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## Questioning, Asking and Enduring Curiosity: an Oral History Conversation between Julianne Nyhan and Willard McCarty

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### Abstract

This interview was carried out with Willard McCarty on Tuesday 27th March, 2012 in University College London. He recounts that his earliest encounter with computing was in the Lawrence Radiation Laboratory in Berkley where he worked with semi-automated scanning equipment for the Alvarez high-energy physics projects. After his dreams of becoming a physicist were thwarted he transferred to Reed College. There he did not have the opportunity to take formal training in computing; for the most part, Computer Science departments did not exist then. So, he learned to programme "on the job" with help from a talented physicist turned computer programmer named Bill Gates (no association with Microsoft). His first encounter with what we now call digital humanities was at the University of Toronto where he worked on the Records of Early English Drama project whilst undertaking a PhD on 17th century non-dramatic poetry. In 1984/5, as he was finishing his PhD, he accepted an academic support role at the Centre for Computing in the Humanities at Toronto, where he remained until 1996 when he accepted an academic post in King's College London. In Toronto he was keenly aware of the staff-faculty divide and the marginalised position of those who used computers in Humanities research. Nevertheless, the opportunities that the role brought to meet with a range of scholars interested in computing had a lasting influence on him. So too, with funding from the Social Sciences and Humanities Research Council of Canada he was able to undertake a research project on Ovid's *Metamorphosis*. He closes the interview by reflecting on his early involvement with the conference scene and people who have influenced him, from academics to his calligraphy teacher Lloyd Reynolds.

### Preamble

Dr. McCarty is FRAI / Professor of Humanities Computing and Director of the Doctoral Programme, Department of Digital Humanities, King's College London; Professor, School of Computing, Engineering and Mathematics, University of Western Sydney; Editor, *Interdisciplinary Science Reviews* <http://www.isr-journal.org>; and Editor of *Humanist* <http://www.digitalhumanities.org/humanist/>. In 2006 he won the Richard W. Lyman Award from the National Humanities Center and the Rockefeller Foundation, U.S. and in 2005 he won the Award for Outstanding Achievement, Computing in the Arts and Humanities from the The Society for Digital Humanities / Société pour l'étude des médias interactifs, Canada. His work is centred on computing across the arts, humanities and interpretative social sciences. Because computing is a techno-scientific activity this work is also concerned with and looks for collegial help from the sciences. Hence it leads to questions of interdisciplinary research as a whole, especially how such research is to be understood and done. More information is available at <http://www.mccarty.org.uk/>.

This interview contains a wealth of information about McCarty's interdisciplinary background and how it was

that he came to learn computer programming. From this interview emerges a very strong sense of McCarty's critical and questioning attitude towards the computer and the culture that surrounded it in the 1980s, and later. Indeed, up to his appointment at the Centre for Computing in the Humanities at Toronto in 1984/5 he recalls that he tended to drop in and out of contact with computing because he liked neither computers nor, for the most part, computer programmers. He recalls that "[t]here was a huge amount of conformity and the love of mechanisation, the reduction of life to what can be programmed, which was reflected in the kind of people that I met, with some exceptions, some brilliant exceptions. It was partly, it wasn't what I wanted to do — I didn't want to be a slave in a society that had really no respect for the workers who did the work for them." This is a fascinating insight into some of the conditions from which our discipline emerged and a topic that deserves more exploration. It also has resonances for modern day digital humanists — to what extent does conformity and the love of mechanisation still manifest itself in our discipline? And what steps might we take to avoid it?

Click for the accompanying audio interview.

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## Interview

<b>Julianne Nyhan</b>	Willard, can you reflect on your earliest memory of encountering computing technology?	4
<b>Willard McCarty</b>	<p>It was at the Lawrence Radiation Laboratory in Berkeley where I got a job in my second year of university at UC Berkeley. At first, not dealing with computers but rather with semi-automated scanning equipment for the Alvarez high-energy physics projects. We slaves were employed to scan bubble chamber film for nuclear interactions and to classify them. It sounds very exotic but actually it was quite dull, the equivalent of being in a typing pool, really, and Alvarez then — his group — had these photographs of nuclear interactions digitised by custom equipment that had been made for the project. Then these were processed by computer to reconstruct the events in three-space and calculate the angular momentum of the paths and infer, calculate from that the particles that were involved and from that look for unknown particles and golden events, one in two or three hundred thousand photographs. So, the Lawrence Radiation Laboratory, because they had an intimate connection with the Federal Government and with their bomb-making counterparts in Livermore, had a direct line to computer manufacturers. They got all kinds of state-of-the-art mainframe things, and running computers was a big deal there so perceiving that those who dealt with computers got paid more and had more independence, I eventually — the story is long and complex, and pretty much boring — I eventually got a job, first as a computer operator of IBM's 7094 and worked with an IBM 704, which was a drum-based machine that had 6000 valves in it. (The engineer, when he came to repair the machine, would turn the lights in the room off so that he could check to see which tubes weren't glowing and that usually identified the problem.) Anyway, the sort of equipment that you see in books: that filled rooms and made a lot of noise because of the under-floor cooling systems. From being a computer operator, then I got a job as a computer programmer, working in IBM assembly language — IBM 7094 assembly language — and then when the first computer that they had, which ran more than one program simultaneously — the CDC 6600 — came in, I wrote assembly language programs for this computer, which marked quite a change in my relationship with computers. Before then when you stopped telling the computer what to do, you stopped feeding it stuff, it would stop, and as we say, "wait for more", but the 6600</p>	5

	which ran, at first, eight programs simultaneously and then 64, would manage itself and the operator was more or less reduced to the role of somebody who observed what was going on and occasionally fixed things. That was in Berkeley in the early 1960s.	
<b>Nyhan</b>	You said when you began work there you were an undergraduate, in the Humanities or?	6
<b>McCarty</b>	In the physics department, which I had wanted to be all my previous life, a physicist, but there was kind of administrative cock-up, as a result of which I got a C in second year physics, which was an experimental programme in relativistic physics devised by Harvard and Berkeley and taught for the first time that year — very exciting, very exciting — no text books, everything mimeographed, problem sets — we'd get 10 problems a week and were told that if we solved any of them we'd be eligible for a Nobel prize — they were really difficult problems and we had all kinds of ... it was really exciting stuff. But due to an administrative cock-up I got a C in the second year course and my advisor, and the faculty advisors at Berkeley cared next to nothing about the students, about undergraduates. Undergraduates were dirt there, or were then. So, not knowing me much or caring about the circumstances he told me to change my major subject because clearly I wasn't destined to be a physicist. So I changed to German for a while and had a great time — very inspiring — and then mathematics, I think, and then English eventually, which is when I transferred to Reed College, where I worked on an IBM 1401, which is what they had in their so-called computer centre.	7
<b>Nyhan</b>	And what about your training in programming? Was that formal?	8
<b>McCarty</b>	There was no formal training in programming. There was no computer science, at least not on the West Coast. I forget when Cornell's Computer Science Department started, I think that was the first, but there was no Computer Science, there was no formal training. At one point I was apprenticed to a young whiz kid, well I was young too then, I guess, but a whiz kid who had been a physics student and fell in love with computers and thereafter just worked as a computer programmer, his name was, oddly enough, Bill Gates, though not <i>the</i> Bill Gates. He was a legend among computer people of the West Coast — he and another guy re-wrote the operating system of the CDC 6600, for example, they were quite amazing. And he sort of trained me: "here's a task", "here's a core dump", "translate this core dump back into assembly language", that sort of thing.	9
<b>Nyhan</b>	Very much learning by doing.	10
<b>McCarty</b>	Oh absolutely learning by doing, there was no other way. There were no principles of programming, I mean, there was assembly language, assembly language for the individual machines, of course, and Fortran. Fortran was actually quite a good language by then and we used to do all sorts of very clever things with Fortran, including crashing the machine periodically. Whenever the machine crashed it was either Bill or me who was responsible for this so...it was fun.	11

<b>Nyhan</b>	What about the first time you encountered what we now tend to refer to as digital humanities?	12
<b>McCarty</b>	<p>Well, I dropped in and out of contact with computers because I didn't like computers very much and I hated the people that were computer programmers, mostly. Mostly, I found them to be very boring and uninteresting people so ... being a student from a not wealthy family I occasionally needed to make money and having knowledge of programming was handy for that; so I drifted in and out of having to do with computers but I ended up at the University of Toronto to do a PhD in 17th century non-dramatic poetry. I got a job with the Records of Early English Drama project, which is still going and with which we at King's have now an intimate association, oddly enough, as a programmer for Ian Lancashire, basically working for him, although later on for other people in the project and working on a DECsystem-10, with an acoustic coupler modem, 300-baud acoustic coupler modem, programming various things for a compilation that he was putting together on English dramatic records. That was implicitly digital humanities, I suppose, but not explicitly until Ian formed a computing centre for the humanities — it was called Centre for Computing in the Humanities at Toronto — I then was working for the computing centre itself, in the micro-computer support group, which mostly dealt with people in the Humanities, so again implicitly digital humanities but hardware-focused — Osbornes and Apple 2s, that sort of thing. And when I heard Ian was forming this centre, I went to him and I said "you need me, offer me a job" — right at that time I was just finishing up my PhD so I went to work for his centre in 1984/85. Got my PhD in '84, went to work in '85. There were no academic jobs in Milton studies, which was my area so again, by that time I had a family and two children to support so I really needed money. I worked in Ian's centre, mostly going around and talking to researchers at Toronto, at the University, who were for some reason or other, for whatever reason, interested in doing things with computers because Ian was building interest around this centre of his. This was, I mean, it was a non-academic job, it was nine to five, it was all those things and I was very unhappy about that, of course — a PhD does that to you — but it was extremely valuable training because I essentially talked to people about their research across all departments and then began to see common patterns across departments. We had a centre but we had no glue other than Ian's passion for computers and conviction that one could do things with them, but there was no theoretical glue, there was no disciplinary sense, in fact, Ian was very much against the notion that, as I recall, that there was anything to a field which might have computing in the humanities in it. It was a service centre for the humanities, which is where the academic legitimacy came from. But as I say, I got to talk to a lot of people about their research and ask questions and listen to what people were saying, the claims that were being made, and also, I got friendly with a professor in the French Department who convinced me that I could apply for funding because I had been, by this time, working on Ovid's <i>Metamorphoses</i>, since there were no jobs in English, I thought I'd do what I wanted, which was to work on the <i>Metamorphoses</i>. So, I was working and beginning to think about how to tag the poem for whatever I could find of interest in it and then process this somehow to come up with a notion of what made the poem cohere, which is the big critical problem with the <i>Metamorphoses</i>, it remains a problem. So, I was adding codes, and this was this long before TEI, so I invented my own coding system, like everybody else did, but I made sure that it was rigorously</p>	13

consistent so that it could be algorithmically translated into any other coding system. And it began to occur to me, I think, by then that, after two or three years of working on this, that I really needed help because it was a very large project — 12000 lines of Latin poetry — there's a lot of stuff in those 12000 lines. So, Russ Wooldridge, a lexicographer in the French Department convinced me I could apply for money, I thought that since I didn't have an academic job, I couldn't apply for money. I was, after all, outcast, there was very much sheep and goats tenure-divide in North America at that point. If you had anything to do with computers, you were in the outer darkness with the waiting and gnashing of teeth, so I felt very much excluded. But Russ convinced me I could apply for money so I applied and I got it — 30,000 Canadian dollars — it seemed like a fortune to me. I hired a young Classicist from Kentucky, very much an American southerner, who's Latin was very good and who thought very differently than I did. And my original conception was to have him do the computer work while I thought the high conceptual thoughts and wrote the book on Ovid and all that stuff. But looking over his shoulders — I had to do since I was paying him — I discovered that what he was doing was far more interesting than what I was doing. So, I threw away the idea of writing a book, and since I didn't have a job anyhow, what did it matter? I threw away the idea of writing this book and joined forces with him, and we became more or less colleagues, I mean I happened to pay him but he and I were working together, and the first thing we did was look at all the work that I had done over the last two or three years and threw it out and started all over again and continued for a few years until he and his wife, who was also in the Classics Department, decided that really Graduate School wasn't for them and quit. And then I continued on my on for some time after that. But it was during that period from 1984 to 1996, when I got the job at King's, that I was in a position not only to be involved with research as we think of it and so to try ideas out, but also to talk to people who were doing all kinds of different research, postgraduate students, big university, very interesting people there, so all kinds of conversation and opportunity to observe. Those twelve years really were where a lot of ideas that later on popped into my head came from.

**Nyhan**

You mentioned earlier that you had actually disliked the computer, can you talk a little bit more about that and when, presuming those feelings have changed, when did that change come about?

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**McCarty**

Well, the society of people formed around the computer, first of all they were, in the academic world, a servant class, a lot of them came from business and had a scientific background of some sort. The IBM people and the CDC people all dressed alike and all looked alike, they looked like they were made in the same mould, they all had the same kind of clothing. Until Thomas J Watson Jr, I think, had to appear on colour television all IBM employees had to wear white shirts and then the people in the television studio told Watson that white didn't work well on colour television so he had to wear a light blue shirt and after then all IBM employees could wear light blue shirts instead of white shirts. There was a huge amount of conformity and the love of mechanisation, the reduction of life to what can be programmed, which was reflected in the kind of people that I met, with some exceptions, some brilliant exceptions. It was partly, it wasn't what I wanted to do — I didn't want to be a slave in a society that had really no respect for the workers who did the work for them. If

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you were a physicist at the lab, or a nuclear chemist, or something like that, you got enormous privileges, there were Nobel Prize winners walking around the place. There was even a club of people who had got Nobel Prizes that ate lunch together and only if you had a Nobel Prize could you eat lunch with them. It was that very hierarchically-structured academic society, very high powered, lots of people wanting to be part of it and so social stratification put computing and everything to do with computers at the very bottom of the heap. I suppose the people that emptied the bins were socially lower, but not by much. So, it's the association of, first of all, a very low social status and just basically in a job of doing what you're told, in a world in which people basically thought that computers did what they were told, that that's what it was about is programming something, making it automatic and that didn't appeal to me at all.

**Nyhan**

But at some point that began to change, did it?

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**McCarty**

Well it was true, I think, all this is of course recollection and reconstruction and subject to all of those caveats. When I began to question the claims that people were making in the 1980s, IBM, which had been pouring money into the Humanities since the early 1960s, IBM was very forward thinking, very forward-looking in developing a field that was manifestly not going to do very much of commercial interest but they had lots of money, they were on top of the world, they poured lots of money into the Humanities. So, the University of Toronto was awash with money, in the 1980s, 300,000 Canadian dollars a year budget for this little centre, which was quite a bit of money then. And IBM was interested in hearing about these wonderful things that could be done, so the people around this centre I was part of were proclaiming wonderful things that could be done and these proclamations, these claims were hype, basically, I got very curious about this and began to question and that questioning was really the basis of an enduring interest in what was going on. I've been asking what's going on ever since. It was quite evident that all of these claims were false but it was interesting that people were making them and it was interesting in what sense they were false — what was left out became my primary passion, how these systems fail and the value of failure became the organising principle for all of the investigations that followed.

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**Nyhan**

Just one bit of detail, who funded your *Metamorphoses* project?

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**McCarty**

Social Sciences and Humanities Research Council of Canada. At that time, and subsequently I think, it has done a great deal for the digital humanities in Canada. The Canadians have done marvels in convincing the government and setting up structures of funding and so on. Per capita more digital humanists in Canada than anywhere else in the world, I think, likely.

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**Nyhan**

You've talked about the scholars you encountered, who planned to use computing in their research, what about scholars who were not using computing, do you have some sense of what their views of that field of endeavour were?

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**McCarty**

This is a problem really to talk about because people tended to just turn their backs and walk away. When Steven Parish gave his summary account of the

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first conference in our field, sponsored by IBM in 1964, the Literary Data Processing Conference, you have the proceedings of that, I think. (See [Bessinger and Parrish 1965].) He says in there that he went to CP Snow's lecture in 1959 in Cambridge, the famous two cultures lecture, and he talks about the good, grey Dons, something like, turning their backs and walking away, the cool reception. The coolness of the reception is what I felt from the people that weren't using computers. I think Ian was ridiculed, certainly behind his back, maybe even less decorously in front of him, for his interest in computers and the claims he was making about what was to be possible. Very much a beleaguered group of enthusiasts, the way Steven Parish communicates in that summary of the conference. For evidence of what was going on in people's minds in the non-users, you really have to go out into the popular literature of the period and look at what people were saying and you have to look, that is, what people were saying in *Time* magazine and in *Toronto Globe and Mail* and in the *Times of London*, and all the peripheral literature that was surrounding all the university types and the practitioners and the non-practitioners, for clues. And it's this social background that I think pushes to the fore certain off-hand remarks and hints that you find in the professional literature. There's very little in the professional literature to clue you into how frightening computers were to the population in general. You have to do a lot of historical digging to bring that out. Some of that has to do with Paul Edwards' book, some of that has to do with Cold War, the whole, particularly in America, the paranoia of the period of the Cold War, which overlaps, very neatly, the beginning of computing in the humanities and up to the release of the web in '91. The whole period is dominated by American paranoia, which I think must have been felt in this country as well, it certainly is a big deal in the United States. And that's part of the setting and it takes a fair bit of digging and argument to get to the kind of cool rejection that was characteristic of most of the scholars that populated departments of the Humanities. Ian certainly felt very isolated in the Department of English.

<b>Nyhan</b>	Do you think that this feeling of, on the one hand, isolation and maybe doing something different from the mainstream, do you think that that feeling is one that is commonly held among DH scholars and also something that is important to our identity?	22
<b>McCarty</b>	You mean now?	23
<b>Nyhan</b>	Now and earlier.	24
<b>McCarty</b>	The desire to be part of the world for which one is being trained is, I suspect, as strong as ever. You're doing a PhD in a subject like the Digital Humanities, you're wanting to get an academic job and you see that having to do with computers is useful in building an attractive profile. I suspect there is a great desire to identify with something, to identify with the digital humanities, not really knowing much about what it is but wanting to be part of it, that is quite strong at the moment. The desire is to join the club rather than to question it.	25
<b>Nyhan</b>	Two more questions. When did you first encounter the conference scene? What were the earliest organised meetings that you went to?	26

<b>McCarty</b>	The International Conference for Computers in the Humanities in Columbia, South Caroline, Bob Oakman's conference, Professor of English and Computer Science, which is the conference at which the meeting was formed out of which <i>Humanist</i> came and the conference organised by Iacob Choueka in Jerusalem, the year after, I think. The MLA in New York City, where I shared a room with Joe Raben, which is how I met him. Those are the first conferences, those are late 1980s, '87, '88.	27
<b>Nyhan</b>	Can you name a few of the people that you encountered and the people who especially influenced you from that time?	28
<b>McCarty</b>	Well, undoubtedly Ian Lancashire, both positively and negatively because he and I in the latter years didn't get along at all. Joe Raben, a bit but it wasn't until much later that I really understood how much he had done, by reading through the first 25 years of <i>Computers in the Humanities</i> , which was a good exercise. I mean people in computing, Russ Wooldridge, who was a close friend and had many conversations, he was also a sceptical fellow and that helps, that helped me anyway. But on the non-computing side, Northrop Frye above all, I suppose, the man I went to study with in Toronto, my actual doctoral supervisor Jim Carscallan, Frye was too close to retirement to take on new students when I arrived but I studied with him anyhow and earlier than that, my calligraphy teacher Lloyd Reynolds, who taught me respect for craftsmanship, which has influenced me in all sorts of ways. Scholarly craftsmanship as well as manual craftsmanship, the love of making things, I don't write programs anymore, but the craft of programming is something that really turned me on, doing something properly, doing it elegantly, doing it well, doing it economically.	29
<b>Nyhan</b>	Yeah, and that whole layer of tacit knowledge, that can be so hard to uncover. Willard, this closes the first of our, at least two interviews, that you've agreed to, so thank you very much.	30

### Works Cited

**Bessinger and Parrish 1965** Bessinger, J. B. and S. M. Parrish (1965). *Literary Data Processing Conference Proceedings*. White Plains, NY: IBM.