic training. I think it is one of the gratifying things of being retired. I don’t hear from all of them, but I still hear from a great many of them. Usually once a year, at Christmas time, we’ll get a card and find out where these folks have gone in their far flung careers and what they’re up to. So that’s a very nice thing, when you’re getting in the home stretch of life, to have these connections with people that you’ve shared great experiences with, in many distant places, far from Madison.