

Computing Educators Oral History Project

An Interview with *Henry Walker*

Conducted Saturday, March 9, 2013

At Denver, Colorado, USA

Interview Conducted by Barbara Boucher Owens

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Interview Context

This interview was conducted in the living room of a suite in the SIGCSE conference hotel in Denver, Colorado.

1 [0:00]

2 **B: This is an interview with Henry Walker from Grinnell College, in Grinnell, Iowa,**
3 **conducted by Barbara Boucher Owens. This interview is being recorded on the 9th of**
4 **March, 2013, at Denver, Colorado, the United States of America. It is part of the**
5 **Computing Educators Oral History Project. Did we get and pronounce your name**
6 **correctly?**

7
8 H: Oh, yes.

9
10 **B: Good. OK. As we start this, we are going to go way back.**

11
12 H: OK.

13
14 **B: So I want you to tell us a little bit about your parents. What did they do for a living,**
15 **what kind of educations did they have?**

16
17 H: Well, actually, let me go back a little bit further.

18
19 **B: OK.**

20
21 H: On my father's side, my grandfather was born in Bombay, India, and he went to Victoria
22 Jubilee School in Bombay for high school and then came to this country to study engineering
23 at Case Western Reserve — well, Case Institute, I think is what it was called at the time.

24
25 My [paternal] grandmother, Flora MacKay, was from Cleveland and so they met after my
26 grandfather had come over from India. He studied engineering at Case, and she was a music
27 person. So then they were married and they went to Schenectady, New York, which was
28 where General Electric was, and he worked for General Electric. She taught music and
29 played organ at the local Episcopal Church and that sort of thing.

30
31 So my father was born in Schenectady. He went to Union College, the local school, because
32 that's what seemed appropriate at the time. He went on to what was called Albany Teachers'
33 College for his Master's work. It is now Albany State, or SUNY Albany.

34
35 My mother ... I don't know as much about her family. My [maternal] grandfather ... he was
36 working in — I think, in commercial endeavors, I'm not sure what — in Schenectady; and
37 Maude, my grandmother, and he were married. They had one child, my mother, Alice Mary
38 also Schenectady. So my parents were married in 1936. They both graduated — Dad
39 from Union College. My mother attended Albany State and was certified to teach in New
40 York state in both business and math.

41
42 **B: What was your dad studying?**

43
44 H: He studied chemistry. And right after college — this was in the middle of the Depression —
45 so my mother was one of very few that got a teaching offer at all, and she taught in Remsen,
46 New York, in a little school out by Syracuse or Utica, way out in the western part of the state.
47 She taught there for a couple of years in a very small rural school. But that's ... she taught
48 both business and then she taught math.

49
50 My parents had known each other through high school. So they were married in 1936. My
51 father was working for [Bender] Laboratory in the Schenectady area and then took a job for
52 ... with General Electric in Pittsfield, Massachusetts.

53 [4:27]

54 And somewhere in there, I am not really sure just the timing, my [maternal] grandfather had
55 passed away. So when I came around, which was 1947, my parents were living in ... well,
56 near Pittsfield. The house was in Lenox but the backyard was in Stockbridge. The image that
57 I have of that was there's this large backyard which, at least for a two- or three-year-old, was
58 ... had these huge flowers coming up over your head or at least up to head level. I've gone
59 back since and clearly the perspective of a child is different from that of an adult.

60

61 I was there; my father was working for GE Pittsfield and my [maternal] grandma was living
62 with us. So as far back as I can remember, [my] grandma was around and was involved with
63 childcare and involved with a variety of those kinds of things that a grandmother would
64 typically be doing. Apparently I couldn't say Maude very well when I was two or whatever,
65 so all the way through I called her Mamie.

66
67 When I was 4 ½ [years old] my father changed jobs, and we went to North Jersey, we lived
68 in Caldwell, which is in the northern part. My father worked in [Roseland] at Resistoflex
69 Corporation, I believe. So we were there through my junior high and high school ... or
70 through my grade school and junior high, excuse me. I was in the local schools. And ... in ...
71 it was highly typical elementary school where you had just one class —you're just with the
72 class and that's what you did. But you did have band, or you had art, those kinds of things.
73 Then in junior high there were several different classes and the classes sort of moved
74 together. But I remember one of the extra-curricular things I would to do would be to be in
75 the marching band, which I very much enjoyed. And I enjoyed singing.

76
77 **B: What did you play in the marching band?**

78
79 H: I played trumpet. My father was a trumpeter and ... well, in third grade, I really wanted to
80 learn how to play trumpet. My parents said I had to have a year of piano first. My Grandma
81 Walker was — as I had already mentioned — had been an organist and gave music lessons
82 and that kind of thing. She was very good at church organ [and piano], that kind of stuff. My
83 father had [an extensive music background] and my mother had a little bit of piano, not a lot.
84 But just in terms of having a general sense of how to read music and all that sort of stuff.

85
86 So I took a year of piano lessons. And thinking of that now as a teacher, I was probably not
87 the sort of student that the music teacher would have preferred. I learned, sort of, how to
88 [play], but my heart was just not in it.

89
90 Also in third grade the local Episcopal Church had a boys choir, so I was actually part of a
91 paid boys choir. I got, I think, 50 cents a month. Which for me was a huge amount — I never
92 spent any money, so I amassed what, at the time, seemed like a lot of money. Because there
93 was income and there was no outgo, so there I was.

94
95 So I was involved with music, marching band, and chorus, and then the church choir. One of
96 the things in eighth grade, which ...

97
98 **B: Let's go back to elementary school. What were the academic subjects you liked? And**
99 **are there particular teachers you remember? We've heard about band.**

100
101 H: Well, it's interesting. I don't remember a lot about very many teachers except a sixth-grade
102 teacher who was basically unreasonable — in various social studies projects in particular.
103 Mr. Gelernter. Really this was his first time teaching the sixth grade, and he had no concept,
104 in retrospect. We had these different units on different areas of the country and they were ...
105 he wanted the sixth graders to write probably 20 or 30 page reports on each of these areas. I
106 remember one of the units was on the Civil War. [Years later, my mother would remember

107 talking to another parent;] they would ask, “How’s the Civil War?” The response would be
108 “We’re still fighting it.”

109 [10:03]

110 **B: [laughing]**

111
112 H: But I don’t remember a whole lot — I remember doing band stuff; I remember doing that
113 kind of thing. I always enjoyed math and I enjoyed science. I was certainly interested in
114 science kinds of things.

115
116 In third grade, my life ambition was to become a carpenter. I really enjoyed woodworking
117 and that kind of thing. Building things.

118
119 My mother had been a math teacher, so I certainly got some inspiration of solving problems
120 and doing those kinds of intellectual challenges and such. I liked to do puzzles and those
121 kinds of things in the beginning. But I don’t remember a lot about particular teachers in
122 elementary school, certainly.

123
124 **B: OK. Well, then you had started beyond 8th grade.**

125
126 H: In junior high, we did have a few electives. One of the electives I took was Latin, where I
127 really learned a bit about ... well, grammar and that kind of thing. I had known a certain
128 amount before, but you had to know a whole lot more about some of those basic constructs
129 [of grammar]. That was sort of the basic motivation. My parents had both had Latin as part of
130 their traditional education years before and that seemed like the natural thing. So I had Latin
131 in both seventh grade and eighth grade.

132
133 I think in retrospect there probably was a bit of an accelerated math program. Seventh-grade
134 math I really liked because it was very challenging to me. I could think about different ways
135 of approaching problems. That was just really fun. There was a sense of real excitement
136 there.

137
138 Eighth grade was a much more traditional, formula-oriented thing, which didn’t resonate
139 with me much at all. I remember, for example, when we were talking about percentages in
140 eighth grade, we were taught that there were three formulas for percentage. One formula was
141 interest equals rate times principal; the second formula was principal equals ...

142
143 **B: [laughing]**

144
145 H: ... and so forth. I remember my mother ... and I had had a terrible time. I still remember to
146 this day ... percentage is “is over of” — “what percentage of this is that”. That was one of
147 those things that you just learned. But at one point I was getting frustrated with this and my
148 mother, even in eighth grade, took me aside and said, “Look. Here’s the formula. You know
149 enough algebra that you can solve for whatever variable you want.” That made a huge
150 difference. So that was not a good experience.

151

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152 But at the end of eighth grade, my father changed jobs; we went up and ... my parents moved
153 to Concord, Massachusetts. Before I go there, I should mention a couple of more things. First
154 of all, music was one of those things that stood out. I was in the marching band. The high
155 school marching band did allow seventh and eighth graders to be part of it, so I was doing that.

156
157 But then being outside New [York City], they had a program with the Metropolitan Opera.
158 So in eighth grade you studied an opera. Il Trovatore was the one that we did. And then, after
159 you studied that and you did some ... you passed some tests, they took pretty much the whole
160 eighth grade class in to see the Met, which was really pretty nifty.

161
162 In terms of my singing, prior to eighth grade, I was probably the highest of the boy sopranos.
163 I easily could get a high C. It was not a problem. But then the church realized that there was
164 this issue with boys at that age — with voices changing, they never quite knew what was
165 going to happen. So rather than being in the choir, I became an acolyte [both laughing]. So
166 that's what that was.

167 [14:51]

168 So moving along, then my parents moved to Concord, Massachusetts. And clearly the reason
169 ... an important reason they decided to move there was because of the high school system.
170 Concord-Carlisle High School had a terrific reputation, it was a wonderful thing for me to go
171 to.

172
173 When we moved in, I don't know what the arrangements were, but I do know that before
174 ninth grade, after we had just moved up there, my parents talked with the math teacher,
175 Norton Levy was his name, and he tried accelerating a few selected students to get a year
176 ahead in math. The first time I talked with him — and I had done some work and such as
177 homework — and that I think probably didn't go just real well, but I kept at it. By the end of
178 the summer before ninth grade I was doing fine, meeting the higher expectations from what
179 I'd been used to.

180
181 So I started ninth grade taking tenth grade math, which meant that my senior year, I was one
182 of five students taking calculus. So I took AP Calculus. I think the year or two after, a whole
183 class of students, twenty-five or whatever, were advanced, but in my year there were five of
184 us.

185
186 One of the things that was sort of fun about that, at the time one of the major textbooks was
187 by George Thomas — Thomas Calculus was sort of the same stature that Stewart Calculus is
188 today. Jean Thomas, George's daughter, was in my class. So every so often, the teacher
189 would say, "Jean, tell your father there's this thing on page 17" or whatever, which was sort
190 of fun. It was a nice, wonderful thing.

191
192 Mr. Levy would put thought questions up every year ... or every week, and you could get
193 extra credit with these brain teasers. Some were ... involved geometry, some algebra, there
194 was just quite a variety of things. But it was ... that really sparked my interest in
195 mathematical problem solving. He was certainly a very important element there [in my
196 development.].

197

198 I was on the math team. Senior year I finally did pretty well at that [the math team]. The first
199 years, I don't know why, but I just ... either it was the time pressure or something or other, it
200 was OK, it [my performance on math team] wasn't great. But senior year I did pretty well
201 there.

202
203 I was involved with theatre and music throughout. This was ninth grade in a new school
204 system, so I didn't know what I was doing. So I tried out for the musical right at the
205 beginning, except it turned out to be a play. I got an assisting role as Ossip in the Inspector
206 General. And so I was in that for a while. And I ended up doing ... acting in quite a number
207 of plays. There were some musicals and I did that, too. If you look at my SIGCSE 2010
208 committee picture — I think that's the one — which is Sir Joseph Porter in HMS Pinafore.
209 So I was ... did a lot with theatre. I was co-editor of the student newspaper. Did a lot of the
210 non-athletic stuff.

211
212 I had some trouble in ninth grade in that ... First of all, it was a new school system, but also I
213 was your classic ninety-five-pound weakling. My bones had grown at a fairly significant rate,
214 and my musculature simply hadn't caught up. So I was something like 5' 11", 110 pounds,
215 120 pounds, something like this. So a lot of the athletic kinds of things that boys would
216 normally do, I didn't do. There was some [trouble with classmates]. Now I don't know if it
217 would be called bullying or not, but it might be. It was an awkward time. Socially, I didn't
218 help that a lot, but in any case ... In high school — in ninth grade actually, because of some
219 of that — my parents found a gym in ... it was just across the Charles River from Boston,
220 Mike's Health Club, and I learned a little boxing, a little wrestling, a little judo. I think that
221 gave me enough self-confidence that actually then I could get a little bit better respected by
222 the others there, and some of those troubles went away.

223 [20:14]

224 **B: Did you then make friends or have any particular friends that ...**

225
226 H: I had a number of friends. I have always been really very much of an introvert. I mean,
227 absolutely true. It's absolutely true. From theatre in high school, I know how to play roles
228 effectively. I know what I need to do. And I do enjoy that. And it's not that I'm putting it on.
229 But deep down, I'm happy to be just on my own, quietly. I talked to you earlier — this is not
230 an interview about you; it's an interview about me. But still, when I was SIGCSE chair, the
231 outgoing parts of that were things that I could do in terms of thinking about a role to play,
232 because that's how I could operate with people. But you are much more of a natural working
233 with people than I will ever be. So my strengths have to do with things that are more the
234 analytical, the organizational, and that kind of stuff. And I do okay, I think, working with
235 personal interactions. But I don't have the flair that you do. It's just absolutely how things
236 are. I'm really very much an introvert and I do much better in one-on-one or small group than
237 I do in large group. It's always been that way.

238
239 **B: Let's get you out of high school. But you're in high school ...**

240
241 H: Yep.

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243 **B: ... and clearly, Mr. Levy was a big influence.**

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H: Yes, he was a big deal. Actually in my keynote talk, I also mentioned Eleanor Hoogheem, who was the theatre teacher. And she saw something about me, and that helped me to sort of move out of just being on my own. I had some friends, I didn't have lots of close friends, but I had friends.

B: I'm trying to get you to think about college.

H: There's one more thing I want to talk about, though, in high school ...

B: More from high school? OK. [talking over one another a bit]

H: My first teaching job was with the Concord Parks and Recreation Commission, teaching swimming in the summers. And that swimming was taught at Walden Pond.

B: Ah! On Walden Pond ...

H: So I have a view of Walden Pond which is very different than [most folks have]. So I think of Walden Pond is that first of all, it's the place ... it's the state park where you teach swimming to little kids. The second thing I think about is from the place you teach swimming, you can cross the street to get to the trailer park and the snack bar. And then behind that is where the town dump is. So my view of Walden Pond doesn't really match [the views of others].

B: It doesn't resonate.

H: No. OK, let's move on.

B: So how did you choose your college? Where did you go and how did you think about it?

H: Well, I applied to five or six, maybe seven different places. My father had gone to Union College and they had a program with alums, so my first college interview was with Union — which was really a very lovely thing because, not only was it an interview for going to that school, but they provided perspective of other places.

I applied to a number of places and visited many and decided that Williams was the place that felt right. I don't know that that's because my early years were just a few miles away in Lenox — might have been the western Massachusetts thing. Whatever. I got to Williams and, with the tour guide and the various things, that just felt like a place that was comfortable. So I went to Williams. I was accepted at some other places, too, in New England. But that was ... I applied to a lot of places, because I had no idea if I was going to get in or not. But I figured, "Hey, we'll try."

B: So tell me about Williams.

[24:39]

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289 H: When I went to Williams, I tell this to some of my advisees, I went to Williams and I was
290 absolutely convinced I was going to flunk out. It was not a matter of “if”, it was just a matter
291 of “when”. So I spent a lot of time in the first few years — every waking moment I was
292 studying one thing or another. I was in the choral society, but I had a great focus on ... on
293 studies.
294

295 I thought I was going to be a chemistry major — I had advanced placement in chemistry as
296 well. So took organic. Really liked the synthesis on paper, but the labs just didn’t resonate
297 with me very well. So that was OK.
298

299 After my first year, I knew what I was going to do. I was going to be a physicist. Because I
300 had a really fine experience with physics in high school as well. That was wonderful. So I
301 then took physics and ... in my second year. And that ... actually, I guess I had those
302 backwards. I did physics the first year and organic the second. My experience with physics
303 was much the same as my experience with chemistry, in that I liked some of the theoretical
304 sides of things but the lab stuff just wasn’t so much for me.
305

306 But I had been taking math all along, had been doing well in math and liked the challenge,
307 liked the pure mathematics. So that when it came time to declare a major, I declared major in
308 math.
309

310 A few things sort of stand out in the early years. Since I had advanced placement, I started
311 ahead in math. And then my second ... so I started out with, I guess it was multivariate
312 calculus and linear — I guess it was linear algebra at the beginning.
313

314 And then the beginning of my second year I took an elementary number theory course from
315 Neil Grabois, who went on to be president of Colgate. But apparently what — I’ve talked
316 with Grabois after, about ten years later — and he looked around the classroom and said,
317 “Oh! All these folks have had abstract algebra. So we can do a bunch of algebraic number
318 theory toward the end of this.” He just didn’t realize I hadn’t had that. So the first part of the
319 semester, the first two-thirds, was really fun and I was going along fine. Then we got to
320 principal ideal domains and unique factorization domains and all this sort of stuff. [I kept
321 wondering], “What’s a ring?” and “What’s a ...?” Well, it was an interesting time.
322

323 That was the last year that Williams had exams in January. And so Grabois gave out — just
324 to give us some advance notice — he said, “Here’s what the take-home final exam is going to
325 be.” He gave that in December. Then I looked at that, and I didn’t know what the words
326 meant. So I spent basically eight hours a day through that break — between home and going
327 down to [Yale in New Haven] (my parents had moved to Madison, Connecticut at the time),
328 [so I] went to the Yale library [over the break] and learned a certain amount about abstract
329 algebra. I did well in the course, I got an A⁺ in the course, which was really nice, but I vowed
330 I’d never do that to my students later on. But it really was very important in terms of my
331 development. But there was a real intellectual challenge.
332

333 I took abstract algebra later from Victor Hill, who was also a harpsichord player. And Gil
334 Spencer, whom I took analysis from. And I really thrived on the theoretical mathematics.
335 That's really where my academics were.

336

337 I had done a number of things with chemistry. I took a later advanced inorganic course in
338 chemistry. I took several [chemistry] courses. I also had what was equivalent to a minor in
339 political economy. I had a wonderful course in American Art and Architecture. I took a
340 typical liberal arts range of [subjects], but it was really the math that was intellectually the
341 most stimulating.

342 [29:44]

343 The first semester of my second year I had a political science instructor who took me aside
344 toward the end of the semester and said, "You know, you've got a number of interesting
345 ideas, but you really need to speak up in class more." Because looking back at how I was in
346 the first few semesters of college, I was just the sort of student that I would currently hate
347 now. Because I just was a sponge. I would absorb everything and never say a word. But the
348 political science instructor said, "You really need to say something or other about what your
349 ideas are. Because they're interesting ideas, I can tell from your papers, but nobody else
350 knows." So he said that what I was supposed to do was the next semester, I was to be sure I
351 said something in the first class meeting of every class I took. Didn't make any difference
352 what it was, but I needed to say that. I took that seriously. And that really made a substantial
353 difference in helping me come out of a shell.

354

355 Also the second year I was at Williams, I got interested in a service organization called the
356 Purple Key Club. It was one of these college groups. And at the time ... well, they had a
357 number of activities. I would stuff newsletters for athletic mailings. Or I would ... a couple
358 of times I was holding the chains for the ... in football and that kind of stuff. But one of the
359 big things they [members of the Purple Key Club] did was they gave tours of the college, for
360 the admissions office. And part of the point was the admissions office could say, "These are
361 people that have nothing to do with admissions. They are all just volunteer kids. So you can
362 get a different kind of perspective on the college." And I gave probably seventy-five, eighty
363 tours. I mean I just jumped into that and I did an awful lot. I think I did substantially more
364 than anybody else. And I don't really know what the statistics were, but my sense is that I did
365 more of that. I really enjoyed ... that is part of that acting stuff. That's a role. And I could
366 interact with people for that role. So I could do that. And I really enjoyed that.

367

368 **B: Did you meet computers in college at all?**

369

370 H: Actually, my ... I think it was my second year, Williams got its first computer. Well, they
371 had a public research organization, the Roper Organization, which was on campus, but not
372 really having any connection to the campus. They had a computer of some sort. But it was
373 my second year, it might have been my first, but I think it was my second year, we
374 [Williams] got an IBM 1130 and that was actually open to anybody. We were able to punch
375 up cards, and we were able to physically submit our decks and do that kind of stuff. This was
376 pretty much open.

377

378 After you got a little bit of experience, you actually could load your own cards into the card
379 deck — this was a single user machine — so that you could ... you watched the whole thing
380 through. The lights would flash. If something went wrong you could interpret what the error
381 codes were on the console. And all that kind of stuff. So I did that in my ... in Fortran. So I
382 started right at the beginning there.

383

384 **B: How did you learn the Fortran?**

385

386 H: They had about a six-session intro, which was not credit, it was just ... Mr. Jordan was the
387 faculty member — math faculty member — who was sort of running that. And he would ...
388 he gave some talks on how you do sort of basic Fortran. And so, if you wrote a program of
389 — I don't remember what the details were now — but maybe twenty lines or something like
390 that, then that was enough so that you could actually take your own cards and put them in the
391 hopper, and do that kind of stuff. There was enough background that he gave that he could
392 have some confidence that you sort of knew what you were doing. And then you could write
393 programs and do what you wanted. So that got me started. And I became more involved with
394 that over time.

395 [34:56]

396 By my senior year I was actually hired as what would now be called the first undergraduate
397 lab assistant in the computer center. So I gave those introductory talks, and I was there on a
398 certain basis — I even had an office in the new science center. So when my wife Terry and I
399 first met, when she was on the Williams campus — I gave her a tour, of course, of the
400 Campus Center. Then there was the science center and there was my office. [Laughter]

401

402 So that was the kind of computing background [I had]. And I really enjoyed that kind of
403 computing work. But for ... in terms of academics, I did take one course, I guess — which
404 was really a numerical analysis course — where we did some computing, but otherwise it
405 was all pure mathematics. I really liked the pure mathematics and decided to go on to
406 graduate school in pure mathematics.

407

408 **B: How did you choose your graduate school?**

409

410 H: Actually, well first ... there were several things. First of all, I applied to a lot of places
411 because, again, I had no clue that I was going to get in anywhere, so I figured I'd just better
412 try. Okay. So ... I was accepted, I think, everywhere I went ... I applied. But how to choose?
413 I didn't know what field I was interested in. I liked theoretical mathematics. But was that
414 algebra or was that topology or was that analysis or what could I say? Well, I didn't know. It
415 was all just really pretty spiffy.

416

417 I liked the idea of a small department. So I really liked the idea of going to Yale. But that was
418 the time of the Vietnam draft. And they had a terrible track record in terms of losing people
419 to the draft. So I didn't go to Yale. I went to MIT [Massachusetts Institute of Technology].
420 Because MIT had a really good track record of writing to draft boards and doing that kind of
421 stuff. And that turned out to be a fine choice. I think Yale would have been a fine choice, too,
422 except for the Vietnam War absolutely had an impact from that standpoint. So I went to MIT.

423

424

425 **B: So tell me about the influences at MIT.**

426

427 H: MIT. Well, I went there as a ... with an NSF fellowship, which meant that I was supposed to
428 take four courses a semester. It meant that I wasn't a TA [teaching assistant] or an RA
429 [research assistant] or any of that kind of stuff. But I had this assistantship. That meant I
430 could focus on those basic introductory courses.

431

432 At MIT, they had a strong applied math program, a strong pure math program, in the same
433 math department. But the structure was that you would have the chair of mathematics, under
434 which there was a chair of applied and a chair of pure, and from there on down the two parts
435 didn't talk to each other. So I was in the pure math side and the expectation was — the
436 recommendation was — that you take a course in algebra and a course in topology and a
437 course in analysis. And that was the right thing to do, and there wasn't any question about
438 that.

439

440 But NSF required that I take four courses. So they looked at my transcript from college and
441 said, "Well, it probably won't hurt you to take a linear algebra course. Because there might
442 be some things there that you don't know about. But you have to take a fourth course and
443 that's as good as any." So I took that as well.

444

445 That gave me some insight that the approaches to teaching at MIT were not necessarily the
446 same as the approaches to teaching at Williams. The ... I think, to be on the record, I will not
447 talk about the linear algebra course, but it was ... I cite it often informally as illustrating a
448 variety of things that one should really not do in teaching. It was pretty awful.

449

450 One thing that was sort of fun. The instructor gave take-home tests in that linear algebra and
451 was tired of all the standard stuff. So one of the questions was, "Give incorrect definitions for
452 the following terms".

453 [39:46]

454 **B: [Laughs]**

455

456 H: So this was something that I thought was just fabulous. I could just let my imagination go. So
457 I started, "A linear transformation is a model city's program in Flatland." I really just
458 enjoyed that kind of stuff. But actually, we were told later, there were several people who got
459 points off on that. Because they used double negatives and such and actually ended up with
460 the correct definition. But it had little to do with understanding of linear algebra.

461

462 **B: So were you enrolled in a Ph.D. program?**

463

464 H: Yes, Ph.D. program. But I really enjoyed the analysis, the topology, and the algebra.

465

466 **B: And so how did you choose what you were going to go dig into?**

467

468 H: As an undergraduate I had spent a summer in what would now be called an REU [Research
469 Experiences for Undergraduates] at Wesleyan University doing topological groups. It was

470 really more of a study kind of thing, it wasn't really research. I worked through a book and
471 learned a lot about, really, point-set topology and group actions and that kind of stuff. And
472 that was something I really enjoyed.

473
474 And I liked the topology side of what I saw so much in graduate work, although it was much
475 more into algebraic, not group actions as much as transforming questions of topology into
476 questions of algebra. So homotopy, homology, cohomology, and some of those kinds of
477 things, which were techniques [for doing that].

478
479 I really liked that combination of algebra and topology. So that, I think, is part of what got
480 me into algebraic topology. Another part is I think I'd had so much analysis in college that I
481 was just sort of tired of that. So it [analysis] was fine to do, there wasn't anything that was
482 bad about it, but the topology and the algebra in that combination just seemed really pretty
483 exciting.

484

485 **B: So then how did you choose your thesis advisor or did he choose you?**

486

487 H: I chose a thesis advisor, Franklin Peterson, who was just wonderful for me. He had done
488 some really interesting work in some of these combinations of topology and algebra and
489 some techniques to get at that. But I was interested also in some of this topological group
490 stuff from the undergraduate, so I actually had a thesis topic which sort of combined the
491 topological group setting with some of these other algebraic structures, which I would think
492 probably Peterson knew a whole lot about, but seemed sort of generally interesting to him.
493 He was very good at letting me find my way. He was very helpful, encouraging, but also
494 good at keeping me on track and asking the right kinds of questions and all of that kind ... I
495 met with him weekly for several years, for two years anyhow.

496

497 **B: How long did it take you to get through?**

498

499 H: Four years to the Ph.D. from coming in to ... and that was actually quite common in that time
500 for mathematics. It was clearly different in engineering fields, it was longer. But in
501 mathematics, that was sort of the norm.

502

503 **B: You had mentioned that Terry had been in a group that you led around Williams. Were
504 you married at this time or ...?**

505

506 H: So she went to Wheaton College in Massachusetts, and we met singing. Because she was in
507 the choral society there, and I was at the Williams Choral Society. At the time both schools
508 were single sex. So if you wanted to have four-part music, you had to meet with a different
509 school. That's sort of how it worked. So we did ... Williams went to Wheaton to sing and
510 Wheaton went to Williams to sing. And then ...

511

512 It was common at Williams in spring break that the choral society at Williams would team up
513 with a choral society from a women's school, and we would tour during spring break. So
514 anyhow, we did that. And so we had been dating. She graduated a year later from Wheaton

515 than I graduated from Williams. She went to Boston University in music, and so we were sort
516 of close to each other. And then a year after she moved to Boston, we were married in 1971.

517 [44:53]

518 **B: Then you got your Ph.D. Were you doing any computing while you were at MIT?**

519

520 H: Absolutely not. No.

521

522 **B: No. So what happened next and how did you decide?**

523

524 H: Well, I wanted to teach, which ... my thesis advisor, I think, really didn't know very much
525 about teaching. But he had recognized that I had this interest. So after my NSF fellowship
526 was done, he got me a ... involved with the Experimental Study Group at MIT, which was an
527 alternate teaching environment, and that was something that really was very helpful. But also
528 in the summers, MIT offers a certain number of courses, and they asked all the full
529 professors, "Do you want to teach those [courses]?" and worked their way down. And mostly
530 graduate students ended up teaching those courses.

531

532 So my first teaching experience, really, in a classroom doing my own stuff, was in the
533 summers. I taught first a course in differential equations, which was interesting because I
534 never had a course in differential equations. So I did that.

535

536 And then for three summers, I think it was by the time I was done, they had this intensive
537 review course of calculus and differential equations for people coming back to graduate work
538 after being away for a while. Most of the people in those [courses] were career officers who
539 had been on active duty for five years and were coming back to do Master's or Ph.D.s in
540 Naval Architecture, Electrical Engineering, etc. And they really knew they had to learn this
541 stuff. They may have had it once but they didn't know much about it. This was a course that
542 met two hours a day, five days a week. And they actually had two graduate students that
543 were teaching — one the first half and one the second half. And so I put together a schedule
544 of how to get through three semesters of work in one summer. And I was told that that
545 particular schedule was still in use about ten years later.

546

547 Oh, I should mention that the differential equations course before that, again we were split
548 up. I did half of the summer and the other person [did the other half]. I did the second half of
549 that particular differential equations course. And one of the reasons why that's noteworthy is
550 that Terry and I were married on a Sunday and I taught an 8:00am class on Monday. Just to
551 point out that ... but, you know, the schedule was such that that's sort of how our life has
552 been. And we took a honeymoon later, a few weeks later. Alright, so ...

553

554 **B: So now you're thinking about teaching.**

555

556 H: So now I'm thinking about ...

557

558 **B: So how are you ...**

559

560 H: So Peterson was ... because of his influence, I was able to get some teaching experience as
561 an undergraduate ... or as a graduate student.

562
563 **B: Graduate, yeah.**

564
565 H: And in fact, with the job market the way it was, I stayed on a year at MIT after my ... getting
566 my Ph.D. So I got my Ph.D. in 1973, but I taught there as a lecturer until the middle of 1974.
567 And then I was looking for teaching jobs. So I worked with an office there and sent out 150,
568 175 applications. Because jobs were tight in 1974. And so I was looking for a job that I could
569 really do some teaching in. And I got a phone call from Grinnell.

570
571 **B: Had you heard of Grinnell?**

572
573 H: No. Now because of the software that was available in the ... whatever the office was at
574 MIT, that was a time when they could do mail-merge kinds of things. That was pretty state-
575 of-the-art at the time. So the letters that I applied with actually had, individually, who this
576 [letter] was to. And that was pretty unusual, so that sort of gave an added [indication] that I
577 was interested in them.

578
579 But I sent out, I just flooded the market, because it was a very tight time. And I'm told— I
580 don't now if this is true — but I'm told that I was one of 450 applicants at Grinnell. I don't
581 know if that's true, but it might be. I do know at least one of the other finalists, who was
582 absolutely first rate. And I have no idea why I was hired. If I were to guess, I would guess
583 that it was my thesis advisor talking with one person that had been an instructor at MIT for a
584 while. That would be my guess, but I don't really know. So I was ... pretty much, I was
585 lucky.

586 [50:05]

587 **B: So you landed at Grinnell.**

588
589 H: Yup.

590
591 **B: You're an assistant professor of mathematics.**

592
593 H: That's right.

594
595 **B: And ...**

596
597 H: First year I taught ...

598
599 **B: I look at your resume and you are now a professor of ...**

600
601 H: Computer science.

602
603 **B: ... computer science.**

604
605 H: Well, there's another degree in there, too.

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B: So would you have ... you have to get from there to there.

H: That's right.

B: So tell me how you got from there to there.

H: Well, that ... so I was hired by, well, President Leggett and his administration. But he had left within [my] first year or so at Grinnell. And we had a new president, college president, A. Richard Turner. And at the time at the math department, we were all very close in age and in [perspective]. I was the only — we were a department of five — I was the only one that didn't have a seven-year-old daughter. Remarkably narrow range in terms of people that were there.

B: And gender?

H: Well they were just all male. The department, yeah.

B: OK. It isn't obvious ...

H: I mean, I'm trying to think. I think it might be ... yes, it was the case that the seven-year-olds were all daughters, too.

B: Mmm hmm, but all of the ...

H: That's right. And that was pretty common at the time.

B: Not the daughters part.

H: Well, it was common at Grinnell at the time. So, A. Richard Turner came in and at Convocation — I think it was my second year, it might have been my third, I think it was my second — he said, "We really have to worry about context when we are talking about tenure, because we have to have flexibility in terms of staffing. And if everybody is all together in terms of age and such, that really means that if they are all tenured, we are going to have a long-term problem." And he specifically mentioned mathematics as what should never be allowed to happen. So basically at fall Convocation he said to the campus community that I had no chance of tenure. And there were two of us in that situation, one was a year ahead.

Well, this did make one think a little bit. At the time, there were a number of projects to get more computing people. There was the IFRICS program [the Institute for Retraining in Computer Science] that NSF founded [with the Mathematical Association of America and the Association for Computing Machinery] and a number of others where people who were ... had strong mathematics backgrounds could do some retraining to do some computer science. So I thought I would perhaps pick up some of these interests that I'd had as an undergraduate, doing the computer lab stuff.

652 At the time, there was a program in the state of Iowa where selected faculty from private
653 Iowa colleges could enroll in degree programs at the state universities with a tuition waiver
654 and a stipend that would mostly cover books or maybe a little bit of travel, but not much. But
655 at least it wasn't an additional cost. So, I talked to the Grinnell administration, and I was
656 designated as a person that could enroll in a Master's program at the University of Iowa in
657 computer science.

658
659 This was a little troublesome, in that although a number of courses are taught in the summers,
660 not all required courses for a Master's in computer science were taught in the summer. So,
661 the acceptance letter that I have into the program says that they were delighted to have me
662 but I should realize that there were some real issues about scheduling because I couldn't just
663 complete this in the summers. But I started then. I did take summer courses. Terry was taking
664 courses in the library school there. And so we commuted in the summer. She was going
665 through the year, but I was going just in the summers.

666 [54:44]

667 Over the course of two summers, I was able to get a moderate number of [courses] ... I got a
668 good start. This was a little bit exciting, too, because at the time I was also grading Advanced
669 Placement exams, which took a week out in the summers. So I would get the assignments
670 ahead of time, and I would do the homework and the reading and whatever the assignments
671 were and such, so I could be caught up when I came back. There was almost always a bit of
672 stress when I came back — is this going to work? But it did. There are some stories about
673 that which we could or could not talk about, whichever you want to do.

674
675 But in any case, after a few years, I was able to get many of the courses done for a Master's
676 in computer science, but there were, I think, three that I needed to do. And they were only
677 offered during the year. And they were offered Monday, Wednesday, Friday. So this was a
678 little troublesome, because if you are at teaching school, and the University of Iowa is an
679 hour and a half away, you're not going to get in for three days a week.

680
681 So what I did is I cleared Tuesdays as the obvious time in my schedule. And I talked with the
682 graduate advisor at Iowa, Art Fleck, and he was teaching a course, I think it was on ... it was
683 either on theory of computation or it was on parsing and compilers and that kind of stuff.
684 Maybe languages. And I ... we worked out an arrangement where I would take his course. I
685 was enrolled in his graduate course that met Monday, Wednesday, Friday. But what I would
686 do each week is on Tuesdays, I'd come in and I'd meet with him. And I'd hand in the
687 homework from the previous week. He'd talk a little about whatever was coming up, what
688 was going to happen next. If there was a test, I'd take the test. Then I'd go back home and I'd
689 do the reading and [I'd do the homework] for next week. That worked OK. All together, I've
690 had Art Fleck for three graduate courses, and I've never once heard him lecture, never once.
691 But that's how I got through the Master's.

692
693 At the same time, we got a computer on campus at Grinnell, a PDP 11/45, which we
694 outstripped quickly and went up to a PDP 11/70. And by the end of the 1970s we had this
695 innovative beginning BASIC course, which you could take for one or two credits. If you took
696 it for one credit, you could take it for the second credit later on. And it did the standard
697 introductory computing stuff. It met once a week. And we had different problem sets for

698 students with different interests. So that if you were interested in physics, this is the problem
699 set, you could apply all the computing but you did it with physics problems, or with
700 chemistry problems, or statistics problems, or calculus problems, or whatever. And that
701 course just took off.

702
703 I ended up writing an introductory chapter of probably about 100 pages, 150 pages, of the
704 basic computing stuff. And then there were these different problem sets that were all
705 attached. And those came together as the first book that I came out with. There was actually a
706 Fortran version and a BASIC version, the first two books. I had done the first half and was
707 the editor for the others. But the others were written or co-written by various [collaborators].
708

709 **B: At what point were you in your tenure stream?**

710
711 H: Well, that came out just before tenure — that's why I actually mentioned that at this point.
712 So that came out and then the next year I was up for tenure. And that surely helped.
713

714 **B: That put you over ...**

715
716 H: We also had a different president at the time. So that those comments about what should
717 never be allowed to happen didn't have impact on me. I don't really know about the
718 circumstances for the person that was a year ahead of me, because he was not tenured. And I
719 don't know why. I thought he was a fabulous teacher, an active scholar, and all that, so I
720 thought he was a shoo-in for tenure, but for whatever reason, he didn't get tenure. And for
721 whatever reason, I did and I don't really know why.
722

723 **B: So this was the late 1970's and you're still an AP grader in math — there wasn't an AP**
724 **in computer science yet.**

725
726 H: Yeah, mmm hmm.
727

728 **B: And you continued then ... added computing courses at Grinnell?**

729
730 H: Yeah. So over the course of quite a number of years, we gradually increased the offerings of
731 computing courses. I should say for this innovative course that I had this first book out in, it
732 was Math 101. And as far as I know it's still the only course at Grinnell that has ever had
733 enrollment higher than the course number.

734 [60:07]

735 **B: Really?**

736
737 H: Really.
738

739 **B: Higher than one-oh-one?**

740
741 H: We had about 150 students a year ... a semester.
742

743 **B: One section? Or more than one section?**

744

745 H: Well, we couldn't have it in one section because we didn't have any rooms that were that
746 big! So there's one semester I did the same lecture three times in different — just because
747 that's the only way you could get them all together.

748

749 **B: So I can see how this goes.**

750

751 H: Mmm hmm.

752

753 **B: Computing becomes more popular. Were you involved in professional organizations at**
754 **that time?**

755

756 H: I joined ACM and SIGCSE in 1979.

757

758 **B: About the same time?**

759

760 H: Yeah. It seemed like about the right time. My first sabbatical was at Bell Labs in Piscataway,
761 New Jersey, where I was doing a big ... it was really a database, a distributed database
762 system. I was looking at system administration issues and that kind of stuff, which was sort
763 of interesting. So I was getting into the computing profession. And if you look at what
764 happened from the mid-1970s through mid- or late 1980s, there was this steady transition as I
765 was going more into computing and correspondingly less in math.

766

767 And, you know, it's just curious to me. My current title is Professor of Computer Science,
768 but I am also the Samuel R. and Marie-Louise [Rosenthal] Professor of Natural Science and
769 Mathematics. I'm not quite sure how computing fits in with natural science or mathematics,
770 but there is that kind of range of topics that I cover one time or another.

771

772 So we added a few courses and there was never really this long-term plan for how does one
773 get a major. It was an on-going sequence of ideas of, "Well, the next step might be this." Or
774 "There might be another couple of courses you could do within this framework" or whatever.
775 There was this notion in the 1980s of interdisciplinary concentrations. So it seemed like it
776 might be interesting to have a computer studies concentration. You know, do some
777 computing and some applications and a variety of those kinds of things. And that worked
778 well for a while and then we moved on beyond that. The major, I think, came in 1991. But
779 there ... it wasn't just suddenly, "We'll do this [major]," it just progressed through quite a
780 number of years.

781

782 **B: Rather than go into a whole lot of detail, I'm trying to figure out what the pathway that**
783 **led you from being a member of a society to being such an active ... seeing the idea of**
784 **service in the society. Can you tell me how you made that transition and what made it**
785 **happen?**

786

787 H: Well, I had been going to SIGCSE conferences. At the time there was this Computer Science
788 Conference, where you could go to one place and hear about all these different areas. So that
789 was very attractive. And attached at the end was the SIGCSE Symposium. Or actually, as

790 you know, the symposium to ACM means a small conference of about, what, 400 or
791 something like that. And that's probably about right for where things were at that point. It
792 was just sort of stuck on at the end. And at some point, I was asked to be, I don't know,
793 panels chair, or workshop chair, or something like that. So I got a little bit involved with that
794 kind of stuff.

795
796 Through ... well, until about 1982, I was involved with Advanced Placement mathematics.
797 But the Advanced Placement computer science came in 1984. And in 1984 they wanted to
798 have some people who had some experience grading AP something to be readers for the new
799 AP computer science. So I was asked to be a reader for AP computer science in 1984. And
800 then in the next few years I met a whole lot of people that got me more and more involved.

801
802 I talk about that because several of those contacts really were important in getting me
803 involved more with SIGCSE as well. So one that surely comes to mind is Nell Dale. And I
804 met her, I think, first at an AP reading. So, on the one hand, there were these separate spheres
805 that I was in, but they all sort of intersected in different ways. So that came ... let's see. So I
806 was involved with a few workshops and some of those kinds of things. Some activities with
807 ... in smaller roles in conference committees and that kind of activity. And then I was asked
808 wouldn't I be willing to run for secretary/treasurer in 1993. So at that time I was elected, I
809 don't know why it was, but I was elected. And that got me more involved with the SIGCSE
810 organization itself.

811 [65:54]

812 And then I had some gradually expanding roles until Nell asked me to be — well, Nell and
813 Boots Cassel — asked me to be the program chair when they were Symposium co-chairs for
814 the 2000 conference. And in 1999, when they'd asked me to do that, they said, "Well, we're
815 still doing all these paper submissions on paper. Hard copy. What do you think about trying
816 to do something or other to allow electronic submissions?" So it was their interest in maybe
817 expanding that paper submission system that led to my working with some students and with
818 Terry and with others to get this paper submission system ready for submissions for SIGCSE
819 2000.

820
821 **B: With Terry?**

822
823 H: Yes.

824
825 **B: Your wife Terry? I ... tell us a little bit about that connection. I was unaware of it.**

826
827 H: OK. Well, she's had a long and varied career, which we could do another whole series of
828 interviews about. That included doing a fair amount of work with... well, first of all, library
829 automation — she was ten years as Assistant Librarian for Reader Services at Grinnell. And
830 then she moved on and did some ... well, some tech-related things as part of a role as the
831 economic development person for Poweshiek County, which is where Grinnell is. Then she
832 went and took some additional coursework in ... oh, in database and programming and that
833 kind of stuff. And ended up working for a variety of different companies, first in Cedar
834 Rapids, then in the Des Moines area. So she had experience with web-based applications and
835 database and such well before I did. So she actually knew what she was doing, at least ... we

836 didn't know how to do it quite in the environment that we had, but at least she had actually
837 done some of that. I didn't. So yes, she was an active participant in that.

838

839 **B: Mmm, that's very interesting. Keep going in terms of ... I'll start almost at the end and**
840 **go backwards. Can I do that?**

841

842 H: Whatever!

843

844 **B: This week you made a lovely donation to the organization to start funding scholarships**
845 **for young academicians to come to SIGCSE, and that's a wonderful thing.**

846

847 **What's your teaching philosophy that makes you — is consonant, I guess — with**
848 **getting young faculty at SIGCSE? So what's your teaching philosophy and what would**
849 **you like to inspire in new faculty?**

850

851 H: I suppose a lot of this goes back to being a product of the 1960s, where there was a real sense
852 of ... that service and social responsibility and a lot of those kinds of things. And certainly
853 back to my parents and others as well. So I'm really interested in working with educators at
854 all levels to help improve education, help teaching, getting people involved, getting ... I've
855 benefited a lot over the years with talking to people about what works, what doesn't work,
856 how do you deal with this, all these sorts of things within teaching. The network has been
857 very important for me. And I don't know whether that's a philosophy, but it's a ...

858 [70:07]

859 I really have this sense of really needing to work within a community in order to develop as a
860 teacher. There have been several organizations that I have been part of that have all been
861 involved with that, but SIGCSE is the big one in terms of the size and the diversity of the
862 group. And my vision for SIGCSE had been that this would be one organization, which could
863 include all sorts of different perspectives. The field is more ... tends to be more ...
864 compartmentalized than I would prefer. So you see SIGITE, you see AP-CS, [you see
865 CSTA,] — you see a number of these groups that are sort of affiliated. I would have
866 preferred to see all of them together. But I understand. There are reasons it has developed the
867 way it is.

868

869 But I do have this sense of a community really interested in how do you move forward in
870 education and connect with students. How do you connect with not just this group of students
871 or that group of students but the whole diverse population? So what's the state of education?
872 Well, the state of education is one where there's limited funding. Resources are sometimes
873 available, often not very well. So how do you make a difference in that? As I said in my talk
874 earlier this week, I am one person, I can't do everything. But I feel very strongly that that
875 doesn't mean that I can't do anything. So I need to find where is there a need that could
876 actually maybe help somebody.

877

878 **B: Were there ... you got this path. You showed how this path worked. And were there**
879 **any particular challenges in your work environment — except the "you're not going to**
880 **get tenure" statement — that ...**

881

882 H: Well, that was sort of ...

883

884 **B: ... that's a big one. But compromises between work and home or ...?**

885

886 H: I said in my keynote, and I really mean it, I think Terry and I have been a very good team.
887 She's had her professional career. I've had my professional career. And we really have been
888 very good at trading off what needs to happen. When the kids were around at home, each day
889 we would need to think about, "Now who is going to be picking up which kid where and do
890 what?" We both did our part.

891

892 **B: Tell us a little bit about your children. How many children do you have?**

893

894 H: I have two children. Donna lives in San Jose, California. She went to Kalamazoo College
895 after Grinnell. Both kids said that they wanted ... they both were very involved with the
896 Episcopal Church in Iowa and wanted to start off fresh for college. So the first requirement
897 of a college for them was that it was out of Iowa. I think in terms of priority list, the second
898 might have been that it was accredited, just to sort of put this in perspective. [Both laugh.] So
899 they were looking for places ...

900

901 My older daughter, Donna, was interested more in business, economics, that sort of stuff. She
902 went to Kalamazoo and then has gone out to be involved with Symantec Corporation, which
903 [develops] Norton Anti-Virus. And she's in the marketing, and sales, and that side of things
904 there. That seems to have been a good fit for her. One of the interviews ... as she was
905 working with Symantec, they were interviewing. One of the people they interviewed was a
906 fellow named Jeff Walker, who was also interested in marketing and that kind of stuff. And
907 so she ended up interviewing her future husband for a job at Symantec as well.

908

909 **B: And became a Walker Walker.**

910

911 H: And became a ... well, there were a lot of jokes about this, which I think you've heard.
912 Walker Walker. Walker squared. [laughter] Can't be Walker-dash-Walker because when you
913 subtract there's no last name at all.

914 [74:56]

915 **B: Oh, dear! And your other daughter?**

916

917 H: The other daughter is Barbara. She works now for the Ohio Environmental Protection
918 Agency. Her area is atmospheric quality. She does a number of things related to licensing
919 and permits and that kind of thing. When there are complaints about air quality and such in
920 her region, she'll be involved with that. She's also gotten involved with various emergency
921 response [activities], and she is on emergency search teams in the state and does a variety of
922 [search and rescue] kinds of things.

923

924 **B: I just note — this is usually not the role of the interviewer — but was there a**
925 **requirement at Grinnell that you have girls in your department, that you only could**
926 **have daughters?**

927

928 H: No, Sam Rebelsky in our department has three boys.

929

930 **B: Oh, good. Good. OK.**

931

932 H: And actually Jerod Weinman now has a 2 ½ month old boy.

933

934 **B: Oh, good. Good.**

935

936 H: Yes. But there was a history of this ...

937

938 **B: I was just worried there for a minute ...**

939

940 H: Yes, well ...

941

942 **B: Were there some compromises that you had to make in the course of your career?**

943

944 H: Well, you know, every institution has plusses and minuses. And there are things that you
945 look at and say, "This isn't optimal." And well, you know, Grinnell is like that. When I was
946 at Bell Labs, I really loved the work, but I couldn't teach. That's just not how it worked
947 there. So I came ... Terry wanted to come back and I really missed the teaching, so I took a
948 153% pay cut to come back to Grinnell.

949

950 **B: So when you went to Bell Labs it was actually not just a summer employment, it was a
951 full-time ...?**

952

953 H: It was a year job. They knew it was a sabbatical. But they knew that there was a possibility
954 that ...

955

956 **B: It might happen.**

957

958 H: ... we'd see how it went. It was a wonderful environment in a lot of ways, but it didn't have
959 the teaching.

960

961 **B: You talked in high school about your drama outside interests and your music outside
962 interests. In college that continued. Do you currently have outside interests ...?**

963

964 H: I like to do ... I like to sing. I like to play guitar. So when my kids were in college ... or were
965 in high school and junior high, I was really the music person for various high school and
966 junior high youth camps and retreats and that kind of stuff. And yes, we did, in fact, give
967 page numbers in binary. We did, in fact, talk about the Evening Prayer starting on page two-
968 to-the-seventh-minus-one. And that was just how things were.

969

970 **B: Are you still continuing with the music?**

971

972 H: I don't so much right now. There are some details of why not. But that's ... but actually I've
973 been very fortunate, just on the side. After I graduated from Williams, the Williams Choral

974 Society [director] hooked up with the Detroit Symphony and asked the alums to come back,
975 and so I have sung in Carnegie Hall with them, with the Detroit Symphony. Then when I was
976 at MIT, I was with both the MIT Choral Society and the MIT Chamber Group. And the
977 Chamber Group was invited to sing in Carnegie Hall for alums. So I have actually sung in
978 Carnegie Hall twice.
979

980 **B: Would you reflect on your career and what you've done? Name me three things that**
981 **you are most proud of.**
982

983 H: I think one of the things I'm — there are a lot of family kinds of things, too, {talking at the
984 same time} but let's talk about professional things.
985

986 I'm quite pleased that SIGCSE has evolved the way it has. We had had a period of gradual
987 decline in membership for quite a number of years. And while I was on the Board we were
988 able to take a number of initiatives and do a variety of things, so that we turned it around. I
989 had found that SIGCSE was a wonderful place for networking, for learning about how to
990 become better teachers, and all that kind of stuff, but then the number of people taking
991 advantage of that was going down.
992

992 [79:43]

993 There were a number of reasons for that and the membership went back up. So, while I was
994 chair, we went from, I think, the eighth largest SIG [Special Interest Group] to the fourth
995 largest SIG. I don't personally take much credit for that, because a lot of people were doing a
996 lot of things. And I like to think that I was helpful to let people do the stuff that they could
997 do. I don't know to what extent I have much credit for that at all. But we were able to do that.
998 I am a goal-oriented guy, and we got that done. And however it happened, it happened.
999

1000 **B: Okay.**
1001

1002 H: Another thing, I've been involved with a number of ... oh, curricular and pedagogy
1003 activities. I really like working with projects related to what content should be, how that
1004 should be mapped into curricula, and what pedagogy can support it. And I think that perhaps
1005 some of the [work] I have done maybe has been helpful about that.
1006

1007 I am just working with Sue Fitzgerald right now on what I think is my 34th external review.
1008 So ... and I think those have been good reviews.
1009

1010 I have just finished chairing a Program Study Group for the Mathematical Association of
1011 America on connections that are possible between mathematics and computer
1012 science/computational science. I would like to think that some of those kinds of activities are
1013 helpful.
1014

1015 Again, you know, these are sorts of things that I think I'm engaged, but whether ... what the
1016 real benefits there are, the real impact, I don't know. There have been a number of folks over
1017 the years that I've been able to work with and serve in some sort of mentor role. And again,
1018 when you're working with students, or working with colleagues, you often really don't know
1019 what impact you've had. I'd like to think that some of that's been useful. But you don't really

1020 know that very much, right? You know, it's just ... that's the nature of teaching. You sort of
1021 try to plant the seed, try to help things grow, and eventually something happens. Maybe.

1022

1023 **B: You anticipated the question I was going to ask about mentoring and you answered it.**

1024

1025 H: Hey!

1026

1027 **B: And that's a very good ...**

1028

1029 H: I didn't even read your notes.

1030

1031 **B: No, no, no. Um ...**

1032

1033 H: But I really have ... there are a few people where I've done various interactions over the
1034 years that feel at the Symposium the need to check in with me and tell me what they've been
1035 doing and that sort of stuff. And I'm delighted to talk with them, but it seems they actually
1036 have a need to keep me up-to-date and such. So I like to think, at least in those cases, that
1037 maybe I've had an impact.

1038

1039 And then once in a while, something happens where you realize that you might have made a
1040 difference. One of my students early on was Nathaniel Borenstein, who went on to be a
1041 primary author of MIME protocol, which is how you send attachments in email. He was a
1042 double major at Grinnell between mathematics and religious studies. He went on to Carnegie
1043 Mellon for his Ph.D. And in his first book he named both a religious studies person and
1044 myself, which was very nice.

1045

1046 **B: Very nice.**

1047

1048 H: So once in a while you get something, but mostly you don't really know. And that's just sort
1049 of how the teaching profession goes.

1050

1051 **B: Right. If you had one word of advice that you would give to a ... let's say a young
1052 woman starting out in computing, since this project started out looking at women.**

1053

1054 H: Yes, right. Mmm hmm.

1055

1056 **B: But we let men in so we can see the differences or the similarities.**

1057

1058 H: One word is hard. Well, particularly, as you know, for me, I mean ...

1059

1060 **B: I didn't say ... you know ...**

1061

1062 H: But ...

1063

1064 **B: A word of advice does mean a paragraph.**

1065 [84:31]

1066 H: OK. I guess for me, on the one hand there's been a certain amount of planning. There has
1067 also been a lot of paying attention to what circumstances you find yourself in, and taking
1068 advantage of serendipity. And, you know — as I have built the program at Grinnell or as I
1069 have seen various things in the SIGCSE organization — yes, there are some general
1070 principles of inclusion, and respect, and social responsibility, and those kinds of things for
1071 SIGCSE. Or some ideas of you should expand computing somehow in the Grinnell
1072 curriculum. But when you start along a path you certainly know a bit of where you are
1073 starting from, but you know that will change when you do the first steps. So the way you may
1074 be envisioning the path at the beginning is absolutely not going to be how it is going to work.
1075 Because when you take a couple of steps, there is now a different environment. You are in a
1076 different place yourself. And so you need to keep listening, keep re-evaluating, keep thinking
1077 about what sort of an interesting, worthwhile thing to do next.
1078

1079 **B: Hmm. That's good advice.**

1080
1081 H: Was that a paragraph?
1082

1083 **B: Yeah. This is a harder one, maybe. If you could change one decision that you made,**
1084 **what would it be?**
1085

1086 {very long pause; 21 seconds of silence edited out}
1087

1088 H: I suppose, the way I look back over the years, there are some mistakes that sort of stand out.
1089 Of ... you know, I missed a lighting cue [in high school], which really was annoying for
1090 somebody or other in the theatre. Did that have an earth-shaking effect? I doubt it. But, you
1091 know, there are a variety of those things. When I was on the SIG Governing Board, there
1092 were some things, when I was tied up with one area, and that may have influenced another
1093 area. Um ...
1094

1095 **B: It sounds like the answer is basically "No".**
1096

1097 H: There aren't a lot of things ... there aren't "big picture" things. Well, maybe the SIG
1098 Governing Board one, although that was a different kind of environment, so I'm not so sure.
1099 I've made mistakes that I acknowledge I've made mistakes. There are times when I would
1100 have thought it would have been nice if things had worked out differently. But generally I
1101 think I've been a pretty lucky guy. Early years at Grinnell were very difficult with financial
1102 circumstances and such. That was a different time. The things I usually point to when I'm
1103 talking to colleagues is that — well, there was a misunderstanding of salary when I came [to
1104 Grinnell]. So then, Donna arrived 1976 and ...
1105

1106 **B: Donna who?**
1107

1108 H: Donna — this is my ...
1109

1110 **B: Your daughter.**
1111

1112 H: ... my daughter. She's ... and so she turned out to be high and breech, so Terry needed a
1113 Caesarean and that was not covered by the college insurance. Those are some things that are
1114 difficult. And we could spend a long time about some of those.

1115
1116 **B: Yeah.**

1117
1118 H: But, you know, overall Terry and I have worked through a bunch. We have ... we're both
1119 strong-willed people. We have our own views on things. And so, you know, there's some
1120 negotiation. I think that's how it is in pretty much any relationship. Overall, I've been pretty
1121 lucky.

1122
1123 **B: The last question.**

1124
1125 H: OK.

1126
1127 **B: Many people don't answer it, so you can pass. If there's one story that you want to tell
1128 so it will be remembered.**

1129
1130 {very long pause; 23 seconds of silence edited out}

1131
1132 H: I guess the first thing I think about has to do with various teaching scenarios. I'm not sure
1133 I'm going to come up with a specific example, but I might. I'm sort of thinking out loud, as
1134 I'm going here. But teaching is about connecting with students and thinking about how do
1135 you really get into the minds of the students where they are. So I think actually there are two
1136 things I want to say. I know you only said one, but you can edit one out.

1137
1138 One. When older daughter Donna was in third grade, she came home and had a question
1139 about math. At that time, the whole class she was in would go to a language teacher, and then
1140 to a social studies teacher, and then to a math teacher. Her math teacher was Mr. Connor. She
1141 came home and had a question one day. And I said some stuff — that was my field and I
1142 knew about that stuff. And she listened to me and said, "You know, Dad, Mr. Connor says
1143 that a whole lot better than you do." You know, she was absolutely right because he
1144 understood how third graders work. And, you know, I quote that story often, because each
1145 area of teaching is special. It's not just about content. It's how do you connect with that
1146 particular group. And Mr. Connor could deal with third graders in a way I would never be
1147 able to. And I think that's an important thing to keep after.

1148 **[90:59]**

1149 Second thing, not completely unrelated, but not the same. It's common in a computing course
1150 to talk about binary search. So the approach that I typically use — I got it from someone else;
1151 it's certainly not original with me, but I've used this from time to time. And it happened that
1152 there were a couple of prospective students in class the day I was doing [the binary search].
1153 So what do I do? I got out an old Grinnell telephone directory to do binary search. How
1154 would you look up this name? So I turned to the middle page. It's going to be in the second
1155 half of the book, so I just took the structure and ripped it in half. And I thought those two
1156 students were going to just fall on the floor. {both laugh} But then, you know, it's called a
1157 destructive binary search.

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But the point is — it's the same kind of thing as the Mr. Connor story, really, in that how do you connect with that particular set of students in a way that is going to have an impact on the way they think. So to me, if it's going to be a story, it's going to be a teaching story, because I'm a teacher.

B: Henry, what a wonderful way to wrap up the interview. I cannot thank you enough. Your stories were delightful. This has been absolutely my pleasure.

H: I find it an honor that you'd select me to be part of this whole series. This is really wonderful. And thank you.

B: You're very welcome.

[92:49]