

# Computing Educators Oral History Project

## An Interview with *Daniel McCracken*

Conducted Saturday, June 17, 2006

In Manhattan, New York, USA

Interview conducted by Alison Young

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[**Context of the interview:** This is an interview with Daniel McCracken by Alison Young on the 17th of June, 2006 at Daniel's home at Manhattan, New York.]

1 [0:00]

2 **Alison Young:** OK, your name so that we have it correctly, please?

3

4 Dan McCracken: Well, it's Daniel D. McCracken. But anybody that calls me that is probably  
5 trying to get money out of me, because I'm always called Dan.

6

7 **A: OK, thanks Dan!**

8

9 D: They call us up and say, "Daniel?" And I'll say, "Yes". And they say, "Daniel?" And I say,  
10 "Who's calling, please?" And it'll be a fundraiser and I hang up.

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12 **A: OK.**

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14 D: You know, if you google for Daniel D. McCracken, you won't get much, because that's not  
15 how anybody refers to me. But yeah, that's me.

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**A: OK! Dan, I want to start way back at the beginning, a long time ago, and talk about your early education and when you went to school as a child. But starting with your parents. Did your parents have college degrees?**

D: My mother finished her college degree in World War II, when all the young men were getting drafted. She had been an elementary school teacher at a time when two years at college would get you a certificate.

[Referring to the recording process] Do you have good levels there? No, no, stop! Check the levels, I want you to get it ...

**A: No, don't stop! We're fine.**

D: OK. And all the guys went off to war. She lived in a college town, from which I graduated, Central Washington College of Education at the time. And she went back and got her degree and taught junior high science.

My father got in three-and-a-half years of a mechanical engineering degree at University of Washington, didn't finish and I've never known why. Just don't know. It's not the right place to speculate on it here. Anyway, he knew engineering kinds of stuff and did it. I mean did it ... he used what he learned in running agricultural equipment. That's what he was doing while I was growing up.

**A: OK. Thank you. We will just stop here. [A pause for adjusting the equipment]**

**[So your Mum] went back and got her College degree and your Dad didn't finish. Did they encourage you in your education or ...?**

D: Uhhhh, yes and no. They ... I had a laissez faire upbringing. I was given a great deal of independence. And they expected me to do well in school, I was encouraged in that sense. My father was more distant than my mother, shall we say, and he — I don't want to get into all the family dynamics and all that kind of stuff, but I had a closer connection with my mother than my father. And she was a teacher. And, as I said, in every sense she certainly encouraged — in ways that I didn't recognize at the time — she encouraged me in ways that led me into teaching actually. Not by telling me that's what I should do, it's not what I did at the beginning; I didn't do it until age 50. She showed a lot of interest in my school work and encouragement and helped me out on all kinds of stuff. They were both good people, but I was closer to my mother.

**A: Did you have siblings?**

D: Oh, indeed! I had four brothers, one of whom was adopted, and a sister, and they have all pre-deceased me.

**A: And they all had college degrees?**

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D: No. In fact only one did. Another one should have, but the War kind of got in the way and he didn't get back to it. My sister was a registered nurse, and that was a three-year program, she didn't get a — well, I don't know if you'd call that a college education now. It wasn't an academically oriented family in that sense, no.

**A: OK. Were you a good student at school?**

D: I was a very good student. I got extremely high grades. In New York State they have something called Regents Exams in high school. I spent my last year of high school in Ithaca, where Cornell is, where my brother, my next older brother, was going to Cornell. And I got 100 on one of the math exams, got 97.5 on another, and I remember that because the teacher had been rooting for me to get 100 on all of them. I got a Regents scholarship and I was in the top 10% of the class, where probably a third of my classmates were the children of Cornell professors. So I got a great year's education there. Ellensburg High School in Washington wasn't bad either, but I always did well in school. I got one C in college — so, in a nutrition course where I gave a smart-assed answer to a question that ... I had a point, but that was wrong, that's all. I tried to argue it. So I had one C, a blot on my escutcheon.

[5:27]

**A: Did you take math and science courses at high school?**

D: I took everything I could, well, in the hard sciences. I didn't ... I never took biology in high school, I took one biology course in college. It was a lecture course and the teacher was a good lecturer, but it's part of what helped form my conviction that lecturing is the wrong way to teach. You've got to get in there and do some of it and look through a microscope and dissect that frog. Today you wouldn't dissect the frog; you'd run a program that does some DNA matching or something. But you've got to ... I'm an extremely strong believer in active learning. And that's as far as ... well, I signed up for a botany course, second quarter of a two-quarter course. And they assured me ... the catalog assured me the you didn't have to have the first semester course. Take them in any order. And I got in there and everybody else was looking through microscopes and brm brm brm brm brm. I looked through a microscope and I couldn't tell what I was looking at. I had no idea. Maybe I didn't have it focused. Or maybe I just ... a cognitive problem, that I didn't know what things should look like through a microscope. And I dropped it after a couple of weeks, because I just wasn't doing anything. And I'm sorry about that, I wish I knew more about the life sciences.

But I focused on physics and chemistry. Degree in chemistry, from a teachers college, bachelor of arts, and a couple of years of physics. And all the math I could get there, from which I got a bachelor of arts in mathematics. A good deal of my math was by correspondence from the University of Washington and the University of Chicago. And that is not a good way to learn. I didn't realize how very little I had learned until I got to graduate school and found out that I was utterly unprepared for it.

I do have two degrees, bachelor of arts degrees, from a school which at the time was called Central Washington College of Education, and earlier had been called Ellensburg Normal School, which ... what that term meant a couple of decades earlier, was preparation for

108 people to teach elementary school. So, I have that ... I only took one education course, two  
109 maybe, in my whole college career. One of them was teaching math and science in high  
110 school. And that was good.

111

112 **A: Was there anybody in particular, then, that had a shaping influence on your early life?**  
113 **You did talk about your mother, but ...**

114

115 D: I had some extremely good teachers. Some of whom — well, all of whom — who took  
116 personal interest in me as a student and encouraged me. A high school geometry teacher. A  
117 college chemistry teacher, whom I got to know some. And he gave me strong personal  
118 advice. You know what Toastmasters is? He urged me to join the Toastmasters Club and  
119 learn something about public speaking. And I wasn't ... I didn't take the advice, I wish I had,  
120 it was extremely good advice and now I understand what he was saying, that I needed to be  
121 able to present my ideas better. I had that kind of support.

122

123 I had an extremely good teacher in graduate school, the one course that I really “got,” linear  
124 algebra. And that teacher, he was one of the best teachers I've ever encountered, Lipman  
125 Bers. He died a few years ago. An algebra man. But he was teaching linear algebra, I mean  
126 algebra in a different sense than that. Linear algebra, obviously, is matrices and all that stuff  
127 and I'd been doing that with computers. And I really dug that course. Got a very high grade  
128 in that. The other graduate courses I did terribly, I just had no idea what was going on.  
129 Hadn't had the proper education.

130 [10:05]

131 Early influences? There were some people who stepped in at crucial moments. One year I  
132 decided I wasn't going to go to school. Talk about laissez faire! That was probably my 9<sup>th</sup>  
133 grade or 10<sup>th</sup> or something. I just laid out, just didn't go to school, and my parents didn't do  
134 anything about it. It sounds like I was either neglected or abused, and maybe I was but, hey,  
135 it doesn't seem to have destroyed me totally. And the YMCA director — I spent a lot of time  
136 there — he took me aside and said, “Do you really want to do this? Maybe talk to the high  
137 school principal and see. There are some people who might care. Your parents care too!” But  
138 evidently not in the same way about this. There were a lot of people who just stepped in for a  
139 cameo appearance that made a lot of difference to me. I could think of many more, but I'd  
140 have to scratch my head a while. Yeah, I had a guardian angel. A bunch of them.

141

142 **A: So you went to college knowing that you wanted to do math and science?**

143

144 D: I knew that I liked math and science. And when I was in college I envisioned — I didn't take  
145 the courses that would have led me directly to it — but I imagined myself being a high  
146 school physics teacher at some point down the line. And as plans laid at age 17 or 18, I've  
147 come pretty close actually. Though I took all the hard science in high school that I could get  
148 at the time. And then I took chemistry degrees. In college, I graduated in 1947 and in 1946, I  
149 think, I read an article in *Time* magazine about whatever the latest machine at Harvard was  
150 — the Mark IV maybe, not sure about that, III, it doesn't matter — and it described what was  
151 being done with it, differential equations and all that kind of stuff. And I remember that  
152 moment and I said, “That's what I want to do, that is interesting stuff.”

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154 **A: And that was before you went to college?**

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156 D: No, I was in my third year of college.

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158 **A: Third year of college.**

159

160 D: No, I'm sorry. I got the dates wrong. I graduated from high school in 1947, college in 1951.

161 So, this would have been in ... the Harvard Mark whatever — epiphany — would have been  
162 in 1950, give or take a year. I said, "Yeah, that's good stuff, I want to do that."

163

164 And when I went to work for General Electric, they hired me into what they called a  
165 rotational training program. I think companies still do it, under some name or other. And the  
166 plan was that I would spend three months each at four different places related to my  
167 educational background. I'd find out about those fields, they'd find out about me, and then  
168 I'd get a permanent assignment.

169

170 The first assignment picked up on the chemistry part. I worked in a plant that extracted  
171 tritium from lithium slugs that had been put into a reactor, as a glorified — I don't know  
172 what, errand boy. It was extremely expensive stuff! Flip one switch wrong (as I did once) for  
173 a few seconds, and you've blown off ten thousand dollars worth of tritium. The stuff is  
174 expensive. So they wanted college-educated people to do something that an ordinary  
175 workman could have done. I did okay. I was studying this stuff, high vacuum technology,  
176 and I read a book by I think Sir James Jeans or some such person. He'd written a book in the  
177 1930s, maybe, that had something about following individual particles as they bounce around  
178 in a high vacuum. And it's the simplest slip in the whole world. He had a sine where he  
179 wanted a cosine, I think he had forgotten to square his negative XX, and I went to my boss,  
180 my boss's boss, and asked if this wasn't an error, and it was. And that just impressed the hell  
181 out of them that I'd caught an error in a book by James Jeans. And they went around talking  
182 to themselves about this kid. But it became very clear that I was going to go nowhere in that  
183 business without a Ph.D. and I was supposed to rotate anyway. And I'd already stayed longer  
184 than the normal three months, I stayed there seven months because they needed people.

185 [15:20]

186 And I took the next rotation in the computing thing and that's the end of that. Here I am.

187 Nothing's ever changed. Well, I thought I wanted to be a minister there for a while, for a few  
188 minutes, but I got over that. Otherwise I've never left computing, from that moment in  
189 January of 1952.

190

191 **A: Wow! And from there you started writing your books. It must have been very shortly  
192 after that, as a programmer with General Electric?**

193

194 D: I went to work for General Electric the day after I graduated from college in 1951. I stayed  
195 with them seven years, give or take a month, in four different locations. I had essentially a  
196 rotational training program with the rest of my career there. At my instigation I tried to get  
197 transfers. Because, you know, it was an opportunity to do something or other, or I wasn't  
198 happy where I was, or whatever. So I ended up in the jet engine division for a while where I  
199 did ... where I got my first chance to do work on a real computer full-time. IBM 701 and

200 704.

201

202 And I worked for ... I went to the ... well, I worked for Herb Grosch — if you haven't met  
203 him, you've surely heard the name. Well, by now he's 87 [years old] or something. There are  
204 people around who don't know the name. He went to the computer department in Phoenix  
205 and I wanted to go with him, and I said so, and I did. And that clearly was, to me — I think I  
206 saw as early as anybody in existence that that wasn't going to work. And I wanted to go  
207 transfer to New York. And I got some extremely valuable experience in trying to automate a  
208 plant that made measuring equipment, on a semi job-shop basis. And GE just wanted to find  
209 out if it was possible to use computers to automate that, was the term that was used. The  
210 answer was, "No, not then." But it's since been done and I got some very valuable  
211 experience

212

213 And then I decided I wanted to go to graduate school, and that was that. Started the book in  
214 my second location. [removed some conversation during an interruption]

215

216 Working for Herb Grosch, Cincinnati; working on the 704. He'd asked me to teach a course  
217 for the new employees coming in, one of whom turned out to be a co-author and a life-long  
218 friend. And I like to teach and I'd written anything I could. We were at a meeting in Boston  
219 in 1954 or 1955, I'd have to struggle with pinning that date down, probably 1955. And two  
220 editors from Wiley, who were really on the ball, they had kept up, they had said, "This is  
221 going to be big stuff." One in particular was an engineer and had gone to the University of  
222 Michigan summer program and learned something about computers. They were looking for  
223 somebody to write a programming book, of which there weren't any at the time, no text  
224 books. And they went to Herb, who was extremely well known at that point, and said, "Why  
225 don't you write a book on programming?" He said, "Nah, not me. But I've got this kid  
226 working for me ought to write a book." They said, "Fine, when can we meet him?" And he  
227 said, "Well, he's right over there. Would you like to meet him now?" And one thing led to  
228 another and that was my first book a couple of years later.

229

230 And I wrote that on GE time. I don't know if you noticed, it was part of the GE series on  
231 technology, I don't know what they call it exactly. But I got to keep the royalties. And GE, I  
232 think, has the copyright on that one, not that that ever mattered much. And one thing led to  
233 another. The book was successful, it didn't sell a ton of copies but it was successful. It led to  
234 the second book, which wasn't very successful at all. And then after that came the  
235 FORTRAN book. And I was off and running. That first FORTRAN book sold about 300,000  
236 copies, which was a stunning number. I think still would be, but certainly was at the time.  
237 Mind you, it sold for \$2.95. So the royalties — well, the royalties were great and a typical  
238 textbook at the time was probably around \$10. So \$2.95 for a book. It has a quaint sound  
239 now, doesn't it?

240 [20:28]

241 **A: It does, doesn't it? And all this time you were still at General Electric.**

242

243 D: Yes. Well, no, no, no, I'm sorry. I left General Electric in 1958, at which point the first book  
244 had come out, the second book had not. And FORTRAN, I don't think at that moment had  
245 been released at all. It was in development and I visited the office of the team that was

246 putting it together, almost all IBM people, as you probably know. I met John Backus there. It  
247 was in the ... oh, you know where the IBM building is now, between 57<sup>th</sup> and 56<sup>th</sup>, they had a  
248 building there before that didn't take up that whole block. And John and Bob Bemer and the  
249 other people on the team were in rented space facing onto 56<sup>th</sup> Street. I met them there.

250  
251 And then somewhere in there, I'd have to work on the dates, I wrote a manual on FORTRAN  
252 for Honeywell. At least I don't think I have a copy of that at this point. I don't believe it had  
253 my name on it. By then I was working at NYU [New York University], at the AEC, Atomic  
254 Energy Commission Computing Center. I was a grad student. I was getting a stipend, which I  
255 couldn't have lived on by itself, but the book royalties were enough to make it possible. And  
256 Honeywell said, "Why don't you write us a FORTRAN manual?" I was using FORTRAN on  
257 the 704 there, so I had someplace to practice, so to speak. And I wrote the book for  
258 Honeywell. And it was sometime — it must have come out in 1959 or so — and at some  
259 point in there, I said, "Wait a minute, there's a book in there. It could be big!" And I made a  
260 proposal to Wiley and the editor who had gone to the Michigan thing saw it. He got it. He  
261 said, "Yeah, this could be big." And it was so big that I did something that I've never done  
262 since. I refused to talk about it. People asked me what I was working on and I said, "Well, I  
263 don't think I want to tell you yet. It's too good an idea. I'll tell you in six months but right  
264 now, I don't want the idea stolen." Today that would be just meaningless, you couldn't write  
265 a book on that basis, but that's how it seemed at the time. Wrote the book. And of course it  
266 wasn't totally secret because it had to have reviewers, so people knew about it. But I kept it  
267 under wraps as long as I could. By then I was self-employed, I didn't stay at NYU very long  
268 at all. Couple of years. And living off royalties and royalty advances. And there we are. I was  
269 off and running.

270  
271 **A: So for the next 20 years you were an author and a consultant?**

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273 D: Self-employed.

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275 **A: Self-employed. You consulted to the companies to actually create software or projects?**

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277 D: No, thank you for asking. Called myself a consultant because I didn't know the term. But  
278 what I did exclusively was write.

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280 **A: Was write.**

281  
282 D: Write expository materials, book length or pamphlet length. Structured Programming in  
283 COBOL. And believe or not, it sounds like a horrible oxymoron, but it wasn't.

284  
285 **A: Not at all!!**

286  
287 D: No, it certainly wasn't. At the time it seemed strange, but stuff like that. I did a little series on  
288 Structured COBOL, Fortran, COBOL, and XX. Little itty bitty things, don't happen any  
289 more. And that's consulting. I did that for IBM, Intel, and this company that later became a  
290 unit of Sybase. And I taught one course for Shell Oil.

291 [25:08]

292 And my first — you called it consulting, I did call it consulting — was teaching and a little  
293 bit of writing for the FAA, at their experimental facility outside of Atlantic City. And there I  
294 taught programming. They had a group of burned-out controllers. People worked too long at  
295 the O'Hare [airport] approach control. They were simply burned out. They were emotional  
296 basket cases — tough job, very tough job. We tried to make programmers out of them and  
297 didn't work. I had very little experience teaching, but if I were asked to do that now, I'd say,  
298 "Let's not do that. It's not going to work." And it didn't. That was my first actual consulting.  
299

300 And I went there ... I was free to do some consulting while I was at NYU, a day a week. I  
301 could do that today, one day a week, plus my weekends and summers. I could be doing that  
302 kind of consulting right now. And same deal at NYU. I did the consulting, the FAA stuff, on  
303 that basis. And at some point, the NYU people said, "Well, now, let's see, you have a leave  
304 of absence. You've been on leave for three years now. Do you have some plan to come  
305 back?" And I said, "Well, thank you for asking! No, I don't." And so I just sort of made a  
306 segue into full-time consulting. Just making small decisions that added up to a career.  
307 Sometimes I just shake my head: "How can I have been so lucky that things worked so  
308 well?" I was just taking the local optimization, a greedy algorithm, you know, "Do what's the  
309 best in the local sense and it'll turn out that that's globally optimal." Well, that you can  
310 prove, it's Dijkstra's algorithm. In a career you can't prove that, obviously, but it sometimes  
311 seems to me that I've been incredibly lucky and that's how things have worked. What was  
312 optimal at the time turned out also to be career-wise optimal. And going to City College was  
313 very much in that category. I thought I was going there for a year. I hadn't a plan in the world  
314 of staying there and eventually retiring from it. And here I am.  
315

316 **A: So what led you to City College in 1981?**  
317

318 D: I was asked to teach as a visiting professor for a year by the guy who had founded the  
319 department and who knew me — knew of me — because of my writings. My term as ACM  
320 president had ended. And I don't know whether ... I don't think he was active in ACM. He  
321 knew me through my books. And he asked me to come for year. And in the middle of the  
322 year, without telling me, he switched me to a permanent line. Little bit of a strange bird in  
323 that regard. I didn't even know that had happened. My checks started coming every two  
324 weeks instead of once a month. I said, "What in the hell's going on here?" He said, "Oh,  
325 didn't I tell you? You're now on a permanent line." I said, "No, you didn't tell me that!" It  
326 worked out very well. I stayed another year, then another year. And we finally decided to get  
327 "married" and made it formal. I got tenure and here I am.  
328

329 **A: That's wonderful!**  
330

331 D: So that was that. I was busily writing. Well, I did a series of video-assisted instruction stuff  
332 for a company that's now part of Deltac. I was working very hard on that, flying to Chicago  
333 every week, taping stuff. And here comes this call from George Ross, saying, "Would you  
334 like to spend a year at City College?" So I looked around, rode my bike down there to see,  
335 "This is it right?" I said, "Sure, why not?" Another one of these locally optimal decisions.  
336 And that was it.  
337

338 **A: You did just mention that you were ACM President and that was going to be my next**  
339 **question, about professional organizations. Did you join ACM fairly early?**

340 [30:02]

341 D: I joined ACM in 1954. I might have the oldest member-since date in the organization. I don't  
342 know any way to check that. I'm even embarrassed to ask. But I'm not sure that there's  
343 anyone still alive who joined earlier than that and has stayed a member continuously for the  
344 whole time. I've asked for a 50-year pin. So far I'm still asking. Apparently, there's not much  
345 demand for them. No, Herb Grosch said, "If you join ACM, it will be easier for me to get  
346 you travel money." So I joined ACM.

347

348 **A: And how has ACM influenced your career?**

349

350 D: Oh, an enormous influence! Given me a professional venue for — Oh, ACM National  
351 Lecturer. Got a lot of travel exposure. Chance to sell books and do research on what's  
352 happening in the departments. Of course, the leadership opportunities, the exposure there.  
353 The name recognition out of that — which is zero now! Nobody knows ... for everybody  
354 who knows that I was ACM president, there are 500 that know I wrote the FORTRAN book.  
355 That's just the way it is.

356

357 I was not one of the great ACM presidents, but I held the thing together at a time when there  
358 were some centripetal forces. And met a ton of good people. I was involved in SIGCSE from  
359 very early. There have been — how many? 36 meetings [of the annual SIGCSE Symposium]  
360 now, some such number, I've probably been to 20 or 25 of them. I've been on the program  
361 probably a third of all meetings. And that's just been incredibly important to me as a way of  
362 keeping in touch with the field, meeting new people, staying in touch with friends. It's been a  
363 major factor in my career.

364

365 **A: When you were ... you were vice president 1976 to 1978 and president 1978 to 1980.**  
366 **Can you think of, say, one thing that you were really proud of you did or that ACM**  
367 **achieved while you were president?**

368

369 D: [chuckles] Well, my ... yes. But I'll have to preface this by saying my term as ACM  
370 president doesn't lend itself very well to that kind of question. I didn't do ground-breaking  
371 things that stand out quite that way.

372

373 But I did lead the charge on trying to prevent the social security number from becoming a  
374 universal identifier. And a bunch of us who were involved in social issues. I was chairman of  
375 the committee on computers and public policy. Another example of what ACM has done for  
376 me is the chance to do something in an area that I felt strongly about. Could meet good  
377 people. Get to testify before congressional committees. And just have lots and lots of fun  
378 professionally. And some of us in like 1974 thought that the idea that social security number  
379 would be public information and be a UID [Universal Identifier] — we thought that was a  
380 terrible idea. And 99.99 ½% of the rest of the population thought we were out of our minds.  
381 Just a stupid thing. Of all the things you could pick to worry about, that's got to be the least  
382 important. And now I am trying to find records — as far as that got was a council resolution  
383 and there must have been some sort of press release and I'd like to find that press release.

384 Made absolutely no impact at the time. But today, makes me feel pretty good, that we at least  
385 saw the problem before anyone else did.

386  
387 I was involved in human rights issues, with a focus on this guy, Val Turchin, who was trying  
388 to get out of Russia, the Soviet Union at that time, which was very, very, very difficult to do  
389 for somebody who had been a dissenter. I worked on that as ACM president and vice-  
390 president, quite actively, quite publicly. And between me and Jack Schwartz at NYU and  
391 Lipman Bers, at Columbia at the time (my math professor who was Estonian or something  
392 originally, but spoke Russian and all that), amongst our efforts, and Bob Kaiser at *The*  
393 *Washington Post*, and a similar sort of guy at *The New York Times*, we made enough noise  
394 that eventually he got out. And he eventually ended up coming to City College. I'm  
395 extremely proud of that; that made something of a splash at the time.

396 [35:32]

397 I supported the reorganization of the Publications Board. Now, that's not something you're  
398 going to put on my gravestone, right? But Stu Lynn was working very hard on that, an  
399 infrastructure building kind of thing that nobody outside the organization would even know  
400 what the hell you were talking about. And I simply ... I worked [ACM] Council to make sure  
401 that that passed. And that's the sort of thing that you can't ... you know, "You're proud of  
402 that!? What's to be proud of?", you know. That's the way it is in working in voluntary  
403 organizations, there's a lot of work like that, that doesn't have much public visibility at all,  
404 but which, if it isn't done right, it hurts.

405

406 **A: You obviously have an interest in the history of computing by being a Trustee of the**  
407 **Babbage Institute and for the Center of History of Information Processing.**

408

409 D: Well, yeah, simply because I was there on some of this stuff. I was not a pioneer. I didn't  
410 invent anything at all. I certainly didn't invent the subroutine concept or anything of the sort.  
411 But there I was writing those books, and in the course of that I met a lot of people. A lot of  
412 people. Interesting people, including Bill Gates and Andy Grove, you know, for a few  
413 minutes each in those cases. Grace Hopper before COBOL existed. And all that kind of stuff.  
414 It was a lot fun. So I had that kind of involvement.

415

416 I've not been as involved as you might think, because I don't have a very good memory. And  
417 if you want to know exactly when something happened, or exactly who said what when, I  
418 know I'm not a reliable witness. So I duck that kind of situation. And, you know, don't come  
419 to me to know, "When did John Backus first get the idea of FORTRAN, was it before or after  
420 he went to MIT? In 1950 something or other? And what was something?" I don't know. I've  
421 heard John tell the story, but if he were dead and somebody needed to know, don't come to  
422 me because I just don't have that kind of memory. So it's been more in a supporting role.

423

424 I was chairman of the history committee, history of computing in AFIPS. My role at Babbage  
425 is simply to try to do the kinds of things that a director can do in the way of supporting what  
426 you think is a good idea. The kind of thing Jean Sammet's done, not me. She ran a  
427 stupendously good conference on history of programming languages, in 1970, whatever it  
428 was, 1980 something — here you go! I can narrow that down to within a couple of years, but  
429 I'd have to work at it. I remember the hotel, it was one of the best conferences I've ever gone

430 to. Only conference I've ever gone to where I went to all the papers. She said a number of  
431 people told her that. Well, OK, I've done that kind of thing and I certainly don't have her  
432 memory, not remotely. So, there are all kinds of roles here. I've been interested and I've done  
433 ... I've participated. No one thing I can point to.

434

435 **A: I just want to get back to your students ... or start to talk about your students, for a**  
436 **minute. What role has supervising your undergraduate and graduate students played**  
437 **on your own career?**

438 [39:35]

439 D: It's been absolutely central. I can get rhapsodic about this. The interplay, the back and forth,  
440 the communal learning, the way I help them and they help me. They keep me alert. In their  
441 own way they encourage me to keep up to date and teach the new stuff. And they're the  
442 source of a great deal of technical information. It's always the case that in any course there  
443 will be a couple of people who know very much more about some aspect of the course than I  
444 do. For whatever reason. Maybe they're working in Web design, I've had people in the  
445 course who are doing Web design, supervising Web design. They're certified in Java and  
446 taking my Java course. It's the kind of thing ... what happened there is they dropped out of  
447 school at the peak of the bubble, you didn't need a degree. Now, everybody wants them to  
448 have a degree, or they've realized that down the road a degree is going to help. So they're  
449 coming back to get a degree. And in some cases taking my course is just an easiest way of  
450 getting an A+ without doing much work. I say, "That's fine by me if that's all you want to  
451 do, that's OK, but I would be delighted to have you contribute and give a lecture now and  
452 then or certainly let me fall back on you when I'm stuck." And mostly they all say, "Sure,  
453 sure, I'll help." Or just get an extremely bright student who does extra work that supports the  
454 class project.

455

456 I figure that my most important job as a teacher is to pick assignments that let the students  
457 learn on their own. This active-learning business is a core value and for that to work best the  
458 assignment needs to be something that they first look at and say, "I'll never be able to do  
459 this!" And I say, "Look I know how you feel. You're thinking, 'I never can do this.' But, you  
460 know, look at it. Look at it again in the morning. And I predict that within about ten days,  
461 that's a week from Thursday, you will have completed this project and you will be amazed at  
462 how much you've learned and you'll be very proud of what you've done." And for the bulk  
463 of the class, it works. And for that to work you have to have the right assignments. You have  
464 to know what they know, so that you're not giving them something that's impossible. You  
465 have to give them something that is a challenge, where they're going to have to fight to do it.  
466 And it needs to fit into the collection of such things. So that when you put them all together  
467 they've learned what you want them to learn out of that course. If you want to cover event-  
468 driven programming, a deeper knowledge of Java and object-oriented programming, you  
469 want to do threads, you want to do JDBC, and you've got about three or four others. OK,  
470 how am I going to cram all that into six homework assignments and a project? Try to allocate  
471 them to make sure all of that gets covered. And then, since 90% of learning takes place when  
472 they are doing those assignments, come up with good assignments and the supporting  
473 materials to make them work. Don't have all of the students doing five hours of typing on  
474 something that one student can do and then send it to everybody.

475

476 That's how I see teaching and I love it. There's nothing I'd rather be doing professionally.  
477 Nothing whatsoever. I was born to do it. Now, where did we start on this?

478

479 **A: I was talking about your students and what an influence they have on you.**

480

481 D: Well, they keep my juices flowing. They keep me active. They keep me excited about what  
482 I'm doing. They give me an audience to talk to when I learn something new and want to  
483 share it. They give me a chance to do what I'm good at and can feel socially useful about.  
484 They give me the chance to meet very, very interesting people. Sometimes amazing stories of  
485 their own. And follow their careers, help them get jobs. One of my students got a job with  
486 IBM in San Jose at a time when very few students were getting jobs doing anything in this  
487 country. And boy, are we proud of that. Actually, he got two offers from the same part of  
488 IBM. I follow their careers. A few stay in touch, then come back, or at least send email.

489

490 I'm not giving a really coherent answer. What I'm trying to say is they're a part of my life in  
491 the sense that professionally that's what I do and... I have a life otherwise. I read a lot of  
492 books. And I sing in a choir. It's not as though ... I am a workaholic, but not in a way that it  
493 destroys the rest of my life. And they're just an integral part of it. I don't get to knowing very  
494 many of them personally. I can have a student for two or three courses and only toward the  
495 end of the second course find out that this woman has three children. If they come to me and  
496 say, "Well, it turns out I'm pregnant. I hadn't planned that, what do you recommend, blah,  
497 blah, blah." Well, hey, I'm a father figure if you want me to be one. But there's not very  
498 much of that. I don't do counseling. And I don't get involved in their personal lives very  
499 much — occasionally, but rarely.

500 [46:16]

501 **A: What about mentoring Dan? Do you do mentor on the faculty?**

502

503 D: I do. I've got a student right now and frankly it doesn't work very well. Because somehow or  
504 another, things get busy. I'm supposed to be reading something right now. So I'm working  
505 with this guy, I figured I'd learn a lot trying to keep up with him. Well, guess what, I don't  
506 have that much energy, because, you know, hip and I'm going to a course next week, which  
507 isn't exactly what he's doing. And the summer will end up and he will have done some good  
508 work and I won't have contributed much to it. I'm trying to learn to say "no" to those things,  
509 because that's not where my strength is. My strength is in the classroom. And I'm delighted  
510 to have students come to my office and talk about anything, career choices, or certainly  
511 current homework, or anything like that. I enjoy that very, very much. I wish more students  
512 would come in and just talk. But mentoring, the way it's usually meant, I don't think I was  
513 ... that's not what I'm best at. There's always something gets in the way.

514

515 **A: What challenges have you faced in your work environment that have been ... that**  
516 **you've had to really work to overcome? Have you had any?**

517

518 D: Oh, absolutely. I'm trying to decide how to say, how much. I'm the one that pushes for  
519 curriculum revision and I'm constantly learning new stuff, just because I like to and because  
520 I think it's in the best interests of the students. Sometimes that's put me in conflict situations  
521 or frustration situations so I couldn't get support. Changes never happen fast enough for the

522 pusher who wants the change. And I get pretty impatient in that kind of situation. And I'm  
523 sure I'm not the most diplomatic person in the world. So that's led to some frustration.

524

525 **A: OK. Do you have any strong outside interests that would enable us understand you**  
526 **better? That you wish to share?**

527

528 D: I wasn't expecting that kind of question. Well, I'll give you an honest answer. In my own  
529 way, which isn't exactly the same way as anybody else's, I'm quite interested in religion and  
530 its place in ... well, both in individual life and in the life of the community. My thesis at  
531 Union led to one of the things I call a book. It was in the area of social ethics. People talking  
532 about ethics, they're thinking about sex and what are you obligated to do when the waitress  
533 undercharges you. Well, OK, that's ethics. But a question of city planning is also ethics. And  
534 it gets to be hard to distinguish between social ethics and public policy and what's different  
535 about Christian social ethics and Jewish social ethics. Well, I don't think there's much  
536 difference at all. I used to tease my ethics professor by asking that question: "What do you  
537 think is Christian about Christian ethics?" He'd squirm and find some kind of answer. He felt  
538 the same way. So it's not a totally inward thing.

539 [50:41]

540 But there's also the inward thing. Trying to find my place in the world and in some form of  
541 organized religion. To be specific, I'm in the process of converting to Judaism. But you  
542 should understand, I've been in the process for about 12 years now. Some people think I'm  
543 going to finish this summer. And maybe I am, maybe I'm not. There's always ... like that  
544 stuff I'm going to study next week, it's so interesting. But that's something I spend a fair  
545 amount of thinking time on and a fair amount of reading time on. I don't talk about much.  
546 Most people don't want to talk about religion. If you want to get into an argument, talk about  
547 religion. So if you don't want arguments, it's not something to talk about very much except  
548 with other people who feel the same way. And I do have a circle of friends who are all  
549 Jewish — almost all Jewish — who do care about such things.

550

551 **A: Do you think this has had a shaping effect on your career?**

552

553 D: No, not particularly. No, not at all. Some people have asked me that. Eric Roberts asked me  
554 that, something that's sort of along that line, whether my side excursion into seminary had  
555 impacted my career or vice versa or something. The answer is no, not at all. I simply, for  
556 reasons that would take too long to explain, I thought I wanted to become a minister and I got  
557 over that pretty quickly. I wasn't cut out for any such thing. By then I was tired of getting  
558 into graduate programs and dropping out of them and I was having a lot of fun, exploring my  
559 roots and learning a little bit of Hebrew and all that kind of stuff, so I finished it up just out of  
560 ... just ...

561

562 **A: I'll just finish up, then, with a two-pronged question.**

563

564 D: One other answer, that I'm very interested in art and graphic design. I've spent a fair amount  
565 of time in museums and I've done some work on the creative side. I've taken quite a few  
566 courses: Graphic Design I, Color I, Typography. And at the time I took them, it was purely a  
567 hobby interest. And that had turned out ... that was just very useful, came around time to

568 write an HCI-flavored Web design book. So that there's a direct connection there. And I do  
569 love photography. I can't draw, but some things you don't have to draw. And you sure don't  
570 have to be able to draw to use a camera. And if I had more energy or, if God forbid, I were to  
571 retire, I'd probably do a lot of photography.

572

573 **A: OK. My final two-pronged question. Is there something that you are most proud of in**  
574 **your career? Is there something that you can say, "This is what I'm most proud of"?**  
575 **And then can you just end with telling us is there one story that you want to tell, so it**  
576 **will be remembered?**

577

578 D: [removed 6 seconds of silence] I'm inclined to wish I'd had warning on this, but maybe it's  
579 better if I didn't. [removed 9 seconds of silence]

580

581 **A: Maybe you want to think on that and email me.**

582

583 D: [removed 8 seconds of silence] Maybe I'd like to do that. Let's see. Let me just take another  
584 minute, though. [removed 19 seconds of silence] Well, I would like to email you, but let me  
585 just give you one little ... one little incident that ... I don't know, it's never one that  
586 encapsulates Dan McCracken and that I'm proud of, but it's of that flavor. A student came up  
587 to me, came back to visit the campus about a year after she graduated. She took two courses  
588 with me. She took the Software Development thing where we do Java and Web development  
589 programming and all that that I've described, and she took my Web Design course. She came  
590 back and we chatted a little bit after class, in the Web Design classroom. She wanted to say  
591 thank you. I appreciated that. What she said thank you for, she said, "You taught us how to  
592 teach ourselves." And I'm very proud of that. I mean, you can see slogans in front of half the  
593 colleges in the United States that say, "We teach people how to learn" — and indeed, that's  
594 what we all hope we're doing — but here was a student in the flesh comes back and saying,  
595 "You taught us how to teach ourselves." Of course, I had harangued them about that"  
596 "You're going to be learning new stuff like this all your career and the best favor I can do for  
597 you is show you how to learn it without my help, all right? But here we are, let's see how  
598 much we can accomplish." But that student had gotten it.

599

600 **A: That's a wonderful story. Dan, thank you very, very much for this time. I really, really**  
601 **appreciate it and I'm very honored to have done this interview.**

602

603 D: It's been more fun than I imagined it could be.

604

605 **A: Thank you.**

606 [56:48]