

## Chapter 6

# They Took a Chance: Susan Hockey and Julianne Nyhan

**Abstract** This interview was carried out via Skype on 21 June 2013. Hockey was provided with the core questions in advance of the interview. Here she recalls how her interest in Humanities Computing was piqued by the articles that Andrew Morton published in the *Observer* in the 1960s about his work on the authorship of the Pauline Epistles. She went on to secure a position in the Atlas Computer Laboratory where she was an advisor on COCOA version 2 and wrote software for the electronic display of Arabic and other non-ASCII characters. The Atlas Computer Laboratory was funded by the Science Research Council and provided computing support for universities and researchers across the UK. While there she benefitted from access to the journal CHum and built connections with the emerging Humanities Computing community through events she attended starting with the ‘Symposium on Uses of the Computer in Literary Research’ organised by Roy Wisbey in Cambridge in 1970 (probably the earliest such meeting in the UK). Indeed, she emphasises the importance that such gatherings played in the formation of the discipline. As well as discussing her contribution to organisations like ALLC and TEI she recalls those who particularly influenced her such as, *inter alia*, Roberto Busa and Antonio Zampolli.

## Biography

**Susan Hockey** was born in Halifax, UK. She has been Emeritus Professor of Library and Information Studies at University College London (UCL) since 2004; she is also Emeritus Fellow of St Cross College, Oxford. She graduated from Oxford in 1969 having studied Classics and then Final Honours in Oriental Studies (Egyptian with Akkadian). From 1969 to 1975 she was Assistant Research Officer at the Atlas Computer Laboratory, Chilton, Oxfordshire; she spent 1975–1991 at Oxford University Computing Services and was a Fellow of St Cross College 1979–1991. From 1991 to 1997 she was the first Director of the Center for Electronic Texts in the Humanities (CETH) at Rutgers and Princeton Universities, where together with Willard McCarty, she founded the CETH Summer Seminar on Methods and Tools for Electronic Texts in the Humanities. She also held a full professorship in the Faculty of Arts at the University of Alberta 1997–1999 and was a co-Investigator of the Orlando Project. She made major contributions to the founda-

tion and establishment of numerous DH activities. For example, she was a founder member of both ALLC and ACH; Editor of the ALLC Bulletin, and, as Chair of ALLC from 1984 to 1997, she oversaw the startup of *Literary and Linguistic Computing* with Oxford University Press. She is the author of *Electronic Texts in the Humanities: Principles and Practice* (2000), *SNOBOL Programming for the Humanities* (1986) and *A Guide to Computer Applications in the Humanities* (1980) as well as numerous articles on text analysis, encoding issues and digital libraries for the Humanities. Her pioneering contributions to DH have been honoured in various ways: in 2004 she was awarded the Busa Prize “for her contribution to the establishment of the field of Humanities Computing, and for her work on computers and text”.<sup>1</sup> The field’s first named lecture series (the Susan Hockey Lecture in Digital Humanities) was established at UCL in 2015.<sup>2</sup>

## Interview

**JN** Please reflect on your earliest memories of encountering a computer or computing technologies.

**SH** Well, I’ll tell you how I got started. I was an undergraduate in the late 1960s. I did Classics at Oxford and then did my final degree in Egyptian with Akkadian. I was always interested in language things, and I think it was in about 1967 that I remembered reading those articles in the *Observer* from Andrew Morton (see, for example, Morton 1963), who’d been doing this text analysis study of the Pauline Epistles with a computer (Morton 1965). It sounded really interesting and I thought I’d like to work in something like that. So, I checked how I could do this. I met one of the lecturers in Arabic, called Alan Jones, and found out that he was already doing some computing things (see Jones 1971). I think my tutor told me about him and I met him and found out that he was doing some text analysis work on the Koran. Because technology within the universities at that time was quite small, and very much focussed on Sciences, he was doing his work at an organisation called the Atlas Computer Laboratory,<sup>3</sup> which was funded by what was then called the Science Research Council to provide computing support for universities – the things that the universities couldn’t have the technologies to do themselves.

<sup>1</sup> See: <http://eadh.org/awards/busa-award/busa-award-winners>

<sup>2</sup> See: <https://www.ucl.ac.uk/dh/events/SusanHockeyLecture>

<sup>3</sup> The Atlas Computer Laboratory was operational from 1961 to 1975. It was set up by the British government and was a national center that served universities and research councils. Government and treasury-supported officials could also avail of it. The lab was first set up around the Ferranti-ICL Atlas computer and it ‘soon became clear that the Laboratory was meeting a very real need, and within a very short time of starting up it was giving computational support to research workers in every field of science (including the biological and human sciences as well as the physical) and in every British university’ See: <http://www.chilton-computing.org.uk/acl/about-us.htm>

I applied for a job there, having no qualifications in computing, and my only mathematical expertise was up to O level, and they hired me. They took a chance, which was very, very nice, because I had no qualifications and, in fact, they had to create a special job title for me because I didn't fit in with the requirements for the Science Research Council. They wanted someone who could be a focal point for these kinds of activities at the Atlas Computer Laboratory. It's been merged into many other things since then and is on the Harwell site at Chilton. When I started they already had a concordance program called COCOA, which was running on the Atlas, which was the first ever paged memory computing machine. It filled the whole room. It was a British machine – I think they only built three of them – but they had several people using this COCOA concordance program, which I think was written in the Atlas machine language. It had a somewhat difficult user interface and you've got to remember that this was in the days when you put things into the computer on punch cards or paper tapes and that was it. They wanted something that would have a slightly better user interface, and something that would outlive Atlas, so they started a project to re-write it in FORTRAN. I didn't actually do the coding. I was an adviser on that project. They also wanted a means of generating output, not in Latin characters, this was the days when you put uppercase letters into the computer and nothing else. So I wrote some programs to display Alan Jones's Arabic concordances on a graph plotter, which is a really ancient device. It was the latest technology then and the only way of doing graphs. So I got interested in doing that kind of thing.

Several other people were using the Atlas facility including, in fact, Andrew Morton who's a terrific character and very entertaining to me. So that's how I got started. As you could only really put capital letters and numbers into a computer it was more text analysis or number crunching. The other thing was that there was so little disk storage. Anything more than a very small file was stored on a magnetic tape which you could only access serially. So, what you actually did with your data was rather dependant on that. You couldn't jump around in it is what I'm trying to say, the tape had to wind backwards and forwards. There was very little remote access to computers; basically, you turned up with your deck of punch cards.

I stayed there until early 1975 when Oxford University decided they wanted to do something more on Computing in the Arts, as it was called then, and they started looking for someone who could get people interested. So I applied for that job and got it and it was first of all described as Teaching Officer for Computing in the Arts. I started giving courses there and then we started developing more in different facilities. I don't know how much more you want there – I was there from 1975 until I went to America in 1991.

**JN** What did you know about computing before you read the articles by Andrew Morton in the *Observer*?

**SH** Well, I'd heard of computers and was interested but I didn't know anything about them. There wasn't a lot of computing going on before then; just a few businesses had taken it up. I had read a few things about IBM, who were, in the main,

manufacturing systems in business computing, but I wasn't really interested in the business world.

**JN** Would you have heard of Busa, for example?

**SH** I wanted to talk about Busa. I don't think I'd heard of him until I started doing work in this area and had started to dig around quite a bit. The Atlas Computer Laboratory was generously funded and they had a good library which included CHum right back to when it started in 1966. So I spent quite a bit of time when I first got there looking around in the library and I found out about Busa then and started following up about what he was doing. I can't remember when I first met him. It must have been about 10 years later, I'm not sure. I remember him coming to Oxford and then coming to my office in Oxford but that was probably in the late 1970s. I think he'd asked to come and see me – he'd obviously heard about what we were doing. He spoke so many languages. Most of his operations were actually in Italian, but his English was pretty good. You know, he wrote the introduction to his Thomas Aquinas thing [*Index Thomisticus*] in Latin, so that it could be read by a lot of different people. But, I don't remember in detail. I know I read a lot about what was going on, and I went to the first conference in this country [the UK] in 1970 on what was called Literary and Linguistic Computing. I know Busa wasn't there but that is where I met Antonio Zampolli, who was there, as were quite a lot of other people. You know, Antonio Zampolli started as Busa's research assistant.

**JN** Were you quite unusual among your classmates and other people in Oxford when you became interested in computing, having just finished a degree in Oriental Studies?

**SH** To some extent. Quite a few of my friends went into teaching or did a variety of things. I remember going to the Careers Service in Oxford, which was nothing like the kind of thing it is now, and they were suggesting that everybody should apply to the Civil Service or GCHQ [the UK Government Communications Headquarters], or something like that. But they couldn't help me when I said what I was interested in doing computing. People went to all kinds of jobs so I don't think it was particularly unusual. I'm sure some of my contemporaries went to work in computing, almost certainly in places like IBM and big computer companies. Some of them then ended up in university computing but probably later on after that.

**JN** I wanted to ask you about the special job which was created for you in Atlas Computer Laboratory and I think you said it was there on the job that you were trained up in programming.

**SH** Well, they created the job and hired me. I'm not certain that it was created for me but I was appointed to it. I was given some books and they said "read and get on with it. You need to learn FORTRAN and if you need any help come and ask", and that's how I learned. They were very, very helpful and I think I had one or two little tutorials with the head of one of the programming groups there. But basically some-

body explained to me how I got my punch cards done – probably by doing them myself – and what I had to do to hand in my punch cards to get my programs to run, and I learned like that. I still like playing around with computers quite a bit. I'm actually a great believer in reading book manuals to get going. If you have a good overview of what's happening and then understand what you can and can't do – I've always almost entirely learned that way. I think the first time I went to a computer course was when I was giving it. I think it depended on the atmosphere I was in. I don't think I could have learned like that, you see, if I was out on my own with a group of people who were not interested in it or who were not doing it. But, there were lots of people around and if you were stuck and asked for help they would help you. That's really how I learned.

**JN** The first programming language you learned was FORTRAN?

**SH** And I learned some ALGOL, a little bit of Atlas machine code, and I started seriously doing SNOBOL when I wanted to give a programming course in Oxford and it seemed the obvious thing for text handling. I think I looked at that a bit when I was at the Atlas Computer Laboratory but they didn't really have a proper compiler for it there. FORTRAN was the thing that everybody used for almost all the applications in the Atlas Computer Laboratory.

**JN** When you started essentially teaching yourself FORTRAN how did it compare with 4 years learning Akkadian and other ancient languages?

**SH** Well, I'm not the only person who said computer programming is not dissimilar from Latin and languages like that. When I first got started doing this I met a lot of people who'd got into it from Classics, or who were Classicists and took to programming very easily. So, I think there is this kind of mental approach which makes the two somewhat similar. I was always interested in the linguistic and the symbolic side of the languages that I studied.

**JN** And this was another language....

**SH** Another language, yes, and you couldn't break the rules in it

**JN** I had a question about how you first got involved in the Humanities Computing community, but that was essentially through the Atlas Computer Laboratory?

**SH** Yes, not my immediate boss, but the person that I did quite a bit of work for when there was called Bob Churchhouse,<sup>4</sup> who left to take up a chair at Cardiff. He and I went to what I think was the first Literary Linguistic and Computing confer-

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<sup>4</sup>Church house was the first head of Programming at the Atlas Computer Laboratory and left in 1971 to take up a chair in Computing Mechanics at University College, Cardiff. His inaugural address 'Computer Applications in the Arts and Sciences' is available here: <http://www.chilton-computing.org.uk/ac1/literature/reports/p016.htm>

ence in the UK, in Cambridge in 1970, and we gave a preliminary talk on what we were planning to do with all this non-standard character output (published as Church house and Hockey 1971).

There were about 70 or 80 people there and that's when I first met people who subsequently became quite well known worldwide in the field. I met Joseph Raben, for example, and Bob and Joe got on very well, so we kept in touch a lot. There was no email then, so you had to rely on things such as putting a letter in the post or meeting people again at conferences. These conferences were such a success that another one was organised in Edinburgh 2 years later and I think they carried on every 2 years for about 10 or 12 years and more people kept coming. The proceedings were published in real books and so people got to find out quite a lot more about what was going on because of these books. Mostly they were published by well-known publishers. I think Roy Wisbey edited the first one (1971), which was published by Cambridge. So, there was a core of people that came every time. That core was probably between, I don't know, 50 and 70 people, and others sort of dipped in and out.

But that's how I got involved more with this field. I'm just trying to remember what happened. That was before the ALLC was founded: there was a lady called Joan Smith, who was in Manchester then, and she was energetic and felt it would be a good idea to form a society to support all of this. She persuaded Roy Wisbey to take on doing this. And there was a meeting at King's College in London in 1973 when it was formed. Of course I was there with a number of other people from the Atlas Computer Laboratory. The Society ran its own bulletin and journal for quite some time. Quite a few people came from outside the UK for that meeting. You must know Wilhelm Ott (see Chap. 4), who started computing quite a bit before I did, and I first met him at the conference at Cambridge. He was there, Antonio Zampolli was there, and a number of other people, and I don't know what happened to it but ALLC had a book that used to go round for everyone to sign at general meetings and that started at that conference. I had it for a long time but I passed it on to somebody else. I think Harold Short might have it. ...

Yes, I think I ended up on the committee of the ALLC fairly early on, and then I was editing the *ALLC Bulletin*, and then I got elected to be the Chair, which I actually did for quite a long time, and by then various other international things had got going, like the TEI, and more conferences and things like that.

**JN** You were also very involved in TEI.

**SH** Yes. The obvious reason why people were interested in it is because people were fed up of not being able to use somebody else's text in a different application and they were fed up of not being able to encode complicated things very well.

TEI started with a meeting organized at Vassar College Poughkeepsie in 1987, November, I think, and that was invitational. There were about 20 people there. It tried to get some idea of whether there was enough willingness among the community to do something about that, and how such a project might be organized. I think

it was at that meeting that it was decided to organise it with two representatives of the three societies that were involved with it. There was the ALLC, ACH and the Association for Computational Linguistics, whose long term Secretary Don Walker had also realised that this was something important. I was one of the two ALLC representatives on the Steering Committee. The other was Antonio Zampolli. We got some money from the NEH to get started and Antonio was instrumental in getting some money from a European Commission stream (I don't remember exactly what). There were six of us, I suppose, who organized it. We took it in turns to chair the Steering Committee and when it was the ALLC turn it was me. So, we basically planned out how we were going to do this work and found some people to do some work and found some money to get it done. We did get it done and I know there is still a lot of interest in it but the real issue later on was how to keep it funded. I remember now, at the Vassar meeting it finished up with a sort of discussion about the basic principles for doing this project. Nancy Ide asked me to lead that discussion and it was one of the earliest instances where I saw something projected up from a computer screen onto a big screen. We sat for an afternoon and defined these things which became known as the Poughkeepsie principles (TEI 1988). You can find all that in the TEI archives.

**JN** That was really cutting edge at that point?

**SH** Yes, there was quite a lot of cutting edge about a lot of things that were going on. I think that we were all feeling our way and we had some intellectual goals that we wanted to meet and it seemed that the obvious thing was to use the technologies to get there. We said in the TEI right from the beginning that anybody who wanted to do any work for it had to do it by email. It was not long after international email started but we could see that was the only way we could get any work done. But we soon discovered how difficult it is to get closure on an email discussion and we did have funding to have face to face meetings, which really were very productive.

**JN** I served on the TEI council a few years ago and email is still certainly at the heart of all of it. Something that I wondered about, looking at all of the chronologies, is that I noticed that the ACH, which I think you were also a founding member of, was set up a couple of years after the ALLC?

**SH** I think it was later than that. I think it was perhaps 4 or 5 years after the ALLC. I can't remember the details about the founding of ACH, but Joseph Raben was interested in having some kind of society to support CHum, which had been round various publishers. And I think also the Americans had sort of looked a little bit at what was going on in Britain and they'd started a series of conferences in the alternate years and the [third] one of those was at the University of Waterloo in 1977 (Lusignan and North 1977). I remember that because it was the first time I ever went to North America. That was similar in some ways and different in others because there was a lot of interest in North America at that time about using computing to support all those courses they give to teach students how to write. Of course, we

didn't have any of that in Britain. About half the papers there were about computing in composition – I can't remember exactly what they called it – but they started a series of conferences in odd-numbered years to correspond with those European ones which went on in even-numbered years. They were organized in a slightly different way because conferences in America tend to be more condensed – more papers happening at the same time and fewer days. I did go to quite a number of those as well. I was a member of the ACH for quite some time but I don't really remember exactly what happened about the organization of that. It was run in a slightly different way, you know. Learned Societies operate in a different way in the UK certainly, I don't know about the rest of Europe, than they do in America. It was run in a more American style.

**JN** What about the people who influenced you and how and why they influenced you?

**SH** I made some notes about this. Busa because I think it is amazing that you start talking about the potential and the future of multimedia when you're nearly 90 (Busa 1999) and also going back to what he did when he first started. You know, in the 1950s he wanted to have a completely lemmatized version of his text and we still can't really do that automatically now, though things are a lot better than they used to be, I think. What I learned from him was to keep looking ahead. You know, he's been an enormous influence on all of us.

Another one was Antonio Zampolli because he also was thinking all the time about how we can do this better. Not just to do this particular project but to think about how we can make it better and what better tools we can make for it. He was very, very keen on linking up literary computing (as it used to be called) with research that was going on in Computational Linguistics, and there still aren't all that many people looking at that now. I'm not really up to date on what's going on now, there are probably still some others as well, but Antonio was really keen, even in the 1980s to do work, to try and apply the tools and techniques they'd developed for Computational Linguistics to see how well they worked with literary texts like Dante and other works of Italian literature. One other thing I learned from him was how to think about turning an idea of something you want to do into something that would be a project that was fundable. As you know, there is a difference there. You can obviously have grand ideas but if you want some money to do something you've got to think about what's practical, what bits of it can be done and how you're going to get the next bit of money to carry on after that.

Two people who helped me a lot when I started were Bob Churchhouse and Alan Jones – I've already mentioned them. I've a couple of others which are a little bit different again. David Barnard who was involved in the TEI quite a bit when he was Professor of Computer Science at Queens University, in Canada. He's now the President at the University of Manitoba. He taught me how to run a meeting and how to get things done. He ran the best meetings I've ever been in by a long way.



There's one other person I wanted to mention and this is a little bit different again. There's always been a very, very friendly atmosphere amongst DH, or whatever you want to say. That goes back, I'm pretty certain, to the late Paul Fortier whom I remember talking to when he was at a conference in Edinburgh in 1972. He was in French Studies and he said that nobody spoke to him at the first conference he went to in French Studies and he vowed it would never happen in this field. He made a point of making sure that everybody spoke to new people and got them involved in the discussions and the social events. I think that is one of the main reasons, why there's always such a friendly atmosphere. That's a different thing again, but I think that started from Bob Churchhouse, who was very sociable. It helps a lot, you know, because new people come to a conference to learn and they don't want to feel that they're just looking up to other people. I think it's nice to think that they feel on equal terms in many ways.

**JN** Do you think the field is somewhat unusual in terms of the social cohesion and kinship that exists in it, in addition to its shared intellectual goals and interests?

**SH** I don't know, I've never really been involved in other fields. Another thing I wanted to say in relation to your question about what other Humanities people think about it – for a very long time I never came across them. I worked in the computing center and so I only met people who were interested. I know we've always tried to be a sort of friendly and sociable group, and I think things have changed generally since the 1970s, but I think also in computing you can realize that a lot of the good work comes from the young people. You only have to look at what's happening in the world of business computing and things like Facebook and Google and whatever, so I think it is important to give them a chance to talk about whatever they are doing.

**JN** Can we talk a small bit more about what other scholars who were not using computing views may have been of the field?

**SH** Well, I think I was lucky that I didn't encounter it for a very, very long time because at the Atlas Computer Laboratory we only met people who were interested in using the computer. I was 16 years in the Computing Center in Oxford. A good deal of that was before people had their own PCs, so they came to the computing center if they wanted to do something because Humanities, at that time in Oxford, except for Oriental Studies, had no departmental facilities. You spoke to people who were in your College more than anything. I was elected to a fellowship of St Cross College in 1979, which was one of the new young graduate colleges and I met a lot of people from other disciplines there, but actually they were predominantly Scientists and Social Scientists. There were very few Humanities people there. But St Cross was also very forward looking and it was actually the first college to have a computer in Oxford, so I didn't really have any way of meeting people who weren't interested in computing because of where I was based and what I was doing.

Occasionally I got invited to dinner in some other colleges by some of our computing users and got to talk to a few other people then but I think people who weren't interested just basically ignored it. I benefited, and I think a lot of those who worked in Humanities Computing at an early stage benefitted from the interest of well-known scholars. I was reading your other interviews, I think Harold Short mentioned that as well (Short et al. 2012), particularly Anthony Kenny, the well-known Philosopher, who did various computer-based stylistic studies based on concordances. I got to know him very well. I did quite a bit of work with Kenneth Dover as well, a very well-known classicist. So, I didn't really encounter that.

My next job in New Jersey was based in a library and that had a different atmosphere. As I had never worked in a library in the UK I didn't really know what the atmosphere was going to be, but I think it was still a time when electronic resources were rather strange things in libraries and they tended to be treated as if they were another kind of book. You know, you make a catalogue record for it and stick it there for somebody to use rather than thinking "this is a very different kind of object and what are we going to do about it?" It was very, very early days for computing and electronic resources in libraries anyway – they were almost all CD-ROMs. So, there was quite a lot of interest there but more in the way of how to treat this as something that librarians needed to deal with. That's still the case now, but I think it's rather different from when your electronic resources are just a lot of CD-ROMs and its quite difficult for anybody to be able to support them because it takes so long to find out what you can actually do with them.

So because I wasn't ever in a Humanities department until I got to Alberta where there was a very stimulating intellectual atmosphere, I didn't really have much cause to be around people who weren't computing. I think the same was true in Alberta where there was a very big project which I was extremely interested in, and I did quite a bit of work with, the Orlando project, and that was really pushing the boundaries of what you can do.<sup>5</sup> It generated, I think, quite a lot of intellectual discussion and it got down to the bottom line, which is how do you represent interpretation. I think that was really the nuts and bolts of what was going on and that generated a lot of interesting discussion

**JN** My final question is about the participation of women in the field?

**SH** I didn't feel any problem at being a woman and there were quite a number of women. I wouldn't say we were a majority but it didn't seem to me to be a problem. I think one of the real things, certainly in the early days of Humanities Computing, was that everybody treated everybody else as equals because they were interested in what each other was doing and needed to learn something from them. So, I didn't find any problem in that, and I think there has always been quite a lot of women in computing right from the beginning. I think there is now a bit more of an issue regarding people who get into certain management positions in universities and

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<sup>5</sup>The Orlando project is 'an ongoing collaborative experiment in the use of computers to engage in women's literary history.' See <http://www.artsrn.ualberta.ca/orlando/>

certain disciplines. I never noticed it, shall I put it that way? Certainly when I got to work in libraries there was a predominance of women and it was very obvious when I went to some library conferences in America that women were a big majority.

**JN** Thanks a million – that was really fascinating

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