Oral History of Joanna Hoffman

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Hancock: Welcome to the Computer History Museum.

Hoffman: Thank you very much! It's a delight and a pleasure to be here.

Hancock: We've been looking forward so much to having you here, Joanna. Today's January 22nd, 2018. I'm Marguerite Gong Hancock from the Exponential Center. I'm here with Marc Weber, Curatorial Director from the Internet History Program, and Hansen Hsu from the Center for Software History. And we're-- we'd like to welcome you.

Hoffman: Thank you very much!

Hancock: Well, start at the very beginning. Could you state your full name, tell us where and when you were born.

Hoffman: Oh, my full name on birth certificate, I believe, was Joanna Karine Hoffman Nazarian. So <laughs>, it's a mouthful! And at various times I was Karine Nazarian, and at other times I was Joanna Hoffman. So I'm not particularly attached to names <laughs> as a result, because they've changed quite a bit. And nobody in my family calls me by birth names anyway. So it's all-- it's flexible. So I was born in Warsaw Poland, and shortly after my birth, when I was nine months old, my parents got separated, so I moved with my mom to the Soviet Armenia, where I spent the first ten years of my life. And then I joined my dad's family and his parents and his second wife in 1965 for another three years in Poland, and then meanwhile my mother immigrated to the United States and I arrived in Buffalo, New York in 1968.

Hancock: So I'd like to go back to-- take us back to where you were born and raised. Can you describe your neighborhood, and kind of experience you were having as a young child?

Hoffman: Well <laughs>, it's interesting. You know, actually it's funny, because I just came back from Cuba. Spent some time there. And it took me back to my childhood in an odd way. I would say it was sort of semi-civilized third world, is how I would call it, after being in Cuba. Because there are so many aspects of everyday life, which are so similar to what I grew up with, which is highly educated population, a relatively safe environment in terms of safety and security, and so on. And yet, very-- Cuba, of course, is not quite as bad as it was when I was growing up. But very repressed in terms of any kind of political freedoms or freedom of speech, or anything like that. I remember my aunt, who was a teacher, staying up late at night copying *Samizdat*, books that we were passing around. I remember getting a book, [John] Updike books, and the James Baldwin books, and so on, that we were passing around from hand to hand. Not because some of them were specifically forbidden, which they were not, but they were so unavailable. Of course, there were a whole bunch of books that were completely forbidden. And at the mercy, really of local authorities, on a whim of someone who had never read, [who] just had no historical context, nothing, and they decide to forbid something just out of fraudery or some other hang-up. So censorship is such a menace, such a complete menace. You know, I'm so totally against any kind of censorship, because it starts out maybe with some good intentions, but there is really no such thing as keeping it in check. So I grew up constantly being aware of the fact that so much of what we were reading

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and what we were talking about in my family circle and in the circle of our friends, was really not sanctioned by the government. And even worse than that was viewed as sedition. So we had-- I grew up with this double thing. I led a life at school, and then my life at home was completely different. The things that we were taught at school, we understood to be completely false, or at least very specifically doctored. And what we listened to at home, and what we read at home was, to me, what the real world was about. And that included Radio-Free Europe and of course, Voice of America. And as a matter of fact, when I arrived in America, my view of the United States was so skewed by that kind of-- I don't want to say propaganda, because a lot of it was, of course, true. But you know, the contradictions of American life did not become apparent to me until much, much later, because I came here with colored glasses, you know, that took me a long time to shed. So that was my childhood. When I went to Poland, I'll give you a little anecdote. When I went from the Soviet Armenia to Poland, I felt like I went to Europe from some other world. It was a normal country, more or less. Of course, it was run-- it was the Cold War, there were restrictions and so on, but it was nothing compared to the Soviet Union. A simple symbol of normalcy was a phone book. If you can imagine, and of course, a phone book is really symbolic, because but you know, as we go with tracking people, understanding-- it was just-- it's a very important piece of culture. Because there were no phone books where I grew up. You could not get anybody's phone number just like that. You had to go to a specific place and register to get somebody's phone number, and more than that, you had to justify why you needed their phone number. I came to Poland, and I saw under my grandparents phone, this giant phone book with everybody's name and address, and all these services in front that the phone company performed for you! Including wake-up calls, including the weather. You know, it was just inconceivable that there were-- that not only was the phone book available, but there was a company behind it, which was owned by the government! You know? And they were at your service. I mean, that was just inconceivable that anything would be at your service as a citizen. It was just not-- there was nothing at your service. Everything was an impediment. Everything was setup so it would be hard to live, to accomplish anything, to get through anything. No wonder it finally came down, but it took a lot to bring it down. And not least of which was enlightened leadership on their side, right? Because as we know, the capacity of people to suffer is infinite, North Korea being a fine example. And hoping that if you make life harder for some-- a regime, and it will fall, is a very false and fake assumption. Because if the Stalin's regime did not fall, it's impossible to bring down a regime by just making the population suffer. Totally impossible. So anyway, so Poland was a different world altogether, but because I didn't speak Polish when I first arrived, I went to a school at the Soviet Embassy, and it was a school for the diplomatic core of all the countries, embassies, and their personnel, and you know, science advisors and what have you from the soviet bloc countries.

Hancock: Before we jump into that part of the story, I wonder if we could rewind just a little bit and get a sense of the people. You talked about how important your family was in the milieu of your ideas. Could you tell us about who was in your home, and your family that were important for those young years, when you were in Soviet Armenia?

Hoffman: Well, so my mother was in the film industry, so I was at the Armenian Film Studio quite regularly. And one of the greatest filmmakers, I think, of all time, Parajanov, was a frequent visitor to Armenia, even though he made most of his films in the Ukraine and in Georgia. But he was preparing to make his film *Sayat-Nova*, so he would come to Armenia. My uncle was an artist, and he actually helped

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Parajanov with some of the storyboards for the film. And it was in his mind, and in preparation for many years. He had other projects in mind, so there were many storyboards that I saw that my uncle was making.

After World War II, especially, accommodation and finding a place to live in the Soviet Union was a perpetual problem. A perpetual problem. So actually, when my uncle got a studio to work in at the circus-- because he was also doing all the posters for the circus-- it was a newly built permanent circus in Yerevan, And so I moved in with my aunt and uncle to their studio, because it was a much lighter space, a much nicer space than where I was living.

Hancock: How old were you, when you moved in with them?

Hoffman: So in the circus, I was about eight? Eight- or nine-years-old. So just at the time, the circus also had some incredible artists. [Leonid] Engibarov who was a very famous, is written up on the internet, and on Wikipedia. He was an incredible mime, and he was a famous clown, but not a clown the way the circus clowns here are viewed. He was a clown with incredible mimes that were so counter-repression, count-- you know, they were just-- they would bring you to tears. He was just really an amazing, amazing person. And he was also good friends with Parajanov, and they were thinking about how they might explore their relationship. My mother worked on a film where Engibarov's life story was told. In the end, the government decided to forbid him from traveling abroad, so he would be invited to places, invited to international competitions, that he couldn't attend. So that was the crowd.

My cousin was married to a scientist who worked in at Byurakan, which is, to this day, one of the very important physics research centers, dynamics in solar flares, but also other astronomical phenomena. So he was a physicist. And I remember very early on deciding, "This is what I want to do. All these people in the film and everything, yeah, they're strange. I wanted to be a physicist, these people are rational!" So I wanted to, from very early on, I decided I was on the side of rationality <laughs>, and I wanted to find-- to discover the secrets of the universe. So I decided I wanted to be a physicist when I was probably five-years-old.

Hancock: Five-years-old?

Hoffman: Yeah, I was-- long before I went to school, which starts at the age of seven in-- or it used to in those days in the Soviet Union. So it was long before I entered school, because I remember that being one of my first answers when they asked me, "Well, you know, what would you like to be?" And I said, "I want to be a physicist."

<overlapping conversation>

Hancock: And what would that entail as a five-year-old?

Hoffman: I thought I would be, you know, sitting on top of a mountain staring at the stars, and figuring out what's going on in them. So <laughs>, and then I-- much later, I became just fascinated by the whole

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idea of atomic physics. I remember there was a biography of Fermi that was circulating around. You know, it was one of the first books that once I learned how to read, I read. My absolutely favorite book was the Adventures of Huckleberry Finn, which of course, loses a huge amount in translation. So it was my little kid's understanding of the adventures of Huck Finn, but also with all the glorious language lost in translation. But I loved that book, and I couldn't wait when I came to the states to read it in the original. So it took me a while before I learned the language well enough to understand its nuances. But anyway, so that was-- those were my formative years, I suppose, my formative childhood years.

And so when I came to Poland, you know, I lived in a-- my father is a filmmaker, he's still there. And he was very devoted to Polish cinema, so he was making films. What I didn't understand at the time, in the '60s, is that actually he was going through a rather tough time. He had made some very popular films, because he loved Polish history. So he made films - these grand sagas from Polish literary output. A trilogy of Polish history. He filmed it all, eventually. But the problem was that the piece of history that he wanted to film, which was of the war between Poland and Ukraine, which eventually caused the Ukrainian part of Poland to be subsumed into Russia, is the extremely patriotic view of Polish history, and views the main character, Minitsky, as a traitor. And he's a national hero in the Ukraine and in the Soviet Union. There's statues to him, as well <inaudible 00:17:21>. Minitsky brought Ukraine to Russians on a silver platter. Of course, Russians loved it, the Poles hated it! And it's one thing for it to have been a literary classic that everybody read about. It's a whole 'nother thing for it to be filmed at the expense of the Polish government, funded by, you know, because there was no private funding, obviously. So essentially that was tabled, and they told him he couldn't do it. Another part of the problem is that he's a Jew. In 1968. Poland decided to expel all its Jews. And by the way, you know, what is interesting to me is when I hear people saying, "Well, Trump can't be a racist, because his daughter married a Jew! His grandchildren are Jewish!" The man in 1968 who was responsible for stripping Jews of their citizenship and kicking them out of the country in huge numbers, even though there weren't that many left after World War II. But whatever was left was kicked out, was [Wladyslaw] Gomulka who was married to a Jewish woman, and whose children were Jewish! So all of these excuses that people make for racism, and completely unacceptable behavior, is ludicrous. It's just people don't understand history, and they don't know history when they make justifications for racism. Anyway, but so I didn't understand that dynamic that was going on at the same time. So anyway, my mother, being in the U.S., wanted me to come and join her, and my father and grandparents eventually relented. And they wanted me to stay in Poland for long enough for me to be old enough to make the decision on my own, and in what they felt was an educated manner. And since I was only 13, they thought it was premature. And since I was the only child for my father's family, they were eager to keep me, but once things got bad enough, I think they relented. I thought it was my own perseverance, because I, you know, when they were reluctant, I took all the documents myself, and marched them to the American Embassy by myself <laughs>, asking to get a visa, and they were kind of looking behind me to see, "Where are the parents of this 13-year-old?" You know? Well, actually, at the time I did it, I was 12. So--

Hancock: How did you make that decision? You just--?

Hoffman: Well, I-- all these documents had come from the United States with my mother formally asking-- issuing a formal document to bring me over. And my grandparents sat on it. And my father and

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grandparents didn't move on it. And so, I took it and decided, "Okay, what are the steps that I need to take?" and I thought the best thing to do would be just to go to the American Embassy, and ask them, "What should be my next steps? What should I be doing to get this moving?" So I did! And--

Hancock: Was that a difficult decision for you when you looked at the pros and cons, or was it something that you knew you wanted?

Hoffman: You know, as much as I really loved my grandparents and was-- I lived with my grandparents, because my father was always busy, filming and on location and so on, so it was not a good-- my grandparents decided it was not a good environment for a child. So I was living with my grandparents. And I was very attached to them, but a) America was America! It was the dream that I had grown up with, you know, as a child! So that was one thing, but of course, even more important, I wanted to be with my mother. So I was determined to go to the Land of the Free. <laughs> And so--

Hsu: Can I ask a quick question?

Hancock: Of course.

Hsu: How did your mother get to the U.S.?

Hoffman: Do you want that story? Because it's a complicated story. So you know, there is a really good film called *East-West*, that was made by-- I believe it's a German-French co-production, or maybe it's a French film, that with excruciating detail outlines what happened after World War II, to people of Russian origin But also people of origin of other-- belonging to other ethnic groups that were part of the Soviet Union. So what happened is Stalin instituted a concerted effort to go to the West, and not only the West, but also the Middle East, and the Far East, and talk to these diasporas, urging them to come back to the Soviet Union and help rebuild the country after World War II. So for the Russians, they were appealing to the white Russian community. To the Armenians, they were appealing to the Armenian diaspora, who had not had a homeland since the 15th Century, you know? So they were essentially sending poets, they were sending scientists on the road, saying, "We have a country to rebuild. You have your own homeland. Come back with whatever skills, and equipment you need to help us rebuild." So huge numbers of Armenians heeded the call, and from France, from Egypt, from Syria, from Lebanon, from as far afield as China, they mobilized and Stalin sent out transport to get them. So ther were these fleets coming of people coming in from Marseilles, from various ports of the Mediterranean, on the African Coast, and so on, filled with these people. And they arrived in the Black Sea ports of the Soviet Union, and there were cattle cars waiting for these people, and they were loaded onto cattle cars, and transported to Siberia.

Hsu: Hm.

Hancock: Hm.

Hoffman: Huge numbers of these people were transported to Siberia. A small number was actually resettled where they were supposed to be, helping the reconstruction effort. And my stepfather, so my

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mother's second husband, was one of the innocent American children caught up in this web, because his stepfather was an Armenian from Buffalo, New York, who had a whole series of dry cleaning establishments. He was a socialist, and maybe even a communist by belief and association. So when he had a chance to go and rebuild Soviet Armenia, he took all his equipment with him, and took a family of four children, none of whom were Armenian from his wife's previous marriage, including my stepfather, and moved them to the Soviet Union.

Once they arrived there, they were all trapped. They couldn't leave, they couldn't go back to their countries. They had absolutely no way out! And so this was in 1947. There were huge-- two waves, '47 and '49. And my stepfather, being 17 at the time was stuck in the Soviet Union, thanks to his stepfather, and was-- ended up working at the film studio where my mother worked. And in 1960s, when Khrushchev came to power, and there was a major thaw in the relations, Americans actually put this question of these people who were stuck forward, and asked for them to be returned to the United States. The Soviet Union semi-agreed with various conditions, provided they were invited by close relatives from the United States.

Now many people had lost touch, or didn't have close relatives, but my stepfather happened to have an aunt and an uncle on his mother's side, who were there. And his mother was with him, too, stuck in the Soviet Union. So they made all the paperwork and went through all the bureaucratic ritual of getting him here. He had met my mother shortly before. He kept it all secret that he was going to the United States. And shortly before he got his permission, he proposed to my mom. They got married, but in these very strange circumstances, because no one would actually certify their marriage. They had to go into some remote village where the KGB didn't have its tentacles. And that's where they got married.

And so then when he left, she had proof that they had been married. And he managed to get her over to the U.S. She then turned around and had me come back. The reason she had agreed for me to go to Poland in the first place, was because she knew all of this was in the works. And that I would not be allowed from the Soviet Union to come to the U.S. until I was of age. Which over there, would have been at least 16. Which meant that if she came to the States, when I was 11, I would have to wait till…. So coming from Poland was much easier, and much better defined process than it was from the Soviet Union. And so therefore, I went to live with my father's family until such time as she could bring me over. But then, of course, they didn't want to let me go! <laughs> But eventually that was solved as well, so.

Hsu: Hm.

Hancock: So, now you have your reunion with your mother, you've come to New York. And what's it like now to be in your third country in your young life? What was life like there? What were the things that were influencing what you were thinking about, and your interests?

Hoffman: You know, whenever I think about that period in my life, I think my initial reaction was complete shock. And because I arrived in Buffalo, New York, as part of an immigrant family, which means that my mother and my stepfather were able to take a hundred dollars with them when they left, and that was it! So they arrived in the United States with one hundred dollars. And so my stepfather's aunt and uncle were able to help to an extent, in the sense that they offered them to stay with them until they found a

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place to live, and so on. But essentially my stepfather found a job as a laborer in the metal business in Buffalo, which still had brass and steel companies, which were on the decline. Many were already shuttered. There were whole neighborhoods of Buffalo that were in a kind of decay I had never seen before in my life. And it was a rude awakening to the side of America that I had never imagined existed.

So, of course being economically disadvantaged, we lived in neighborhoods which were dangerous and which had very bad schools. And I came to this country not knowing-- the only word I knew in English was "thank you," and so I went to school knowing barely any English. And I was supposed to go into seventh grade. And I went into seventh grade. After a month in seventh grade, they bumped me into eighth grade. And after another month in eighth grade, the Guidance Counselor at the school, to whom I will be forever grateful-- forever grateful-- came to me and said, "You know, you do not belong in these schools. You should go to a private school."

And I had no idea private schools existed. I didn't even know that that was possible. And he gave me a catalog of private schools, and I had no idea how to pick. So I picked based on architecture. I like the architecture of one of the schools. <laughter> And so I said, "I think I'd like to go this school." And he said he would arrange for me to take a scholarship exam. So, I went to my scholarship exam with my English-Russian dictionaries, I had two little dictionaries, and I sat there and answered the-- the math, of course, was easy. But the other questions I had to-- in any case, to make a long story short, I did get a scholarship and I went to a Catholic school run by the Sacred Heart nuns. <laughter>

Hancock: With beautiful architecture.

Hoffman: With beautiful architecture. Lovely nuns. And it was a different world altogether. It was an all-girl school, run by Sacred Heart nuns, of girls who were really the daughters of the doctors and the lawyers and the industrialists, who had been industrialists in the Buffalo area for generations. So it was a totally <laughs> different group of girls. And the scholarship students were all black, except for me. So I hung out with them, and it took them a while to figure out why I was so keen on <laughs>, you know, beeing with them. But anyway, I had my father's father, my grandfather was a huge follower of the Civil Rights movement in the United States and he was a-- you know, he had given me some writings by Martin Luther King early on. I had read James Baldwin, so you know, I thought, "I'm one of you guys!" You know? <laughs> Not understanding any of the race dynamics in the United States, so it was a bit of a shock. But anyways, so I went for two years to this school run by the nuns. And then I transferred to a school-- a high school run by purist priests, who were Hungarian priests who escaped the Russian Invasion of 1956, and came to Buffalo and started a school for academically gifted children with no regard to their background. So it was called the Calasanctius Preparatory School. And the reason I switched was because my school didn't have physics. Because I wanted to become a physicist, I was in panic for the two years that I was in the school, because I thought, "How is this ever going to play out?" Then we found out about the Calasanctius School, which was across the park from my school, and that had chemistry and physics and everything else. It was a tiny school. There were only 20/24 of us, I think, in my graduating class. And so I went to that school, and eagerly plunged into physics and calculus. So that was what prepared me to go to-- eventually to go to MIT. But the funny thing about it was that I had-- the first time I ever walked into a Guidance Counselor's office in high school, there was this red catalog that

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was sticking out of all the college catalogs and it said "MIT" on it, and I thought, "This is where I'm going to go!" <laughs> So I mean, I was determined from the minute I started high school, that was going to go to MIT, and it happened! It worked. <laughs> So.

Weber: So obviously you spoke Polish and Russian when you moved to the States.

Hoffman: And Armenian.

Weber: And Armenian. What was your actual mother tongue, or was it a mix of--

Hoffman: So my-- I would say-- it's a curious thing, because my family, Armenian family was actually primarily Russian speaking. But of course, we were living in Armenia. So apparently when I first started speaking, according to my Armenian grandmother, my first words were in Polish. Which was interesting, considering that I had moved at nine months. But then I quickly switched into Armenian. And if you ask me, I speak every language with an accent, except Armenian. Armenian is where the muscles of my face fall into their proper positions, and I have no difficulty in articulating anything. So even though my Armenian probably is my least accomplished language, because I left so early, and my vocabulary is more limited, it's the language I speak with most ease, just physically. But the language I knew best was Russian. And now I would say it's English. So, but at the time, it was Russian. And I'd also asked my grandparents in Poland, to send me math books in Russian, and books of Russian literature. So I continued reading in Russian. You know, I read most of Tolstoy while I was in America, because my grandparents sent me all the books whenever I would ask them. Gogol, I read in the United States. Had a big collection of Pushkin's poetry, which I had read, of course, while I was growing up. But to actually have the full collections, I only have them-- I actually read them while I was in the States. So, I continued reading Russian to this day.

Hancock: So, you've arrived at MIT. You've chosen your catalog. Was it another surprise, or was it-- did it start-- tell us about arriving at MIT and your experience in university life.

Hoffman: I arrived at MIT, and I was home.

<laughter>

Hoffman: I loved everything about MIT. I loved all the other students. I loved the dorm. I loved Boston. I loved Cambridge. I liked everything. I was not so fond of my advisor, but she greeted me with, "So, why did you come to MIT? With your background, you should be at Harvard." I thought, "What are you saying? This is this is what I always wanted to do." But anyway, I-- but I loved being at MIT. I felt this incredible freedom of being who I wanted to be, what I wanted to be. None of these parochial pressures from peer groups or cliquishness of high school. Even though high school was so tiny, there were still groups of people who, whether it was by their neighborhood, or whether it was because they were interested in a certain subject, and therefore you can't be one of us, whatever it was. There were these subtleties even though my high school experience was, by and large, very positive. At MIT, I just felt free to be whatever and however I wanted to be. And I was like a kid in a candy store. I wanted to take every class. And I

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ended up taking a huge number of classes, half of them for no credit, because you were restricted to taking a certain number of classes in freshman year because MIT's freshman year was pass/fail. So, everybody would pile on these classes. So, they said, "No, no, no. You can't take more than five classes per term." And I remember my first term, I was actually going to seven classes, because they were too interesting. I couldn't pass them up. So, it was amazing. And then it turned out I could cross-register at Harvard, which I did. So, I started taking, of all things, classical Armenian at Harvard. And it was a pretty tough subject actually, quite time-consuming. But I had access to Widener Library. I mean I would take any class, just let me into that library. And so, that was-- it was magic. It was a magical time. I could sit-- I remember sitting in the winter time on the top floors of Widener Library, in the stacks, with completely arcane books all around me, looking down as it was snowing on Harvard Square and thinking, "You know, I just want to stay here. I don't want to go anywhere else. This is it. This is the life I want." So, it was a wonderful time. It was great.

And the kind of student that MIT attracts are these-- I don't know today, obviously, it was in the '70s, very quirky, eclectic people with crazy interests. And one of the first things that happened the first day I was at MIT, and MIT had its-- this, at the time, it was called RO week, Rush Orientation week, where you spent one week getting to know the place, staying in different places, so that you could choose where you wanted to live, and getting to know people. And one of the first things that I remember is people coming and saying, "Do you have relatives abroad?" I said, "Yes, I do. Would you like to make phone calls to them?" You know, and all these people with their hacking equipment. Hacking at that time meant hacking the telephone company. But that was one thing, and that Project MAC was another thing at the time. And so-- just visiting that and learning about DARPA NET at the time, Multics.

It was-- the group of people that I hung out with were all interested-- well not all, but many of them were interested in computers and computer science, which was one of the reasons why I kind of felt like I didn't have to study computer science, because I hung out with these people. BBN would actually contribute their resources to MIT's RO week. So, we spent-- my sophomore year, I spent RO week with my friends at BBN using all their resources, keeping track of all the freshmen and so on because RO week was run by-- and the orientation week today is also still I think run by students. And all the ways in which they were keeping track of where the students were at any time and everything, and what they wanted to sign up for etc., was done on computers at BBN by MIT students, who would go and have access to the computers to do it. So, it was very exciting group of people and exciting times, and it was really wonderful.

Weber: Who were some of the main people you remember from Project MAC, BBN? It was already the LCS, right, Laboratory for Computer Science?

Hoffman: Right. At BBN, [Jerry] Elkind was there, and he was actually being courted by Xerox. So, he was going back and forth at the time. I remember meeting him. You know, I'm just awful with names. But at the-- at MIT, of course, I was-- became close friends with the-- Marvin Minsky's students. And so, because Margaret was in my class, his daughter Margaret was in my class, we became really good friends. And so, I hung out with Margaret's friends, with Danny Hillis and the whole crowd that was-- that formed around Marvin. Without really being academically part of it, I was socially part of it. So, that was

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kind of a wonderful bonus. That was one of the great things about MIT is that you could become-- you could attach yourself to these various groups of people and learn by osmosis.

Hancock: On the formal learning side, were there any peers or professors that were particularly influential as you pursued your training?

Hoffman: Yes. Well, my advisor, in the end, turned out to be Heather Lechtman. And Heather was a MacArthur Genius Award recipient. Heather had a double appointment in the anthropology, archaeology, and metallurgy or material science. And I started getting really interested-- well, first of all, one of the-- I keep talking about MIT as being this really wonderful utopian experience for me. But in a profound way, it was also a deeply disturbing experience, because I realized I wasn't good enough to become a physicist. And so, it-- so, my dreams way surpassed my capabilities. And so, then I had to think about what did I really want to do. And for a long time, I didn't admit it to myself that that was the reason.

One of the things that I kept thinking is that I'm so interested in the humanities, and I'm so interested in the arts and history, how can I combine that with my interest in science? And so, I-- in one of these classes that I just dropped in on and I was listening to because they seemed interesting was a class that-- it was a class or a seminar where Heather was speaking. I'm not sure that she was actually teaching that class. And she was talking about the history of ancient materials and how we are starting to actually learn about history, and the history of technology, from analyzing ancient materials rather than what had been done in archaeology up until then, which is patterns on pottery or purely formal collections. This was actually going into the history of-- the composition of materials, and understanding that, for example, the lapis lazuli that was found in Europe, actually had its origins in Afghanistan, which was amazing. Because you think well, we're talking about a millennium B.C. So, this kind of interaction, and trade, and so on was going on that you wouldn't have known about had you simply restricted yourself to visual cues. So, that was just one example. There were many, many other examples of how the first bronzes were made and what kinds of admixtures they used for what reasons and so on. So, it was a very interesting thing. And I decided that that's maybe what I wanted to do.

I started out doing it, and then I realized that my knowledge in archaeology was quite spotty, or nonexistent frankly. So, I thought I better catch up quickly. So, I started taking all these archaeology classes at Harvard. And then I applied for graduate school to go into archaeology at the University of Chicago, because they had the reputation of being the best in Middle Eastern archaeology. So-- but you know, I think had-- had I just followed my inclinations at the time, I would have probably stayed at MIT and never left. You know, just employ me in any position here. I'll stay. But my advisor wisely said, "You've got to go other places, learn other things. You have to have exposure to other things." But a friend of mine, from my dorm ended up-- Ed Crawley, he ended up undergraduate at MIT, graduate school, PhD in aeronautics and astronautics. And then all the way to becoming head of that department. So, he never left and, as far as I could tell, was pretty happy. But I did leave. And of course, I'm glad for all the experiences I had outside of MIT. But I do remember it as my first place where I really felt like yeah, I could live here forever.

Hancock: So, was it around 1979 when you went to Chicago?

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Hoffman: Yes, exactly.

Hancock: And you were in Oriental studies, or--

Hoffman: I was in Ancient Near Eastern studies at the Oriental Institute.

Hancock: So, from physics to archaeology?

Hoffman: Yeah.

Hancock: And then on your way to a dig, tell us about what sent you that direction and then how that course changed.

Hoffman: Yeah, well, yeah. Gosh, I didn't have any experience in the field actually. And so, actually my last year at MIT, I realized I needed to have some field experience. And so, I applied for a grant at MIT, which was only given to undergraduates and-- to allow me to do fieldwork. And then it came-- the grant came through, and it would not be effective if I graduated. So, it's '70-'75, if I graduated, that wouldn't-- I could not take advantage of the grant. And so, I decided I'm not going to graduate. And I'm going to take the grant and use it to write my thesis, my undergraduate thesis. So, I went to actually Soviet Armenia for nine months and was doing archaeological work there. I don't know if I should say it on record. It was not officially sanctioned.

And I went to the Soviet Union on a tourist visa, the first time I had gone back since '65. So, this was in '77, the summer of '77. And I didn't come back. I just stayed there. And I went to the director of the Hermitage at the time, who was the world expert in my-- in the field that I thought I wanted to pursue, which was Urartian archaeology. And I had-- I brought him all the work that I had done up to that point, without any field experience. But I had done a lot of library research. So, I brought it to him. And he said, "Oh, that's great. Sure, I'll work with you." And then I explained my situation to him, and he said, "Well, I don't know anything about that, but if you'd like to have a little office right above my office there is the--". I forget now whether it was the green room or the blue room that one of the daughters of the czar had used to get away and be by herself. It had stairs from his office to that room. "You can go there, and I'll give you access to my materials. And you can look at all the archaeological remains we have at the Hermitage. And then if you decide to go to the field, I can give you letter of recommendation. But as far as your other concerns, I know nothing about that."

So, I managed to stay in Leningrad at the time, and rented a private room. Anyway, every Russian has identity papers by the time they are sixteen. So, you have to have official identity papers. Since I didn't want to show my American identity papers, I pretended I was not yet sixteen. And of course, I was twenty-two. So, I led a double life. I was fifteen outside of the Hermitage. And once I got to Hermitage, I took out the little bow from my hair, left it up and, you know, was a twenty-two year old researcher. Then I would get out, put the bow back on, and put the coat over my more professional looking clothes, and pretend I was fifteen.

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Weber: And what was your story of being a fifteen-year-old alone?

Hoffman: Well, my story was that I had been chosen by the Hermitage to do extra studies. Because I was so advanced in my studies in Armenia, they had decided to pick me for a special program that they had. And I-- you know, I blew my cover a couple times. I thought I almost blew my cover, because September 1st is a huge holiday in the Soviet Union. I had forgotten all about that. I didn't remember. And everybody-- you know, flags are flying and everything because it's the first day of school. And all the kids are going to school with flowers and everything else and all that. And so, I'm looking outside the window at all this commotion. And I'm telling my landlady, "What's going on?" And she said, "Don't you have first day of school in Armenia?" And I thought, "Oh, my god." "Oh, yes we do. But we celebrate it differently. It's not like here in Russia." And she kept saying, "You know what? Sometimes, I really wonder. Our own republics are so different from the way we do things in Russia." And I thought, "Oh, god." "Yes, they are very different."

As a matter of fact, on an airplane-- I had to get on an airplane. And you had to show your papers. I had to pretend I was fifteen so I didn't have papers. Anyway, I was sitting next to a geologist, this woman who-- a Russian woman who was telling me her stories of traveling back and forth. She said, "You know, travelling," and this was when I was going to Armenia from Leningrad to do some archaeology. And she was saying, "You know, going to Armenia for me is more exotic than going to a western country. You guys do everything differently." So, I thought, "Oh, so me saying that my September 1st in Armenia was different was not so far removed from reality." But anyway, this woman, it didn't take her long to figure out I was actually not a native. And so, she told me that, "When you come back to Leningrad, come stay with me." And I did do that. And she was a lovely, lovely person.

But anyway, very daring, all these people were very brave to have this American who was there illegally. And they helped me. They had got me to-- they even took me into their homes. You know it was a country of-- you had these extremes of people who were so heroic, and so brilliant, and intelligent, and open minded. And then you had the doctrinaire people who were just horrible, and awful, and made life for the others unbearable. So, yeah, I spent nine months there. And when I was leaving, I thought, "Okay. They'll stop me at the border," because they check your papers at the border. And it was a very young, good-looking captain, who I was just-- threw myself at his mercy saying, "Well, you know, I lost the visa. I know I was supposed to leave earlier. But you know, I had an extension, and I lost it. What do you suggest I do? If I go back, it's going to take me even longer to figure out how to find it and get it back," and blah, blah. And so, he was like thinking, and thinking, thinking, and then he told the other guy, "Let her pass." So, I was able to get out. But I had-- at that airport, I was just on pins and needles the whole time thinking, "Will they let me? Will they let me leave? Will they demand that I go back?" Anyway so, I came back with all this material. And I wrote my undergraduate thesis on the subject and then went to the University of Chicago.

Hancock: I'm glad you told us that saga. So, as I understand, you were on your way to a dig in Iran when--

Hoffman: Yeah.

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Hancock: Fate intervened again.

Hoffman: Yeah. So, that's actually-- that's right. So, I actually had the acceptance from the University of Chicago. And-- but I also got accepted to go on this dig in Iran. And so, I postponed Chicago. I think that was the sequence it went. Now, you know, I don't exactly remember. But in any case, I was on my way to go to Iran, to do the part of Urartian archaeology that was in Iran because Urartu was a kingdom on the border of-- encompassing pieces of current day Turkey, current day Soviet Armen-- well, Armenia now, but at the time, Soviet Armenia, and Iran. And so, I had done the Soviet side. And I wanted to do the Iranian side. There was a German expedition. They had agreed to take me. I was on my way and decided to stop in Warsaw to visit my grandmother. And my grandmother said, "Are you crazy? Do you know what's happening in Iran? You know there are demonstrations and everything. You should not be going to Iran right now." And I thought, "Well, there are demonstrations. I mean there were demonstrations in Iran for a long time. And it's just-- that doesn't affect the archaeologists out in the boonies and everything." And the next thing I know, the airport closed. The hostages were taken. And I thought, "My grandmother was right, as usual."

So, I came back to the States, and I didn't have really a backup plan. And so, I ended up coming to Silicon Valley. And that's where I had my first exposure to Xerox PARC. I became one of their volunteer testers and people who played with their equipment and so on and just completely fell in love with what they were doing. But that happened because I knew so many people who had ended up, from BBN, from MIT, from various places, here. And so, I came here and spent, at that point, I think a solid maybe nine months-- six months, six months here. Then I went to the University of Chicago. And then the call of the Wild West that was Silicon Valley was too strong. So, I came back.

Hancock: Called you back.

Hoffman: Yeah, I came back. But you know, graduate school was just not what I had expected. And at that point, after being in this environment, this cauldron of creativity and so on, to go back and study the past exclusively was just a-- too difficult for me. I couldn't quite manage that, aside from the fact that one year at the University of Chicago plunged me into more debt than four years at MIT. So, I thought I'm not sure I'll be able to pay this back any time soon.

Hancock: I'm going to pass the baton to Hansen. As we do that, I just want to ask one last question. You describe it as this cauldron of creativity. Why do you use those term-- what was happening in the Valley that made it feel that way? And then I'll pass it to Hansen.

Hoffman: Well, there-- you had, of course, you had Xerox PARC with-- in and of itself, was fomenting these incredible revolutions in so many areas, whether it was in chip design, or printing, computing, networking. I'm sure I missed out-- missed a bunch of other things, right? So, just Xerox PARC and its affiliates, some of them were not strictly-speaking PARC, because they were down the street, and they had a different acronym, but anyway, but they were essentially working on similar projects. So, that was, in and of itself, was-- it was very interesting. But there was also this biotech sector that was coming up that was also, to me, it seemed like that something incredible was going to happen, even though it was

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not of immediate interest to me because I knew nothing about biology. But it just seemed so incredible. So, there was that. There was, of course, Stanford and Berkeley, so I thought I wanted to be here to be part of the future rather than studying the glories of the past, try to forge the future. So, yeah, so that was very exciting. And I met Jef Raskin at one of the Xerox seminars. He used to go there quite frequently. And he had friends at Xerox. And Xerox had these open seminars of lectures given by their scientists and engineers and by invited guests. And so, I was there at one of those and ran into Jef Raskin.

Weber: And what was that like? Describe Jef.

Hoffman: Jef was-- Jef was one of those people that I so much loved meeting at MIT. And he had never been to MIT. He was-- he had-- was at UCSD. But he was that type of individual, eclectic, a jack-of-all-trades with a wide variety of interests, always a contrarian view on things. So, he was just a really delightful individual. And the reason that we got to talking was because, apparently-- and I have very little recollection of this myself because I went to so many different seminars. But at that particular one, I asked a few questions that Jef was-- thought were pertinent to what he wanted to do. And so, he asked me about it-- about my opinions. And he said he was starting a new project, a research project at Apple, and whether I wanted to come and take a look at it and would I like to learn more. And I thought-- a couple friends at Xerox told me, "Oh, he's amazing. He's a great guy," and so on. So, I said okay. I'll come.

And he gave me an address. And I showed up. And he had-- it was a private home. And it was very near Apple headquarters. But it was a private home. And the door was unlocked. And I heard a little bit of music coming from inside. So, I was trying to figure out whether I'm supposed to just walk in or-- and because I wasn't quite yet sure that it was a private home, I thought maybe part of some Apple lab or something like that, I actually walked in. I thought, "I don't want to interrupt", but maybe there is a receptionist or something there. And so, I walked in. And it was this soundproofed room. And there was a piano. And it was Jef sitting by the piano playing. And there was a chair. So, I sat myself in the chair, and I waited. I thought I'll wait until he stops. And--

Hancock: What kind of music was he playing?

Hoffman: Well, every so often, he would stop playing and looked at me and say, "Well, what do you think? What do you think that is?" And I remember one piece specifically I thought-- I told him, "You know what? It sounds just like Debussy, but it's not a piece I had ever heard attributed to Debussy. So, maybe it's something I have never heard." And he said, "Well, it's my own piece. And it's variations on Debussy."

And so, I think that's what ingratiated me with Jef, that I had-- I didn't interrupt him. I listened to him with rapt attention. And but also, the fact that I was just so intrigued by the fact that he was such a good musician. He was just an amazing musician. He composed. He played. He had-- he had built a little home not far from Ridge Vineyards actually on Montebello Road. The home was a tiny home. But he had this gigantic concert hall, well gigantic relative to the home, built there so he could put his full-blown organ inside, an organ he had bought that was-- and he wanted a concert hall so that all his friends and acquaintances could sit there and listen to performances in a setting that the performances deserved. So,

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this is the kind of person Jef was. He didn't think he needed living quarters, but he definitely needed a concert hall that I would say could accommodate at least fifty, and maybe more, people. So, that was Jef. And I found out his history that he actually ran a little company that was the first to write documentation for Apple products. It was an independent company. It wasn't part of Apple. But he decided that Apple needed documentation, Apple products, Apple II, needed documentation. And so, they, he and Brian Howard, decided to start writing documentation for-- and Apple bought the company because they realized they do need documentation. And it was technical as well as user documentation. And so, that's how Jef became part of Apple.

But his background was actually he taught computer science at UCSD. So, he brought in Blackenson [ph?], I believe, from his-- who had been one of his students. He brought in Bud Tribble. He had hired, for this nascent Macintosh project, he had hired Burrell Smith, who was in service. He was actually in Apple's service. He was not a full-blown engineer by Apple designation. But he was a service tech. And Bill Atkinson and Jef were able to see that he was just a genius because he was incr-- brilliant. So, they had hired him as the chief engineer on the Macintosh project, which was very different from what Macintosh turned into. But Jef's idea was that he actually called it the-- your amanuensis. It was supposed to be your assistant at all times. And it was to be small and easy to carry. And it was, in a weird way, a lot closer to the Smalltalk concept, which was the you were always in this programming environment. Whether you are doing editing or calculating or whatever, you're always in this actually programming environment. And it was conceptually much closer to LISP, with concepts of clumps and parentheses and so on. And so, that was his conception of what it was supposed to be based on the 6205-- 6502, sorry, this is my dyslexia. And so, that was the Macintosh that I joined. But a couple months later, Steve Jobs took over. And he wanted something completely different. He wanted it to be 68000 based. He wanted it to be a lot like the project that was going on at Apple at the time, Lisa, that he felt was going in the wrong direction. But he wanted to do something that was small and in the spirit-- sort of in the spirit of the Apple II, in terms of its limitations-- I mean constraints, cost constraints and so on, but not as open as the Apple II, because he really wanted to make it an appliance. So, it was a cross between some of the vision of Jef but in a completely different incarnation that Steve wanted.

Weber: Stepping back to Jef Raskin's idea for the Mac, two questions, how the physical format was, the kind of the amanuensis idea, related to Dynabook in any way. And the other is the how much was connectivity important because when I interviewed Jef, it was from a kind of web point of view, and he was very much talking about how he had wanted it to be a connected machine? But I mean do you remember, at the time, was that a big part of it? Was that just one aspect.

Hoffman: It was one aspect but more aspirational because I think everybody was talking about connectivity. But no one had yet figured out how to commercialize it to actually make it cost-effective so that you could actually incorporate it into a machine. So, he had a vision of where things would be going. But the first form factor actually, because the screens were CRT screens, so you couldn't have the Dynabook concept really. And so, it had a-- the first models, the first maquettes, were actually with a small screen. And they were-- they looked a lot more like the Apple II, but with a small screen built in and the keyboard integrated and so on. Not exactly, but it was a horizontal form factor not a vertical form factor that the Macintosh ended up becoming-- adopting. So, he did talk about connectivity, but it was not

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in the first model that we were working on. It was not yet possible because you know what was interesting is, at that time, Xerox was actually, if I'm not mistaken because I sometimes tend to homogenize the past, but if I'm not mistaken, was at the time when Xerox were advertising the Ethernet on television. Do you remember they had the ads? Well, you don't remember. But maybe you remember. They had ads where they had what ended up actually happening which was this outlet you plug in, and you are connected. Nobody knew what Ethernet was. Nobody knew what that was supposed to do. And yet, they had these ads running on television. So, it was in the air. I mean obviously, we having been at Xerox and seeing what connectivity would do for you and with the file servers, and the print servers, and the full-blown environment at Xerox, that was the vision. But the first machine that Xerox was able to sell was the Star that had that connectivity built in. And people just thought it was way too expensive, not just the Star, but the idea of the chip set that could accommodate that and so on, at that time, was considered to be way too expensive. But Jef, of course, was no fool. He knew that the cost of all of these things would drop precipitously in the future. So, yes, it was part of what he wanted to do. But it wasn't yet. As a matter of fact, as I recall, he-- we were even discussing the advantages of token ring networks versus the Ethernet and what would come first and what would we want to use for the Macintosh. So, the discussion was definitely happening.

Weber: And for dial up, I mean what-- because I seem to remember there was talk of it being friendlier to just connecting to online services. I don't know if there was meant to be a built-in modem, or that would have been later.

Hoffman: That was a-- you know, we had this discussion starting with Jef. And then when Steve took over, there was a lot of discussion of whether the modem should be built-in. We decided against it because the modem technology was moving very fast. And we thought that it would become obsolete very quickly while the machine was still fully functional. So, they thought no, it's better not to build it in. Jef was more inclined toward building in a modem because he wanted it all portable. He wanted you to carry it with you everywhere you went. But I know that we hadn't agreed on that yet when-- by the time Steve took over the project.

Hsu: I actually wanted to go back a little bit and dive in a little bit more on the Xerox PARC stuff. So, what made you actually decide to go to PARC for that nine months? And what were you working on? And what sorts of things were you exposed to while you were there?

Hoffman: Well so, I'm trying to keep my private life out of this. But there were quite a number of people who I had known who had ended up at PARC or PARC affiliates. I knew about the work that they were doing because-- actually, I ended up doing my thesis for MIT, which ended up being this magnum opus with quotes in German, and Russian, and with Cuneiform thrown in, and so, on a system at BBN. And it was-- even at BBN, it was quite painful to do. And my friends were saying Xerox has these great WYSIWYG systems that would be really wonderful to use and so and so. When I got here, it was-- I came because friends of mine were working there. And so, they said, "Come, you know, it's a pretty open environment." I used to go to their yoga classes. I sort of became part of the extended family. And we love people to play with the toys we have and give us feedback on the user interfaces, on reliability, and so on. And they were working on the Star at the time. There was also the Alto project, which was the one

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I was more familiar with because my friends were there. But even so-- and also, Smalltalk was very interesting and just playing with some of the Smalltalk-- you know because I had just come from MITs LISP culture. So, it was interesting for me to look at what was going on with Smalltalk. Also, the-- I was familiar with Papert's work of course, Seymour Papert's work on programming for kids and so on. And so, it was particularly interesting to--

Hsu: Oh, the Logo stuff?

Hoffman: The Logo stuff, and then later on with other things. And I'm friends with Cynthia Solomon and Margaret and people who had-- who were very much at the beginnings of those projects. So, it was very interesting for me to see what else is happening in that world. So, it was kind of a natural falling into because those were the people I knew. And I also ended up-- if I'm not mistaken-- you know I'm trying to remember, but I think I was actually at the same time doing some-- taking some classes in-- or auditing some classes in Classical Greek at Stanford and Assyrian at Berkeley because before I had come here, I didn't realize the distance between them. I sort of assumed MIT, Harvard, ten-minute bus ride. And they are on two sides of the Bay. But I didn't realize. I should have looked at the map. I didn't. But I also assumed there would be public transport, which there wasn't. So, it was getting to Berkeley took me two hours to go one way and two hours back. So, that's another thing I was doing is also taking classes at Berkeley and at Stanford more in my area of study. But any free time I had, I would dash over to the Xerox facilities.

Hsu: So, what, in particular, about Jef Raskin's vision that really attracted you that made you a believer?

Hoffman: Well, having this assistant, which now we do, I don't have the prop of my phone. It took this long to actually have that genuine assistant that is an extension of your mind, many other things also, but especially of your mind, was just such an attractive vision, something that would be at your fingertips whenever you wanted to get more information, to craft a piece of work, to-- you know, just all-purpose assistant for your mind. That's what really, really appealed to me. So, and maybe it would play music on the side and help you write a score. I'm sure that was also in Jef's mind because he was writing scores. But this all-around assistant just seemed like such an amazing notion. So, yeah, that was the vision that was so compelling.

Hsu: Could you talk a little bit what Jef Raskin was like in your relationship with him and what it was like to work with him?

Hoffman: Well, Jef was a very playful individual. So, he really loved an environment where you played, where you really played with toys. He loved different kinds of toys. He loved remote-controlled cars. When I-- my first day at-- on the Macintosh project when I walked into the space, which was actually the first official space that Apple had had near the Good Earth restaurant. It was called the Good Earth office. And so, it was kind of symbolic. But the first time I walked in there, they had just unpacked all of their boxes from the move. And they had set up the boxes as barricades and were having these Nerf ball wars with each other and maneuvering little radio-controlled cars to go behind the barricades and annoy the other people. So, it was-- there was just a small group. I was the fifth person. So, it was just two on two when I

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walked in there. And so, it was-- he loved that kind of an environment. He loved people to be thinking big thoughts. And he was great to work with. The-- he loved to inspire people. If I have to say there was one flaw that Burrell Smith would caricaturize to Jef, because you could make fun of Jef in front of Jef, was that he would always say something like, “Well, Jef, do you know that Burrell just invented this particular architecture?” And Jef would say, “Oh, yeah. I invented that architecture, you know, a long time ago.” “Oh no, but Burrell just did this.” And Jef would say, “Yes, but you know I invented Burrell.” And it came from the fact that he actually had thought about a lot of problems for a long time. So, when people would come with solutions to something, he couldn’t resist saying, “Well, you know, I thought about this ten years ago or fifteen years ago. I had a paper written on this subject.” But he was delightful that way even in the way he approached that. It was-- you could sort of caricaturize him and it was fine. Yeah, he was a lovely person to work with. The thing is that Jef had finally gotten an opportunity to do something about which he had thought for a long time. And it was definitely his baby. So, when Steve came and took over the project, it was very difficult for him to readjust his way of thinking, because it was exactly what he didn’t want in a computer, what the Macintosh metamorphosed into. He didn’t want a mouse. He didn’t want something that had a processor that would be, at that time, very expensive. He didn’t want a project that looked like another project, because he had a completely different view of how things should go for something that you carry around with you and have with you. So, he was not flexible in saying, “Oh, okay. Well, let me see how I can contribute to this,” because it was his baby. And it got completely altered in every dimension. So, it was hard for him to stick around and watch that.

Hsu: Could you talk about that original Macintosh team, Burrell and Bud and Brian, and sort of the dynamic of the team and how you worked with each of them, your relationships with them?

Hoffman: Well, you know, it was just a wonderful, lovely group of people. They were all very quirky personalities, but also with a wide range of interests. And so, Brian Howard, in particular, I wanted to mention because I just don’t think he gets enough credit for being a genuine low-ego team player, and yet very clever and very brilliant in his own way. So, when you have somebody like Burrell, who we recognized very early was just a genius, when he came to doing hardware design and understanding enough software to be able to understand what he needs to do. He was like the true heir to Wozniak, Steve Wozniak, in that dimension. So, he was a very large presence, not because he had a large ego, but because he could solve anything. He could create things that-- seemingly out of thin air with incredible virtuosity.

And very early on, Brian, who actually had graduated from Stanford in electrical engineering, became an assistant to Burrell, not because anybody asked him, but because he just felt that’s what was needed. So, he was this incredible low-key presence. And yet he was an amazing writer at the same time, an amazing musician. He was part of an early music group that I used to go listen to perform. And he played the recorder. And he could play the keyboard. He was awesome, had many, many talents but was absolutely ego-less person. You couldn’t even imagine that people like that exist. So, he was this amazing almost Buddhist presence who would jump and help anybody in anything, software, hardware, documentation.

I know that I had to write a few papers on how I perceived the user interface and which direction it should be going, devising various experiments actually at the time to test some of the concepts, Jef’s concepts,

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but also my concepts on what the user interface should look like before Steve came onboard when he changed everything. And that was that. But Jeff actually-- I would give my work to Jef to edit [Jef or Brian?]. And he was an amazing editor. I learned so much about writing, not from college, not from all these classes I have taken, but from Brian Howard because he was an amazing writer with an amazing clarity of mind. And so, you had somebody like Brian there. You had Burrell, who was just brilliant. Bud Tribble was interesting because he's so low-key, or was at that time especially, that it took a while for you to, "Oh, I just heard something incredibly profound," because he was so casual in the way he would articulate things. And so, it was a great, great group, a wonderful group of people. And Bill Atkinson would come visit because he was very close friends with Bud Tribble. So, yeah, that was a very nice, nice group. We would go for lunch together at Good Earth. Yeah. They were-- it was very tight knit. And then things started to take on a whole different shape.

Hsu: Yeah. What was it like working in that building away from the rest of the company?

Hoffman: It's the only building I knew. So, for me, it was completely normal. But-- and I think it's the only building that Bud knew, because he had also come just a little bit before me. So, we didn't know very much about the rest of Apple. But I think Jef and Brian and Burrell were actually very grateful to have the space of their own and be able to-- what they thought was going to become a genuine research project that wouldn't have too much interference from the rest of the company. And [they] could pursue various avenues of how to craft this amanuensis with experimenting in various dimensions, without having to have the deadlines or product pressures because they thought this was going to be a research project.

Hsu: Could you talk a little bit more about your role and your responsibilities during that early period and what things you sort of-- innovations that you came up with?

Hoffman: Well, you know, keep in mind that it was two months only before Steve came on board.

Hsu: Oh, wow. So, it was that quick?

Hoffman: So, there wasn't that much time to come up with… The first thing Jef wanted me to do was to figure out what would be the optimal keyboard design, because it was important to have it portable but, at the same time, very easy to use for people who may not have been typists and so on. So, I devised a couple of experiments to deal with different ways of typing and had to kind of craft those options from bits and pieces, because the only thing we could really use was the Apple II. So, doctoring the Apple II to-- and hacking it to be able to use it for experiments is one of the things I did and conducted the experiments to see how people reacted and how they actually managed to type with the various keyboard layouts.

At the same time, Jef and the rest of the group, myself included, were constantly talking about this overall environment of-- and the programming language that was built-in and whether that was the appropriate thing, and how it should change because it was a whole programming language and a system. And how would you actually have the functionality of applications without having applications? So, we talked a lot about that. And those were a couple papers that I wrote that Brian ended up editing and was included in

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the book on the Macintosh vision, and research opportunities, and projects, and so on, that Jef kept. So, those were the things I was working on. And it was, as I said, it was only two months, and then poof.

Hsu: Was it a pa-- what programming language was it supposed to be using?

Hoffman: It was his own.

Hsu: Oh, wow.

Hoffman: Yes. It was a programming language that Jef invented.

Hsu: Oh, wow.

Hoffman: Yeah.

Weber: But similar to Smalltalk, or--?

Hoffman: It was sort of a cross between Smalltalk and LISP. It had a lot of LISP concepts in it too that, as you were going along, let's say in a document, and now you want to…Say I want a new paragraph that looks like this, then you would just do a couple parentheses and then start writing a program that would give you the kind of feature you wanted.

Weber: This might already be in your questions, but could you talk-- what was the user interface? Can you describe what--?

Hoffman: The user interface was essentially you were always at an-- in an editor. So, it was-- the whole time, it was an editor. You never took your hands off a keyboard, because Jef didn't like the fact that you had another accessory, a mouse, to lug along with you wherever you went and possibility of losing it. But also, he felt like if you design things properly, you don't need to go to yet another device to be able to be able to point. So, you were always in an editor. And in that editor, you-- there were-- essentially, you could call on macros that had already been developed by others, or you could start a program and write a program. And it was-- it would immediately take effect. And it would go and give you the desired effect in your document. But you were always in a document of some kind, whatever it was that you were working on. It was an editor and a programming environment. There was no concept of applications.

Weber: And I know it's not GUI in the sense we know now. But it was graphical in some sense, right?

Hoffman: It was bitmapped, a bitmap display. So, of course, you could also display graphics on the screen once you started programming a graphic. It was infinitely flexible because it was a computer language. It was a language that you were constantly-- and there would be programs that people could share and essentially would be like built-in libraries that you could call on, as you are in this editor, to achieve what you wanted to achieve.

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Hsu: So, what was your formal role? Were you actually classified as part of the engineering staff, or were you already marketing?

Hoffman: No, there was no marketing because we were all-- my title was researcher.

Hsu: Okay.

Hoffman: And so was everybody else. Well, I don't know. Maybe Brian was-- because I don't know-- there wasn't really a formal-- I don't think I even had a business card until after Steve took over, as I recall. So, we all did a little bit of everything.

Hsu: Yeah.

Hoffman: I remember, if Burrell needed some soldering help, I would solder. Everybody would. Or Jef wanted me to write up some of my user interface ideas, so I wrote them up. But so did Brian, so did Bud. And Bud was working on the software architecture, how it would actually be architected from ground up to be this environment that was also flexible but, at the same time, not intimidating, at the same time. Something quite new in that sense. So, everybody was doing a little bit of everything. But I felt more like I needed to help out more, because there were already things being done in place, including Burrell doing the hardware design, and Bud starting to work on the architecture. So, I needed to-- I just thought, "I want to know a little bit about everything so that I know in what ways I can really contribute."

Hsu: So, let's talk about sort of the transition when Steve comes on. So, you said that was only two months after you joined the Mac project--

Hoffman: Right.

Hsu: Which was-- so, you joined the Mac project in October of 1980?

Hoffman: 1980, yeah.

Hsu: Yeah. And then-- so, then Steve comes on. That would be--

Hoffman: I think it was before Christmas. I think it was December. So, yeah, it was not even full two months I think, yeah, after I joined. So, that's when he started to make it be known that he was interested in taking over.

Hsu: And he had been working with the Lisa team prior to that.

Hoffman: You know, what I know about all of that is what I've read about it okay because I wasn't there for that. So, yes, I assume he was working with the Lisa team before. But it's not something that I was privy to.

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Hsu: Right. So, then when did he-- maybe just go into that process of like what happened when he decided to like sort of take over or--

Hoffman: Well, you know he-- yeah. He had-- as soon as he saw the project and the people that were working on the project-- but I think he may have had the idea already before he came to see this little group. But he had a very definite idea of what he wanted. What he wanted was something that was much smaller than Lisa, capitalized on the user interface concepts that had been learned from both Xerox and the Lisa project. He wanted it to have a pretty powerful processor, so that it could work well with a graphical user interface. All of these ideas he already had in mind. Also, he wanted to bring in a team that he had worked with before, that he knew before. So, he brought Andy Hertzfeld on. He brought Jerry Manock, who was the industrial designer on-- the designer of the Apple II. So, he brought in people who were fam-- who he had worked with and had experience with and could carry the project in-- to conform to his vision. So, that's what he did. And he had very-- he had pretty clear ideas of what he wanted. And so, there was a little bit of a tug of war. And he also brought in Chris Espinosa, who he had worked with. And so, he essentially wanted Jef to be the head of documentation, like he had been before. And so, that was very hard for Jef to take. And so, Jef didn't stick around.

And it was difficult for us. because we felt a loyalty to Jef. But at the same time, once Steve articulated what he wanted, it was very, very compelling because it was true that all of the stuff that had been happening at Xerox, and later on on the Lisa, hadn't really bore fruit yet. And he felt that what was going on on the Lisa was not going to be that mass product that he had experienced with the Apple II, that he wanted to build on. He wanted a really mass phenomenon. And he just felt that there was a lot to that-- to those concepts and to that paradigm that had come to the point where it could actually be mass marketed, and mass designed, if you will. Right, designed for the masses. So, and it was very compelling. It was-- he was right. He was right. So, it-- so, from the hardware perspective, I think it was really interesting for Burrell because he went right away into designing the whole thing around the 68000. And from a software perspective, it seemed very intriguing because we-- this particular paradigm required hundreds, if not thousands, of dollars in hardware and in software development and so on to make real. Could we do it inexpensively? And could we do it elegantly so that it was small, flexible, and affordable? So, that was-- I think all of us kind of bought into it. But it was hard, on a personal level, to see Jef deprived of the possibility of having his dream come true.

Hsu: Could you talk about your first meeting with Steve and what your first impression of him was?

Hoffman: My first meeting was-- you know, I didn't know who he was. I knew that there was a little bit of deference when he came marching through because he--

Hsu: <coughs>

Hoffman: …just dropped in. He kind of walked in. And the way-- Steve has his manner of coming directly to the point like, "What the hell do you do? What are you doing?" And I was thinking like, "What? Who is this guy?" So, I told him what I was doing and everything. And I thought, "Why does he really want to know? Is he going to join the group? I mean, who is this guy?" And then after he took-- left, then they

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explained to me that he was one of the founders of the company. Now, I should have figured it out, but it took me a while. I'm terrible with facial recognition. So, if I had seen his picture, whatever, it wouldn't have helped very much.

Because, even in college, I had the reputation of walking to strangers thinking that I know them and then meeting people I've known and not recognizing them. So, people used to make fun of me all the time in college. They would play practical jokes on me, where people would call and say, "Hi, you know, I'm-- let's meet for lunch." And I'd say, "Okay," thinking, "Who is this person?" It turned out I don't know them, but I thought I should know them. But they knew that this is my weak point. And so-- but anyway-- so, I probably should have known, but I didn't know until that first encounter who he was and what may be happening behind the scenes. I'm notoriously bad at figuring out anything political. So, I had no clue what was going on.

But you know, he was confrontational. So, I was confrontational in return. And I think he liked that. So, he-- even though I didn't have any role anymore because we know what the user interface should look like. What do you mean you're working on the user interface? Well, we're going to do what I say we're going to do, and we already know some of the details and concepts from Lisa. So, that's what we're going to do. So, then he said, "You know what? You're going to do marketing." I thought, "Oh, wow. What is marketing?" So, I went-- I took out a book on marketing to read what that entails.

Hancock: Why do you think he selected you for that role, rather--?

Hoffman: Because all the others had prescribed roles already, hardware, software, industrial design. There was no one to do marketing, and he needed a business plan to present to the executive committee. So, he said, "Okay, you're going to help me write the business plan. So, we're going to work on that, and you're going to write the draft of the business plan, and the marketing plan, and so on. And then I'm going to review it and alter it." So, that's what I ended up working on is the business plan.

Hsu: So, we've actually heard a little bit about the business plan and that it was actually written on a Xerox Alto.

Hoffman: Yes.

Hsu: <laughs> Can you talk a bit about that?

Hoffman: It was. Well, what happened is that I was writing, of course, on the Apple II with an eighty-column card. And so, the concepts and all of that we have basically agreed on with Steve. But he kept tweaking, and tweaking. Every time I came up with something, he kept tweaking it. And he wasn't quite happy with it. So, at some point, I realized, "You know what? It's not the content. It's the way it looks that's bothering him." And he can't quite visualize. It doesn't have that avant-garde feel to it, which is what he wants it to look like. And it doesn't have the visualizations that he would like to put in there.

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So, I thought I'm going to go and take this identical content and write it on an Alto and see how he reacts. It was an experiment. So, it took me a little bit of time because I was doing it after hours when-- and I was doing it on a hard disk that I had to leave at Xerox because I can't just waltz out of there with a hard disk. So, here we have top secret written all over it, Apple proprietary, on a hard drive at Xerox on a shelf. So, I was hoping that nobody would pick out that particular drive to work with while I was working on it. And nobody did. I was fortunate. I finished it. It took a little bit of time.

I finished it, and I brought the first draft to Steve. And he loved it. He thought, "That's great. That's exactly what we wanted to say." Okay. Yes, I agree. So, then of course, there were a few tweaks, a few graphs, a few other things that needed to be added. So, I continued doing that for a while at Xerox until he did the presentation and got the approval. And then after that, I erased it all from the drive at Xerox. But there were a few moments where I <gasps> I came there-- I would come in thinking, "My god, is it still there? Has anybody seen it?" <laughs> But hey, you know, I was-- it couldn't get-- be worse than being found out in the middle of Leningrad that you were there illegally! So, I can't-- nothing could be that bad. So, it was an adventure. It was great.

But he had to justify to the executive committee of what this was going to be, why he was doing it, obviously, what would be the market. And it was very important to show that we weren't going to cannibalize the Lisa. And this was essentially, I think, in my estimation, the beginning of our problems. Because you cannot-- a company really can't build a product with the fear of cannibalizing another product of its own, because if you don't cannibalize it, somebody else will, right?

So some of the limitations of the Macintosh are the fact that it wasn't expandable. The fact that it had a limited memory capacity. All of those things, came from the fact that we didn't want to compete with the Lisa product. So yeah, and that was also a source of tension between me and Steve. Not, tension that was more of intellectual tension, because I kept arguing always that we are unfairly limiting the Macintosh. And he would get really annoyed. And I remember once, we had this argument in the middle of Bandley drive as we were walking and I told him look, you want to ease of use, ease of use. Infinite memory is the ultimate ease of use. And he said, "You are a Xerox chauvinist."

<group laughter>

Hoffman: "You don't know how to make products that can be brought to market and marketed to the masses." And yes, he was right. But also given how long it took to get the Macintosh out into the market we should have had a better memory strategy than we did. But, again, it was the very beginning that set that trajectory because that was the condition of the approval that we got from Apple is that we were not going to infringe on Lisa's markets.

Hsu: So that included lacking the hard drive and smaller screen, other fundamental…

Hoffman: A non-expandable memory. Right? A closed box with non-expandable memory.

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Weber: I'm just curious why the swapping of discs on the Mac was so much worse than on a CPM machine at the time? I mean a dual drive CP/M machine you swapped once or twice an hour. Whereas, the Mac, you would swap dozens of times just to launch. Why was that? Do you know?

Hoffman: Well, it also was the fact that there were so much more to the Mac. Right? You had a lot of-- we had a lot of stuff in the ROM but we also had to put a bunch of stuff on the diskettes. So the actual diskette didn't have as much capacity as the full capacity. But it was a much more complex system for the user interface. But, also, this is something to be asked of Andy because he, of course, remembers all of the details and he was part of architecting all of that. The original file system was also, I think, meant for a much smaller system than what Macintosh ended up being. But I would not be the one to be quoted on that particular subject. Yeah, I believe so. But CP/M was famous for being extremely compact. Right? And the Mac had all kinds of bells and whistles, including the resource manager, which I kind of felt guilty about. But it was put in at the last minute thanks to Bruce Horn, I think, partly because I was going crazy with the localizing the product for each separate market. And when I discussed it with Bruce, he had an immediately-- he said, "Oh no, I thought of this architecture before but this will solve your problems. And it also will be really cool for the other reasons. I'm going to stay up writing it and I'm going to put in the Mac." And, of course, he drove management crazy because he didn't have enough time to test it all and so on. But it had a lot of really wonderful system features that required a little bit more space and speed, frankly.

Hsu: Had you met Bruce Horn before when you were at Xerox?

Hoffman: I had seen him but I hadn't met him. He was the wunderkind. He small talked to you. Yeah. He was a great guy.

Hsu: Could you talk about how the team changed after Steve came on? How many people he brought on?

Hoffman: Yeah, we grew rapidly relative to before. But he also had his own idea of how he wanted to expand the group, and the cap he wanted to put on, that he didn't want it to balloon out of proportion. And he wanted to have a small group that really worked well together. So, he didn't want it to become a management nightmare. But he augmented the group quite quickly with the people that he felt needed to be involved. He urged Andy to hire people in the software group. I didn't want to have anybody in marketing, actually. That had become another issue. Because I felt like we are a long way off from having a product on the market. And that you don't need to have more people in the marketing team, not yet. But, anyway, he also wanted to build a factory. So, at some point he started hiring manufacturing people. He brought in purchasing people. Before then it was Burrell, or if he delegated it to me, calling the suppliers and saying, "We want these and these parts." He started filling out the group with people that could actually support a product development team.

Hsu: At what point, did Bob Belleville come in?

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Hoffman: Bob, you know, I don't remember the exact date when Bob came in. But as it turns out the software team did grow to be bigger, as did the hardware team. And it became very clear that we needed levels of management. So I think just the idea that we needed to make sure that this is well-tested and had a certain level of reliability, and so on, that would bring in some professionals. And not to say that Bob Belleville was necessarily, I don't want to imply, that he was a professional manager. He had made some incredible contributions as a scientist and an engineer. So he seemed like the ideal match.

Hsu: And, as I recall, this was after Bud Tribble had gone back to school to complete his MD.

Hoffman: Yes, to-- he had a little bit of time left to finish his MD/PhD. He had taken time off to come work on the Macintosh. It was at the urging of Jef Raskin that he took a leave of absence. But his leave of absence was running out so he decided to go back and finish.

Hsu: So we've talked about this a little before, but what was your relationship with Steve Jobs like?

Hoffman: Well, you know, it's interesting because he was-- we had a really, I think, a great working relationship in the sense that it was very nerve-racking. But at the same time, he really brought out the best in the people that he worked with. And I consider myself very fortunate to have been, you know, in that group, because he just would not relent. He would not relent. He wanted you to do it better. He wanted you to do it smarter. He just kept pushing and pushing. And the fact that he didn't shy away from conflict, nor did he, at least in my case, I know that he did not take my disagreements with him at all in a bad light. He just thought.. he would overrule me, but it didn't necessarily mean that if I objected and made all of these arguments against what he wanted to do, that it soured our relationship in any way.

And I saw that and I wasn't the only one in that category. I saw that with many people that he brought in. When Barbara Caulkin [ph?] had a real argument with him and I think it was Martin Haeberli who remembered this episode where he saw them arguing with each other. And Barbara is not very tall, as you've probably seen. She's not Barbara Barza [ph?] and Steve he had his stature. So there was this argument with Barbara looking at him and just gesticulating and going nuts and would not relent. And Steve arguing with her. <laughs> But, you know, it was possible to do that with him. And, as I said, but with some people, I don't know exactly what that was a function of, but in some people it really destroyed their self-esteem. I know that to be the case but at the same time I and the people, who I know, were not in that category. So it's very difficult for me to speak on their behalf.

I know that I feel that I learned an incredible deal from working with him, from understanding how to strive for excellence. Understanding how to pare down the bullshit, and to detect bullshit when you see it. And I know a lot of my , who later on went on to do other things, have told me that they would be sitting in a group or in a meeting and thinking back and saying, "What would Steve have been in this situation?" Which goes to his credit, to the fact that all of us thought that in the end, however he chose to convey it, his ability to see through and to push for a realization of a dream was really unmatched. And all of us benefited from it.

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Hsu: It's been written that you were known as the person on the team most able to stand up to Steve. And you even won an award for it twice.

Hancock Gong: Twice. Right? Is this a true story? Or is this apocryphal?

Hoffman: Well, ask Debbie Coleman because she's the one that quoted that story. So Debbie remembers this and apparently others do too. You know, when we had-- Andy Cunningham had this gathering of the women. She contacted me and she said, "What do you think we should do in response to the film?" I said get the women to talk for themselves, because they all had a great experience working for him. And the picture that emerged was me, but it wasn't just me. It was an accumulation of personalities that were in that particular situation. And I wanted those personalities on stage so that people could listen to their stories. So Barbara Caulkin [ph?] was there and Susan Barnes was there. Debbie Coleman who was-- you know, if you think about it, head of product marketing which was Barbara. The CFO of the Macintosh division. The head of manufacturing. The crafters of the PR strategy. Of course, Susan Kare who was responsible for the look and the personality that emerged through the Macintosh. They're all women. And they all worked with Steve. And they all had their own take on what it was like to work with him.

And so we had these women all talking about their experiences. And so that question came up. And I said, you know, I don't have a recollection of that. And Debbie jumped in and said that "No, she had a recollection of it because she received that award subsequently." And I thought, oh! so this is something I must've just erased from my memory because, obviously, it must've happened. You know, she had it. And the others sort of went, "Yeah. Yeah." But I didn't remember that. And I, by no means, thought I was the only one to stand up to him. And I also don't mean to say that it was only the women that stood up to him. There were, obviously, men who were also in heated debates and conversations with Steve. And that's what he liked, including Andy Hertzfeld, and Bill Atkinson, and many others. So he fostered that kind of very dynamic environment where there was a lot of debate, a lot of discussion, a lot of disagreement before you came to some kind of consensus.

And sometimes you came up with a consensus, and Steve overruled you. And so in that case you have to say okay, we're going to march to his orders. But many times, you came to a consensus in Steve felt, "Hmm. Yeah. That's what we should do." So it was a very energetic and passionate environment. And it was hard on some people who-- One thing I have to say is that I wanted to make sure that what people understood with Steve is that as hard as he was on everybody, he was much harder on himself than anybody else. He never rested on his laurels. He never wanted to look back and say, "But I did this or I did that". The past tense was not in his vocabulary, especially when that related to himself. Right? His past accomplishments were the past. And he only looked into the future. And so that kind of-- and he had infinite energy. Infinite energy and passion. And it was very hard for him to see that not everyone could meet his stamina and resilience. And so he just felt like, oh yeah, you can push yourself harder. You can do this. And if you can't do this, then why are you standing in my way? So it was very tough for some people. But, you know, that's how he got things done.

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Hsu: You mentioned the women in the Macintosh team. Could you talk a little bit more about that and the experiences of women being in the Macintosh team?

Hoffman: Yeah, I think that at the time none of us really thought about the fact well I'm a woman on the Macintosh team. First and foremost, we were on the Macintosh team. And whether we were female, male, gay, straight, single or married or whatever, it didn't make any difference. So there wasn't this kind of, as women, we are going to-- we had an allegiance to each other as a team. We were definitely part of the team. We were not singled out as in any way different from the rest of the team. And so it was first and foremost, it was very much a familial environment. And I would say that it was only in retrospect that I looked back and I thought oh yeah, look at that how many of us were there and how many of us were in important positions. But at the time, you know, we were there with our colleagues male or female. And it just didn't enter the psyche at the time.

And I don't know what has happened in the Valley because, obviously, things are-- I can't pretend that I know what's going on right now, but at that time maybe it was the time but I would say that it probably was also Steve who didn't care who you were, or what you were, as long as you were contributing to the project and to the realization of the vision.

Hsu: You mentioned, the sort of the film. Is that something that you would like to talk about, the portrayal of Steve and yourself in the film and what things they might've gotten wrong?

Hoffman: You know, I think you may have heard me say this before, is I tried to make some sense out of the way Steve was portrayed in the film. And I do believe that the reason he was portrayed the way he was portrayed is because they looked at Steve as an artist. Right? That Steve had us all sign the Macintosh. He was definitely an artist in the way he dreamed of his products in his passion, in his dedication, in his attention to the aesthetic details and every little piece of craftsmanship that went into it. So, the fact that he was an artist and he had an artist personality, I think was very intriguing to Aaron Sorkin and the team that made the film. And they wanted to portray his artistic side. They wanted to bring out the artist. But, I think what ended up happening is that they portrayed him as an artist in their own image because they looked at themselves and they said, "We're artists." Right? "How do you behave as artists? How are we in our artistic environment?" And they made him in that image. Right?

He came out a lot more like a Hollywood director, or not even Hollywood, you know, as a film artist would. I could see Ingmar Bergman behaving like that. Fellini maybe behaving like that. And, of course, some of the greats in Hollywood. So I think that's why the image that was on the screen of Steve did not match the image of Steve that we had as his colleagues and as other people in the industry. You know a simple thing that Steve never swore. Never. I never heard Steve say a four-letter word in my life. I did. <laughs> I swear a lot. But that's because of my Eastern European background. People there swear a lot but he never swore. But yet, on the screen, he's swearing all the time. He was far more articulate and verbally more agile and more biting than the way he came out on the screen, and also in many ways far more humane. But the thing is I think that they wanted to show his single-mindedness so there wasn't that much room to show his other sides. So I would say that that would be my explanation of why he came out very differently from the way people remember him.

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Hsu: Waht did you feel about your own portrayal in the film?

Hoffman: Well, I felt like it was definitely an aggregate personality. So they aggregated…

Hsu: So multiple people.

Hoffman: …multiple people in one personality, in one character, I should say. Because I definitely was not the PR person, which is what she does on the screen. Even though I did some of that, that wasn't my primary role. There are things that she does and says and the way she talks about the forecasts and so on are different. It's an aggregate personality that they wanted to put into one character because, obviously, they couldn't have too many characters. So, the fact that she has a very warm relationship with Steve, I really felt that that was important that they managed to convey that, because I didn't want-- the fact that I stood up to Steve or the fact that I had disagreements with him, didn't detract from the fact that he was one of the most important people in my life, for whom I had enormous amount of esteem. And I would do anything for you know? If they called me in the middle of the night and said Steve needs you for X, Y, Z, you know, I would drop everything and rush to do it, because I felt an allegiance that goes beyond being a colleague. I really felt like he was a member of my family. Like he was a friend. So I was glad that some of that came through.

But, you know, are the details correct? <laughs> You know, one of the first things that my sons-- I went to see it with my sons because I thought it's important that that if they have any questions, I should be able to answer them on the spot. Right?

<group laughter>

Hoffman: So when we came out of the movie the first thing my son asks me, my older son, is, "Did you really iron his shirt?" And I just looked at him and I said no, honey, you are the only person in my life whose shirt I have ironed.

<group laughter>

Hoffman: I don't even really know how to iron but I have ironed your shirts but never for anyone else. So it was important for him because it was so out of character that he couldn't believe it. You know? Did you really do that? So the details were not right. But I think the spirit of the fact that there was a professional relationship but also the warmth of a genuine friendship, I think that was important.

Hsu: Did he confide in you about his personal life or his relationships?

Hoffman: Well, he did, but I wasn't the only person in that regard. As I said, he fostered a kind of a family feeling. And so he had a few people, especially, those of us who had been there from the beginning of the Mac days, but also people who had been there even earlier, from the days of the Apple II to whom he did confide because his life was right there. He was always there. It's not like there was a separation between his life and his professional life. He was so consumed in the Macintosh and what was going on that his

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life by force was brought into view with us because things would happen at work. Right? His sister would come visit, or his daughter would be there.

Hsu: So Lisa would be there?

Hoffman: Well, Lisa-- Steve and Lisa went rollerblading every Sunday, and probably more frequently than that. But every Sunday Andy Hertzfeld, Burrell, and I and for a while Susan, who all lived in the same neighborhood in Palo Alto would go out to brunch together. And Steve would rollerblade with Lisa from his home and then accompany us to the restaurant. And then they would go off on Stanford campus or wherever and we would go to brunch. So we knew Lisa because he was-- he did spend time with her.

Hsu: And this was while the Mac project was still…

Hoffman: Yeah. So in that sense, I think, I can't say that I was the only person to have him confide in me. He confided in other people as well.

Hsu: But it seems like a lot of you were, at least, exposed to his personal and family life to some extent then.

Hoffman: To some extent. Mm-Hm. Some more, than others. Just because we'd been there longer.

Hsu: Was he unusually private about that with outsiders? And were are you part of a special inside group that had access to that?

Hoffman: Well, I don't think it was that different from other people, in that he had his closer friends that he felt more comfortable in confiding, than other people. He certainly didn't wear his private life on his sleeve. And he was not the kind of person who sought celebrity in anyway. So, in that sense he was quite private. I mean, you know, he was the youngest American industrialist and on the front of Time magazine so he was very recognizable. People would recognize him in places. And yet, he never, allowed that to enter his life, or distract him from anything that was important to him. So, in that sense he was able to manage things quite well, to be able to lead what he wanted to be a normal life.

Hsu: What was it about Steve that engendered such loyalty or devotion?

Hoffman: You know, he was incredibly creative. So, he was an artist, obviously, and so he was a great leader. Maybe, in some ways he was not the best manager which, I think, eventually he did become one. But he was young. I mean let's not forget that he was quite young when he took over the Mac project. So I would say that this kind of incredible vision of the future, that was so seductive that everyone wanted to see if they could contribute to it. And, also, the fact that he was so single-minded in driving to accomplish it, and would not let doubt stand in the way. And that's a very powerful thing for the good and for the bad.

And he happened to be for the good, but you've seen people follow other charismatic visions for the bad. But it just so happened that Steve's vision was so compelling in bringing on a much better future by using

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technology to augment what we can do as human beings. So, I think that was definitely part of it. The fact that he knew how-- and I don't know whether this was premeditated, or if it was just natural to him, but he knew exactly how to get you at a gut level, each individual person, to get engaged in his vision. You know, to want to do your best.

Hancock Gong: Could you give an example of how he persuaded or enticed?

Hoffman: I would have to think about a specific example. But, you know, he knew what was important to each person, what was their ideal, what was it that they wanted to go after. At the same time, he also knew what your Achilles' heel was. So, he wouldn't shy away from poking at it, putting darts into it if you were not meeting his expectations. But the fact that he was able to get idealistic people on board and talk about how this is going to be an affordable technology, that is going to bring in so many people who could never imagine using a computer before, how it was going to help all of the creative people in the world to augment their creativity. That kind of thing really appealed to certain personalities. And he was able to really articulate that.

And, also, to show you that what you are doing at the moment, if you were not part of his vision was not that significant. Like the famous quote when he told Scully, "Do you want to make sugar water for the rest of your life?" And, you know, he was able to capture things like that instantly. You know, he told me, "Do you really want to be spewing out academic bullshit for the rest of your life?" Well, maybe he's right. No, I don't want to do that. He wouldn't shy away from saying, so what kind of difference did these people that you admire do? What kind of difference did they make in the lives of people? And you think, hmm okay, you know, maybe he's right. So I think he knew who was an idealist, who wanted to-- we were all very young at the time. So none of us had done anything like this before. So I think it was Larry Tesler who said this about Susan Kare, he said that, "Susan just didn't know that making those fonts for the Macintosh was theoretically impossible. So she made them."

<group laughter>

Hoffman: He said it much more gracefully than I did. But that was the jist of what he said and it was true for many of us. I had no idea what marketing was but I was determined that I wanted the Macintosh to go into international markets. And I had just come from academia. I wanted it to be pushed to academia and it turned out to be the two biggest markets for the Macintosh in it's first couple of years. Was it supposed to be like that? No. They were supposed to be the secondary market but I was really, really adamant about the fact that I really wanted this product to feel native to people around the world no matter where they picked it up.

And as it turned out, that worked out. And the Macintosh sold quite well internationally especially in France, thanks to Jean-Louis Gasseé. But, also, in the educational market, for the university market. For a while it was what sustained the Macintosh. So that was really important until, of course, the desktop publishing [market] came along because-- well, came along, it was the vision of Bob and Steve. Steve's vision was he didn't even want-- can you imagine - this was another thing - that we were shipping the Macintosh with dot-matrix printer. Okay? And it didn't have a letter quality printer because Steve would

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not compromise. The letter quality printers could not produce - give the true fidelity to what was on the screen. And so, he was going to wait until there was something that he could create that would be faithful to what was on that screen. And, of course, the LaserWriter was that, but it took another year for it to be introduced and then some to be shipped. But he wasn't satisfied…that was his vision. He was going to do that. And that was that. So not compromising. But there was a gap there for a while, and we had to still sell the product. But, you know, that wasn't taking risks and taking-- having the courage of your convictions to use a cliché.

END OF THE INTERVIEW

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