

An Interview with  
SEYMOUR RUBINSTEIN  
OH 391

Conducted by Jeffrey R. Yost

on

7 May 2004

Needham, Massachusetts

Charles Babbage Institute  
Center for the History of Information Processing  
University of Minnesota, Minneapolis  
Copyright, Charles Babbage Institute

## Seymour Rubinstein Interview

7 May 2004

Oral History 391

### Abstract

Seymour Rubinstein, a pioneer in PC word processing software, describes his personal background, his initial exposure to computers and his first programming projects. He tells of his IMSAI experiences and then of starting MicroPro International which produced the first blockbuster application software product, WordStar, which ran under the CP/M operating system. He discusses in detail the problems that later occurred at MicroPro leading to WordStar losing its premier position and eventually to the company being sold. He talks about his belief that word processing was the principal application which really triggered the explosive growth of the PC market.

## Preface

As part of the Software History Center's collection and preservation activities, and in conjunction with its meeting on the history of personal computer software held in Needham, MA, on May 7, 2004, the Software History Center (SHC) arranged for 14 oral histories to be conducted with computer software company founders and other key industry participants. All of these oral history interviews were conducted by historians well qualified by their knowledge and interest in computing history.

The following is a list of the people who were interviewed together with the name of their interviewer:

John Brackett and Doug Ross, interviewed by Michael Mahoney  
Dan Bricklin and Bob Frankston, interviewed by Martin Campbell-Kelly  
Dan Bricklin and Bob Frankston, interviewed by Paul Ceruzzi  
Jerry Dreyer, interviewed by Thomas Haigh  
Ben Dyer, interviewed by Nathan Ensmenger  
Dan Fylstra, interviewed by Thomas Haigh  
Gary Harpst, interviewed by Tim Bergin  
John Imlay, interviewed by Bill Aspray  
Luanne Johnson, interviewed by Janet Abbate  
John Landry, interviewed by David Grier  
Mike Maples, interviewed by Nathan Ensmenger  
Seymour Rubinstein, interviewed by Jeffrey Yost  
Jonathan Sachs, interviewed by Martin Campbell-Kelly  
Oscar Schachter, interviewed by Thomas Haigh

Each interview was tape recorded, transcribed and edited by the SHC, the interviewer and the interviewee to ensure clarity and readability without changing the style or flow. The original tapes along with the edited transcripts were donated by SHC to the Charles Babbage Institute (CBI), which placed the edited transcripts on the CBI website and have archived the audio tapes.

On January 1, 2005 the Software History Center merged with the Computer History Museum, and its work is continuing as the Software Business History Committee as part of the Museum's activities (see [www.softwarehistory.org](http://www.softwarehistory.org)).

---

## Software History Center Oral History Program Seymour Rubinstein Interview

---

**Jeffrey Yost:** It is May 7<sup>th</sup> 2004. My name is Jeffrey Yost and I am in Needham, Massachusetts with Seymour Rubinstein to conduct an oral history under the auspices of the Software History Center as part of a PC Software Conference. Could you begin, Seymour, by giving some basic biographical information - where you grew up, etc.?

### **BACKGROUND AND EDUCATION**

**Seymour Rubinstein:** I grew up in Brooklyn, New York. My father was an immigrant who originated from Belarus, at least that's what we're calling it these days, from a little town near Minsk. He deserted the conscript army of Tsar Nicholas during the Bolshevik Revolution and managed to get to Canada and after establishing legal residence there, he was able to immigrate to the United States. He married my mother in the early 1930s and I was born in 1934. My mother was born in the United States, but her father came from Chernigov, which is a town in the Ukraine and her mother came from Bucharest, Romania. So I have a very strong Slavic background -- Slavic and Jewish, as well.

At any rate, my educational career was largely undistinguished all through high school. My father died when I was only 7 1/2 years old because he contracted a bacterial infection of the kidneys; I think they called it Bright's Disease then, but if antibiotics were available the way they are today, he would have been cured. But he died a few days before Pearl Harbor; penicillin didn't become available until a year later.

In any case, getting back to my educational career, and, while I certainly was smart, scoring in the 99<sup>th</sup> percentile on my college entrance exam, I graduated high school with only a 71.25 average -- dismal. But I didn't care about a lot of things; I just cared about establishing my own independence. I developed an early interest in electronics, and by the time I was in my teens I apprenticed as a television technician and later on was able to earn a living repairing televisions.

Anyway, I then met a young lady who I was crazy about. She told me that the way I handled my education was ridiculous, so at her urging I went to night school at Brooklyn College.

**Yost:** I understand you took a computer course there.

**Rubinstein:** Yes, but let me just finish giving the background. I think that will fall in, because what happened was that my first year in night school didn't amount to much, but then I became aware of the fact that I could matriculate if I got a B+ average. I didn't really take that to heart until midterm when I got three B's and a C, but the following semester I really tried and I wound up with straight A's. Under those circumstances I became a fully matriculated student, and I went back to

what I originally wanted to do which was engineering. When I reapplied to CCNY, my past sins were forgiven and I was accepted.

I was encouraged by the fact that when I took the SATs and I saw my grades posted, I had a score of 1485 and when I looked at the rest of the list, I only found three others who had a higher score. So I thought maybe I had some talent. In any case, from that point on I got all A's and B's until I graduated. I started in engineering; I switched to physics because I didn't like the stilted education of engineering. There were no liberal arts in there whatsoever. So I switched to physics but I found out that to do anything in physics you have to have a doctorate, so then I switched to mathematics and then finally to psychology. I wound up with a Bachelor of Science degree in Psychology after more than a dozen years of going to school while I was supporting myself. I then went for my MBA at the Baruch School of Business of the City College of New York.

In the meantime I had changed careers from repairing televisions to technical writing. In my final semester at Brooklyn College, the only thing I needed was a second year of college German. I also found another course, which was very popular, that I could never get into because everyone else had precedence, but as a graduating senior I was able to get into the class. It was Computer 101, the only computer science course at Brooklyn College at that time. I remember that class very well because it changed my life forever. Fortuitously, my first computer was the IBM 1620 and when I later went to work at Sanders Associates, there was an opportunity to bid on a project which required programming knowledge of the IBM 1620.

### **PROGRAMMING FOR SANDERS ASSOCIATES**

**Yost:** You moved from technical writing to become a programmer at Sanders Associates?

**Rubinstein:** That's right.

**Yost:** Can you tell me about that transition?

**Rubinstein:** After I finished that computer course, I came into work one day and I saw a book on the desk of a fellow that I knew, an engineer there at Sanders. It was Programming the IBM 1620 Computer by Clarence B. Germaine. "What are you doing with that book?" I said. He replied, "We have a request to be able to attach some of our equipment that we've made for the military to this computer." I said, "Let me help you; I really want to get into computers." He said, "I know you took one course in computers, but what do you know about this one?" I said, "That's the particular one I learned how to use."

So that really began a long series of very happy coincidences, where I participated in a proposal for Sanders Associates that was submitted to the Naval Applied Science Laboratory in Brooklyn (this was the one that required 1620 programming knowledge). Sanders Associates got the award. Suddenly, I had to become a professional programmer, because they were paying me to do this! My first project was operating two displays: a character display and a video display. Using RAM refresh, I organized the character display into four separate windows which didn't overlap but were all visible at the same time. They were updated from RAM as long as I kept refreshing the display

often enough. The display used a delay-line memory and all you had to do was get back to it every so often.

So I sprinkled refresh statements throughout my program to keep the different windows of the screen updated. This was the first program I developed. I didn't think of it as something difficult or special. To me, it was basically fun, just fun, and I loved it. I was thrilled with the experience.

I came into my office one morning shortly after I finished that project and was greeted by three of Sanders' top engineers. My immediate response was concern that I had done something wrong. But instead the engineers told me about a problem that Sanders Associates was having with a military defense project. Some of the machines they made could detect enemy radar and create false targets. The Navy wanted a way to test the machines and repair them, if they could, while at sea. And there was a very brilliant engineer at Sanders who had designed a rack full of equipment with signal generators and oscilloscopes and paper tape readers and all kinds of other equipment.

It also had a special jig that allowed you to take any one of the thirteen different printed circuit boards and put them into the jig and it would clamp down and touch the board on all the different contact points. Then, using the paper tape reader, you could turn on various signals and turn on various measuring devices that would step each printed circuit board through whatever it had to go through to test it out.

A Sanders technician started to prepare the thirteen different test programs that would be punched into the paper tape. After three weeks, the Sanders engineers extrapolated that the project was going to take them two years to finish, but they had just three months to deliver it! So they asked me to help them to avoid paying significant penalties. That was the problem they presented me with.

I looked at it and I said, "Well, you're going to have to teach me what the technician knows so I can understand how to program the tester. It turned out that each one of the boards had a collection of diagrams called truth tables. The truth tables had all the electronic gates identified, specifying which values were high and which were low. I designed and built a truth table compiler in FORTRAN. I was stumped on array inversion while working on the problem. Fortunately, Don Land, a colleague and a most brilliant doctoral candidate in theoretical chemistry, who himself was creating one of the first CAD/CAM programs for component layout on printed circuit boards, came to my rescue. He said, "Oh, you just use inner DO loops! Wow, what a revelation! I then was able to complete the program in about six weeks only using desk checking because we had no computer to test it on at our Plainview, NY offices.

Then, finally, I felt it was ready and I went up to Nashua [New Hampshire] where we had a section of keypunch ladies. Each one took 2,000 cards, a box of cards, which is like a day's work, and they keypunched up the 13 different models of the machine that they had. I went to the IBM System/360 computer they had just received; it was such an early version that it used TOS. Not DOS but TOS because it didn't have any disk drives on it, but they did have a FORTRAN compiler.

I compiled the program, threw the 26,000 cards into the punched card reader and a half hour later we completed two man-years worth of work. I became a hero - it was unreal! They held a ticker tape

party when I came back to Plainview; they gave me stock in the company and they offered to double my salary to move from where I was working to their office in Nashua and become part of their elite system programming group. It was an opportunity I couldn't turn down.

**Yost:** Do you remember what year that was?

**Rubinstein:** Yes, I certainly do. That was in 1966. I was living with the woman whom I subsequently married. I left her in New York, and I would visit her almost every weekend, although sometimes she came up my way and I married her a year later. We then bought a house and lived in New Hampshire.

**Yost:** How long were you in that position?

**Rubinstein:** At the time, Sanders had decided to get into the commercial end of things rather than only concentrating on military defense. So they made a terminal with a monitor and a keyboard. But it also had some very special qualities, one of which was that it had something called a delay line memory. [The delay line memory would be interpreted by the hardware screen drivers. It could understand various kinds of control characters in addition to the regular characters, and one of those control characters, for example, was the Home character. The Home character would allow you to actually create overlapping screens so you could actually come back and retrace where you were before, and even make some characters brighter because they were in the same position but they got hit again. Then you could also create fields, so you could have one set of text characters and then come back to the Home character and then they would have fill-in boxes. The cursor could be directed to only go to the fill-in boxes and leave the form intact.]

I wrote some special software to support this capability which made it into a key-to-disk system where you could hook up the terminal, have a form on the screen and then get prompted through the different fields. But the big thing they really wanted to do was to hook it up to an IBM computer, because they wanted to compete in that commercial marketplace, and the predominant terminal at the time was the IBM 2260, which was the last of the vacuum tube CRT displays.

It was in that capacity that I got sent to San Francisco -- my first time to the West Coast. I thought it was paradise! No cold weather! [I drove the streets of Palo Alto and saw the communities there and they were so spectacular and bright and beautiful compared to the drab northeast where I was living.] As it turned out, a few months later I was sent out there for a three month assignment in 1967, along with my wife and child, because the City and County of San Francisco had purchased an enormous number of these Sanders terminals. Sanders had a fellow named Merle Voth who made a piece of hardware that was supposed to allow a direct connection to an IBM channel using Sanders terminals, but the company needed me to help connect those. I don't remember if it was the Selector Channel or the Multiplexor Channel. But it made it possible to have a direct connection to the channel using Sanders terminals.

I had always successfully connected Sanders terminals through a telephone line, but in San Francisco, they wanted a high speed connection. Of course, when I wrote my programs I used IBM's operating systems and the problem was that they wanted me to somehow control what the operating

systems did. I remember they brought out a piece of hardware and hooked it up to the IBM computer. That action brought the computer to a dead stop with red lights on all over it. We couldn't get around the operating systems. [The operator said, "You executed a halt command!" I said, "No, I didn't." He said, "Well, that only happens when there's a halt command executed and if you didn't do it, who did?" I said, "The operating system; I have no control over that!"]

At any rate, Sanders failed to make direct connection hardware, but the customers did buy the terminals and they were hooked up through modem connections. But still, it was an experience where I saw San Francisco and I resolved to find a way to come back to the Bay Area. I didn't have any idea at the time of how that would happen, but it eventually did.

## **CONSULTING WORK**

I left Sanders in 1970 and worked in Waltham, MA at a time-sharing company, but that really didn't work out too well. I became a consultant and did some work for National Shawmut Bank in Boston. Afterwards, I got a call from a Sanders salesperson who was doing business with the Southwestern States Bank Card Association in Dallas, Texas. So I drove out there and did a study for them on converting from DOS to OS. When I finished that project, I realized that I could have some sort of a career as a consultant.

I called up William H. (Bill) Millard, the fellow whom I'd met when I was in San Francisco, who then was the Director of Data Processing for the City and County of San Francisco, and he offered me a job to come to San Francisco. So in early July of 1971, I went to San Francisco. [I left my family back in New Hampshire. They came and visited me now and then, but still it took a year before we finally sold the house back in Merrimack, NH and moved to San Rafael, CA which is just north of San Francisco.]

That consulting job didn't work out but I then wound up with a consulting assignment from a law firm in San Francisco (Bancroft, Avery and McAllister) and I put together a law office management system based upon a Varian minicomputer -- all written in FORTRAN. During the assignment, I got pretty close to this minicomputer and I realized that it had some versatility beyond what it was being used for. And since I was so familiar with the IBM environment, I looked for various combinations and I found one where I could make the Varian minicomputer look like an IBM controller to drive terminals and at the same time look to an IBM computer like one of those IBM controllers.

At this time I joined with Dennis Doherty to form ProData International Corporation which marketed this use of the Varian minicomputers. It turned out that this idea really caught on, and I sold several million dollars worth of these systems. Varian caught wind of this technology and they loved it, so they came and purchased the division of the company where I was doing this work. Subsequently, I went to work for Varian for a year in a transfer of technology agreement. One of my assignments took me and my family to Switzerland, where I was part of a team that put in a branch banking system for Credit Suisse based upon the technology that I had developed.

## **IMSAI**



In January, 1977, when I came back to the West Coast, I saw that a new store had opened up in San Rafael called the Byte Shop of San Rafael. After a few visits there, I wound up buying an IMSAI 8080 computer kit. I still remembered how to put together electronic stuff, so I used my soldering iron and a week later had a box that wasn't much bigger than an amplifier with some very pretty red and blue switches in front. I said, "Gee, this almost looks like a computer!"

I purchased an Anderson & Jacobson teletype terminal. It had a keyboard, a printer and a paper tape reader and punch. It was a great device because it had all of these capabilities built in. I hooked it up to the IMSAI machine I had just built and I said, "Gee, it's really beginning to look a lot like a computer." So I decided to write a program in assembly language that would emulate the complex IBM Edit instruction. [What it could do was it could take a mask and put it into RAM and then you could pick a BCD [Binary Coded Decimal] number and point one to the other and then it would transform the BCD number into a printable format for your printer. It would not only have the numbers, but it would also have punctuation marks like comma, decimal point, multiple commas, dollar signs and even a credit symbol at the back end of it. It was very sophisticated instruction.]

And I wrote a routine that would emulate that instruction perfectly. I tested it and it worked! I said, "My God, it is a computer!" My experience in computers had been working with huge machines in very cold rooms, except for the minicomputers, but even then we had special rooms for them too. And here's this little thing, and it was a computer!

I had to find out more about IMSAI, the company that made the computer kit. It turned out that the same guy, Bill Millard, who I met originally in San Francisco and who had hired me to come work in San Francisco owned this company! I went to work for him and I became the director of marketing. And in the year and a half that I was there, the company's revenues tripled from a half million to 1.5 million dollars a month.

We did a number of very innovative things there. One thing we made was an all-in-one machine which had video, a keyboard, a hard disk drive and all the electronics in one cabinet. We called it the VDP-80. It was very advanced for the time, but unfortunately, manufacturing control was dismal and many of the units were DOA. But it was a great concept.

I also put together the first contract for unrestricted distribution of CP/M from Digital Research, and as a consequence became well acquainted with Gary Kildall, Gordon Eubanks and a lot of the people who worked there. I had some very interesting negotiations with Gary Kildall about licensing CP/M. I approached him and asked to buy a one-time license for unlimited distribution rights to CP/M. He agreed to sell it to IMSAI for \$25,000. I could barely contain myself because that was so cheap as to be ridiculous. I mean, IMSAI was initially paying him \$50 a copy and my predecessor had reduced that amount to \$25 a copy. At \$25 a copy, all you had to do was to ship 1,000 machines and the license fee was covered. Shipping 1,000 machines was easy; we did that in a few months or less! So, it was a silly price. Gary never asked about the potential market; that was not an issue with him. He just knew that he wanted \$25,000. I couldn't contain myself.

I also got to meet Bill Gates and Paul Allen. They came to me with a FORTRAN compiler and assembler and a linkage editor. I looked at it and said, "Well, this is fine, except that I don't like the

linkage editor because it's too primitive. I want one that does overlays.” I told them about the idea and gave them the specifications and they agreed to it. But they never delivered that linkage editor. They were simply paying penalties on it. In addition, I supported Gordon Eubanks; I gave him a computing system at no charge while giving him full technical support services. As a consequence, IMSAI wound up with an unrestricted distribution license for Gordon’s C-BASIC.

## **STARTING MICROPRO**

Anyway, I worked at IMSAI for a year and a half and then in May, 1978 I had a strategic argument with Bill Millard and I left. Rob Barnaby had left IMSAI two weeks before I did and as I left with my little bag of personal goodies I called him up and I drove to his house. I suggested that we work together developing software products; he would do the code while I focused on the design and marketing and we quickly reached an agreement.

In the meantime, in June of 1978, I filed a fictitious business name statement in the name of MicroPro International Corporation. I called it MicroPro because my intention was to build PROfessional software for the MICRORcomputer. I had enough experience with existing hardware to see that one could have quite a capable machine; what it really lacked was software.

So, for MicroPro, we initially put together two programs: WordMaster and SuperSort. WordMaster, in a sense, emulated something that Barnaby had developed while at IMSAI. CP/M had a command line editor in it. Barnaby had a way of modifying the command line editor and showing you on the screen approximately what the text would look like. It was only approximate because it couldn't show things like page breaks and stuff like that. It just showed the text, so it looked like a typed paper on the screen. Another problem with the program was that it only ran on IMSAI's version of the CP/M operating system and it didn't work on any other computer.

Also, it was missing a lot of features. So I said, “I don't want to know if you have the source code of Ned (which is what we called the IMSAI version of this new editor). If you do, I want you to throw it away. Start from total scratch. Whatever's in your head belongs to you. Whatever you did for them -- that source code – that belongs to them. Start from scratch and write a new program that does a lot of similar things but has all the added improvements we’ve specified.” And I told him all the improvements I wanted, which were quite a few. And in addition to that, we made WordMaster run on standard CP/M so we could sell it to the customers of different microcomputer manufacturers.

**Yost:** Was this still just a two person operation at that time?

**Rubinstein:** It was just the two of us, yes. SuperSort was an entirely new program, but it basically emulated a lot of the things that the fancy sort/merge programs did on the IBM/360. Those two programs were ready to be sold in September of 1978.

So, in any case, I launched the company in September of 1978 by sending a form letter which I wrote using my own program (an early version of MailMerge with TEX) and I was using a printer made by Teletype. It was a fast printer, actually pretty good for its time, but it was very heavy. I mailed out over 300 letters to the customers I knew from IMSAI, telling them that I was launching a

software company and offered them a 50% discount on all of our products. And I also went to one of our distributors who was exhibiting at the PC-Expo show in New York at the Coliseum, Ralph Ianuzzi.

Anyhow, I shared the booth with this company and sold several thousand dollars worth of software to dealers right at that show. I was so encouraged by that, that I contacted my buddy from IMSAI, Fred Pood, who was still working as a salesman for IMSAI, and brought him on as a commission-only sales person in October. I did \$10,700 worth of software sales myself in September. In October, it was over \$14,000, but of course Fred was helping.

Then, I hired a fellow out of high school who sat at a CP/M computer copying disks. This was our manufacturing operation. We packaged the software in baggies, and we had a paper that we folded over the seal and stapled it and it had a hole in it so you could put it on a peg, and that was our original packaging. We retained that same kind of packaging for the initial release of WordStar as well.

We launched the company in 1978 with WordMaster and SuperSort, and a month later I was approached by a fellow with a program called TexWriter, which allowed for the recognition of commands that were embedded in text to allow you to do print formatting. And we sold that program as well. The dealers all came back to us and said that they liked our products, but they wanted a program that had integrated printing. So we started to work on that. We worked on it like crazy. In fact, by April of 1979, Barnaby had put together the alpha version of WordStar. The program had a little over 137,000 lines of code, tightly written in Assembler. Using IBM's manpower estimation techniques, that was equivalent to 42 man-years worth of programming and Barnaby did it by himself in six months.

## **INTRODUCING WORDSTAR**

**Yost:** Had Fox come on by this time?

**Rubinstein:** No, not Jim Fox. This was all Barnaby. I did some stuff but coding was all Barnaby. And between me and Pood selling it, we were starting to really become quite self-supporting. In the meantime, when I left IMSAI, I had \$8,500 in the bank. I gave \$2,500 of it to Barnaby and I kept the rest. I got rid of all my credit cards and only kept one: a blue, lowest level, VISA card. I kept that one, and I lived a very frugal existence. I took no salary for nine months, and after that I took just \$1,000 a month. I just took very, very small amounts of money.

The revenue of the company for the first month was \$10,700; the second month it was \$14,000. By November, our third month, we did \$24,000 worth of business, but then December hit and I found out that December was a terrible month; we only did \$7,500. That nose dive nearly caused us to panic, but our revenue bounced back with \$12,000 in January and by April of the following year, 1979, we were doing over \$30,000 a month; and I took space at the West Coast Computer Faire in San Francisco in Bryant Hall. At the Faire, I showed an early version of WordStar, which was by no means finished and certainly not deliverable, but it was definitely demonstrable. {I remember Adam Osborne visiting our display booth and remarking that he thought we would be very successful.]

One thing I have to give Barnaby credit for – well, a lot of things – but one thing was that he was totally scrupulous about was testing the code like crazy; he tested the bejeepers out of the code. We actually all took turns. I showed him bugs and he found bugs and so on. We were able to ship an essentially bug-free version of the product by June 1979. And then the jet took off!

**Yost:** Were you advertising this?

**Rubinstein:** Yes, I took out an ad in Interface Age magazine, and splashed right across the top in bold red letters was: “WHAT YOU SEE IS WHAT YOU GET,” and by gosh, that’s what WordStar could do. All previous word processing programs required the user to print out the copy to see what it was going to look like, since the version on the screen did not accurately show how the printed version would look. Of course, that ad gave rise to the descriptive term, WYSIWYG.

Well, I have to tell you how the spec was developed. Once we decided to do a program with integrated printing, then I did some research on what the word processors of the day were doing. I purchased the DataPro report on word processing. There, beautifully tabulated, were all the features that they had from all the manufacturers. And I looked at it and said, “This is the beginning of our spec because we are going to do all those things, but I’ve got a few more ideas.”

So, we did a bunch of things in addition to all that. For example, WordStar was the first program that could show on-screen where the page breaks would fall. WordStar was the first program that had integrated on-line help capability. In fact, it was even sensitive to key strokes. So if there was a command that used a double keystroke and you hesitated, WordStar pulled up the second screen of help. Otherwise, if you were fast, you didn't see that. You could even shut off the help screens entirely and just type because you knew it. But that was very advanced for the time.

**Yost:** Was word wrap a part of this?

**Rubinstein:** Oh, word wrap was built into it, too. In fact, you could set margins. When the cursor reached the margin, it had hyphenation plus automatic wrap around. Then, at print time, justified copy would be the default, so that the right margin and the left margin were kept consistent; and you could turn justification off if you wanted to. But these first versions used monotype, not proportional type. But still, it was quite an advance over what was generally available to users; formerly, you had to pay \$15,000 for an IBM, Wydek or Wang word processing machine, and you still didn't get to see what the text looked like until you printed it. And if you made a few mistakes along the way, of course you had to print it a few more times while you fiddled around with the text. That wasn't necessary with WordStar. You could really see what the finished product would look like on the screen before you printed it. I think that WordStar was the reason why the Intel platform took off, because it provided a reason for a non-technical someone coming into a computer store to buy a machine that could use the software...because it came with something that made the computer functional and useful immediately.

## **INITIAL GROWTH OF WORDSTAR**

For the fiscal year ending August 31, 1979, the company's revenues were just shy of \$500,000. Not bad for a startup with absolutely no outside money whatsoever and with less than a full year of selling WordStar. The following year, revenue was up to \$1.8 million -- a very sizable jump and more than three times the first year's income. The following year it was \$5.2 million -- again almost tripling. Then in 1981 I took in a venture capitalist named Fred Adler and we put in a sales force which dramatically altered the company. In that year we went from \$5.2 million to nearly \$25 million. That wasn't simply tripling revenues-- it was almost quintupling! However, we lost money (\$1M) that year for the first and only time under my administration. We brought in a great many new people to support the company's growth and as far as I'm concerned, it's impossible to bring in that many people without creating a certain amount of chaos. But we were finally able to manage the process, and the next year we did almost \$45 million in sales and were very profitable again.

Our sales force was over 150 people by 1981, with field sales offices in most of the major cities in the U.S. Using my previous European experience in Switzerland, I established a headquarters in Zug near Zurich because it had special tax advantages: the corporate tax there was only 10%. The way things worked at the time, it didn't matter where else in Europe you sold your product, the money you made was only taxed based upon where the company had its headquarters.

We also had staff offices in Germany, the U.K. and France as well as in other European countries. We opened up an office in Tokyo, and for a while I would travel to Japan every two or three weeks. WordStar was translated into 42 different languages, after I personally did our first translation into French (although I don't speak the language). We got our French distributor in 1980 and I remember typing in the Help menu in French. I told them what the English was and I would then type it in French based on what they told me. And I had to get used to a French keyboard [AZERTY] instead of a QWERTY keyboard.

### **FOLLOW-ON DEVELOPMENT WITH BARNABY**

**Yost:** Did Barnaby continue to do the development work?

**Rubinstein:** Well, what happened with Barnaby was that after he got the first release out, I wanted to get another release which had MailMerge in it. By the way, Microsoft adopted that term, but I invented it. I have a trademark on it, but I never filed the trademark. But I used to put it down with a little <sup>TM</sup> next to it, and they stole it. And if you ask Bill Gates about it, he'll own up to it.

Anyhow, we were producing the first version of MailMerge and Barnaby came to me one day and said, "I need some special arrangements so I can work more efficiently." I said, "What's that?" He said, "I need somebody to sit close to me who I can send on errands." I said, "What do you mean?" He said, "For example, if I need my pencil sharpened or I need another pad of paper or a sandwich or a coke... that way I can just concentrate on my work." I said, "I don't know what to call a job like that. Rob, there's nobody that I could tell to do that unless they were a slave, because people don't take jobs like that." He thought about that and he kind of stormed out of the room. I have to explain to you what Barnaby looked like when he was writing code. He would have a pad, he would take a pencil – always just wooden pencils – and he would sketch out how the code or the flow chart was going to look like. Then he would sit down at the computer and type his code. He was an

extraordinarily rapid typist. I mean, I've only seen one other typist like that in my life. He was so fast that he could burn out a Selectric typewriter. He could type 200 words a minute if you could imagine such a thing. Barnaby was like that. The keyboard just gave out a constant *zzzzzz* -- like that. And when he was sitting at the keyboard and typing like that, he would be looking at the screen and jutting out his jaw because he did that whenever he was frustrated. He would jut out his jaw and growl. It was a sight to see! But that was the way he worked because he just couldn't get it out of his brain and through his fingers into the keyboard fast enough to suit him. So he was racing because he didn't want to lose a thought, and God forbid if you should talk to him or interrupt him when he was doing that! Then of course all the balls would drop. He had all these balls he was juggling up in the air, because that's what you do when you program - you're keeping all these other things that you have to keep all in your head! He claimed he lost a half an hour if you interrupted him to ask him what time it was or something.

**Yost:** Did he have an office that separated him from the others?

**Rubinstein:** Oh yes, he was in a separate area all by himself and he had three giant folding tables that he was surrounded by. He had to sort of go under the table to get into the space, so that he could have papers all spread around. He would spin around in his chair. And, like I said, he did produce enough source code for that version, so here he was asking about this other stuff.

Anyway, we had a deadline. He hated deadlines. He had a thing about deadlines - it drove him crazy. He never liked to commit to saying I'll have it for you in a day or in a week or a month or a year. I was always trying to pin him down because you can't plan a business unless you have some idea what's going to happen. He never wanted to answer, but eventually I would pin him down and then he would be angry because he had to meet a deadline and other people were depending on him!

After we finished that little scene, he went back to his desk, and from what I understand, he broke the last pencil. He would always start off in the morning with a half dozen pencils in a little package. He would sharpen them all and sit down to work. So he broke his last pencil, and he got so angry that he picked up the Teletype printer that he had (it was one we gave him) -- and you know how heavy those things were. He picked it up and heaved it right through the sheet rock wall. And that wasn't enough! That didn't satisfy him. He got up and he stormed into Bruce Van Nata's office and put his fist right through the sheet rock. I don't know if his hand was broken or not, but certainly it was all bloody. He came into my office with Bruce Van Nata leading him, and Bruce said, "Listen, there's been a problem and I'm taking Rob to the hospital." In the meantime, many of the ladies in the office were screaming and hiding under their desks because they didn't know what this man would do next.

He came back in the next day and said, "Seymour, I can't code anymore." He showed me his hand and said, "I just can't code anymore. But, I'll be happy to answer questions." Well, Jim Fox had just joined the company at that point. So under the tutelage of Barnaby, Fox finished the MailMerge code and also under the tutelage of Barnaby, Bruce Van Nata finished some of the printer drivers that we had to finish. At any rate, the bandage came off a few weeks later, but Barnaby was still not coding. He was just simply coaching other people. About six weeks later, I said, "Rob, when are you

going to go back to work?" I never called him Barnaby; I called him Rob. I said, "Rob, when are you going back to work?" He said, "I'm not ready."

Three months went by. He was in the habit at Christmas time of going back to New England because he was a Harvard graduate, and his parents lived there and he would go back there and spend time with them. He said, "Maybe I'll be ready after my Christmas vacation. When he came back, I said, "Well, are you ready to go back to work?" "No," he said. So I said, "I'll tell you what. Take another month off, come back at the end of that month and tell me you're ready to go back to work and I'll believe you -- otherwise, don't come back."

**Yost:** Was he on the payroll at this time?

**Rubinstein:** He was on payroll, but when he came back and then took another month off, he wasn't on the payroll. But what I said to him was, "When you come back, assuming you simply tell me that you're ready to go back to work, I will pay all your back pay and I will reinstate your stock options." He said, "Well, how will you know I really mean it?" I said, "Because I have known you a long time. As far as I'm concerned, if you tell me you're ready to go back to work, I'll believe you."

This was around February. No, actually I gave him another shot because a month later I called him up: "You ready to go back to work?" "No." I said, "Okay, take another month." Then at the end of that second month -- it was now the end of February -- I asked him whether he was ready to come back to work and he said no. So I said, "Okay, have a good life."

So other than doing what he did in the beginning, he didn't really become part of the company again. However, about a year later, Epson came to us with a small transportable computer they had developed. It had an LCD screen and the ability to hook it up to a standard monitor. They wanted us to put a version of WordStar on it. I talked to my development staff, such as they were. I said, "How long will it take you to do it?" They told me six months. I said, "Six months? Barnaby put together this whole program all by himself in less than that, and now you're telling me just for an adaptation it's going to take you six months? No way." I called up Barnaby. "Rob? I've got an interesting project for you." He said, "What's that?" I told him what it was. He said, "The only way I'm ever going to work on that program again is if you pay me a lot of money!" I said, "Alright, how much do you want?" He said, "\$100 an hour." I said, "Done!" He came back, and in two weeks he had the conversion done. Two weeks!

I took a long time to answer your question, but there you are. He did a few things after that, but he never did anything special. It was the combination of my telling him what was good to do and my riding his ass that really made him productive in a way that turned out to be something great. On his own or with other people directing him, no.

**Yost:** He didn't achieve much outside?

**Rubinstein:** No. I mean, he had the talent, but he didn't have the direction. He didn't have the understanding of what to do. And I've come to understand that it's not what you do technically that matters -- it's how you sell it! That matters a lot! It may even count more!

**Yost:** You came out with a second version of WordStar and I understand it was copy protected and that led to some problems.

**Rubinstein:** That's not exactly correct. There was not a second version of WordStar; it was an entirely new program. I didn't come out with it; I didn't even want it. But before the company's public offering, I purchased a WordStar look-alike program that ran under UNIX because I thought it might be an interesting market to go into.

**Yost:** Who did you purchase it from?

**Rubinstein:** His name was De Yong. He actually came to me through Steve Rempel who was my managing director in Japan. For some reason the MicroPro staff decided to call it the Ivan project because that's my middle name. I didn't tell them to do that; I didn't want them to call it that, but that's what they called it. Anyhow, this very capable young guy took over that project and they decided to make it into a program that could not only work on UNIX, but could also work on PC DOS as well.

## **GOING PUBLIC**

I didn't have a Board of Directors when I started. It was just me for the first two and a half years. The whole process of having a formal board with a C Corporation and all the trappings that went with it began in the third year of the company's operation, when we also took in a venture capitalist. As it turns out, bringing in a VC was a great error.

**Yost:** From a managerial standpoint, did bringing in Adler as a venture capitalist change things?

**Rubinstein:** Not initially, but he bided his time waiting until he could make his move. I mean, I had an overwhelming majority of the shares, and I was running the company. I brought in some outside managers with a lot of professional managerial experience, but I was still running the company.

Everything changed on January 7, 1984. We were two months into writing a prospectus for a public offering, and I had a heart attack. My hospital room was filled with flowers, an outpouring from all the company's supporters worldwide. It was unreal. I received get well wishes from all over the world -- it was just incredible. And then the company attorneys came to me and said, "Listen, we think that in order for the company's public offering to go forward, you should not appear as a member of the management team." There I was in the intensive care unit, frightened to death, thinking I was going to die. And so I signed the papers they brought. I signed them while in the ICU.

What those papers did was that beginning with a successful public offering, I had to accept that my stock became non-voting except to be able to elect myself as a director -- one seat. The only title I had afterward was the non-management title of Chairman Emeritus. I had previously brought in H. Glen Haney as president of the company. When the company went public in March 1984, my wife



and I got over \$7.5 million. But Haney took over management and control of the company and over the next three or four months, he gradually eased me out of virtually everything.

**Yost:** What was his position previously?

**Rubinstein:** He was the president of the company and I was Chairman of the Board and CEO. Thus, I still ran the company as is the case in many companies. When he visited me in the hospital I said, "If I sign these papers, you'll get a lot more power than you have today, so the question is whether I can trust you." He said, "You can trust me with your life, Seymour." What choice did I have? I would have signed it anyway.

So, it was his decision. First of all he concocted the Ivan project and then the original WordStar was not advertised from the time I came out of the hospital for the next three years. Not one penny was spent advertising the program, even though it was clearly our biggest seller.

But the company went public in March. Haney took over management and control of the company. And over the next three or four months, he gradually eased me out of virtually everything until I saw that really what they were trying to do was to make me feel bad enough so I would just quit. It's a typical way to shove somebody out. Well, I wasn't going. I had a contract and I didn't care what they did -- I was going to be there and watch what they did.

### **DECLINE OF THE COMPANY**

I felt that what they did from that point on was a disaster. The company came out with a WordStar 2000 program which was based upon the Ivan Project code from another programmer that was totally incompatible with the earlier versions of WordStar. No commands were compatible, no file format was compatible -- nothing was compatible. The only relationship was the name WordStar. After that it was totally different. It was slow, it was a wretched program -- and just to give a funny little twist here, when they were getting ready to ship it, I said, "You mean you're going to ship this program without copy protection, after all the WordStars that have been copied?" So they did issue the program with copy protection, but it turned out that copy protection for programs then caused a major upheaval in the market, and it was later removed.

**Yost:** Moving back to the decision to take the company public, can you talk about that a little bit -- before you had the heart attack?

**Rubinstein:** For me, it was my first chance at money of consequence. But on the other hand, I wouldn't have done it had I been healthier. I mean, I started on the process, but I would not have given up control of my company. I would have had to be crazy to let Adler, who didn't know a thing technically, and who wanted to give it to people who didn't understand the market, who didn't understand the product? I would have had to be totally insane. I can have managers working for me so I can train them and teach them and what have you, but to just simply give up? That would be crazy.

**Yost:** Adler was a venture capitalist and had no technical background at all?

**Rubinstein:** No. But what he did know -- he knew corporate law. He was a lawyer by trade and he knew very well how to yank and pull the strings when the opportunity came up. And his specialty was to get rid of founders, as I found out later. Only in this case he threw out the baby with the bath water.

The company never recovered its former glory. Glen Haney, the CEO of the company, made some serious tactical errors. The company didn't advertise the original WordStar product for three years, even though it was providing the bulk of the company's revenue; and they stopped doing business with the over 1,500 loyal retailers we had. Instead they gave the business over to just a few distributors—Ingram, MicroD, and First Software, and there may have been one other one. It was a deliberate but disastrous decision. Previously, we were selling to everyone who could afford the price of entry, which was to buy a minimum number of copies and pass a certain set of tests that we had to separate legitimate dealerships from just quantity buyers. But our loyal dealers were cut off, so they had to buy from the big distributors. MicroPro just simply stopped doing business with everyone; even ComputerLand had to buy from the distributors. The justification the accounting office gave was that they couldn't handle so many individual orders. So, rather than dealing with the problem, they decided to cut back on the quantity of orders so they could funnel everything through the distributors. Unfortunately, this also reduced the gross margins on the sale of the products and even though they reduced the size of the sales force, revenues and profits declined. The company did \$72M revenue in the year that it went public and the revenue went down to a little over \$40M in the next year. That was an incredible mistake!

**Yost:** Were other products being advertised? Were they just marketing the wrong products?

**Rubinstein:** No. InfoStar accounted for nearly 15% of the company's revenue, which is not inconsequential, and he just got rid of it. He got rid of it. It was like he was trying to make a new company entirely so I didn't exist. It was totally insane and all it did was destroy the company. I mean, he really destroyed the company. He didn't just simply do things that were not so good -- he destroyed the company almost consciously. I mean, it seems impossible to make that many mistakes.

For example, we had these few distributors as I mentioned, and one of them was a company called First Software. They were kind of shaky financially. They had about a quarter of a million dollars monthly credit with the company, and they came to him saying, "If we had a lot more inventory, we could really move a lot of your stuff, but we need bigger credit to do that." At that time, software was still being sold immediately to the distributors rather than waiting for a customer to buy it and fill the channel before you ever got paid. It was still being sold, so we were allowed to book business as a sale on shipping the product. He upped their credit to \$2 million in one month. He shipped them pallet loads of product and booked the sale. So suddenly there was a quarter with a giant surge in sales. And the stock went up. And I went to a board meeting, and I remember this very well. I said, "I have something very important to report." They said, "Yes, yes, what do you want?" So I said, "We have a customer who was given an unreasonable amount of credit to book a sale and has now declared bankruptcy, and in the meantime this caused a significant rise in our stock. Adler turned

pale. Within two or three weeks all the management that was with Haney was gone, including him. But I understand that Adler got him another job afterwards.

**Yost:** What was the new management like?

**Rubinstein:** The new management made a lot more sense. The new leader understood what was going on. By this time, by the way, I was out of the company. My employment contract expired on April 1, 1986, and I was out of the company. So they brought in a new management team which made a lot more sense. Leon Williams, the new CEO, understood what was going on. When Leon Williams came into MicroPro, I had confidence that they were finally moving in a direction that seemed like they really wanted to run the company profitably again. MicroPro still had money in the bank -- quite a lot of money in the bank -- and certainly Leon Williams would not get compensation of any consequence unless he made the company successful.

Stan Reynolds, the head of engineering, had previously left the company and along with several other programmers took the WordStar source code. And using it, they developed a new program called NewWord that was based on the original WordStar source code. New Word resembled WordStar to such an extent that when I asked Barnaby to look at it to see if he could find what we called signatures, he was able to find them. So they had clearly copied sections of code in there. Williams purchased NewWord for \$2 million as an update, a true update, to the original WordStar. In a sense it wasn't a bad move because the company made that money back many times over. We had thousands and thousands of people asking for that update. So it was a good business decision. It was doing that sort of thing that convinced me that Leon Williams was genuinely trying to do something positive with the company.

In the meantime, I had purchased a controlling interest in Surpass, a company in Houston, Texas, which was building a spreadsheet program, and I brought the principals up to California. We were finished with the first version of Surpass in December 1987, which was shortly after the stock market crash of October 1987, and so the money I was expecting to get from the investors to launch that product didn't happen. Because of my respect for what Leon Williams was trying to do with MicroPro, I offered him Surpass. I said, "You don't have to give me cash. You can have the whole thing; just give me more stock in the company."

**Yost:** They didn't take it?

**Rubinstein:** No, they didn't think it would be an important program and decided not to take it. That's how I wound up selling Surpass to Philippe Kahn and his company, Borland. Borland called the product QuattroPro. Philippe spent \$8 million promoting it, and it got off to a great start; Borland stock went from \$7 a share to over \$90 a share. He cashed out and he made a bundle.

Leon Williams was the CEO at MicroPro at the time, and he said he was getting a lot of pressure from Adler not to do a deal with me. He said, "But the problem is that I just didn't think it would be that important a program." I said, "You are a schmuck!"

**Yost:** So in offering the program to MicroPro, you had confidence that the new management was moving in the right direction for MicroPro?

**Rubinstein:** Well, they were moving in a direction that seemed like they really wanted to run the company profitably again. By then, WordPerfect was the principal competitor to WordStar in the 1980s. Initially, the MicroPro staff was green and inexperienced in customer service, marketing and development and the early retailers required heavy customer support. MicroPro came up with discount incentives to get retailers to train their staff to support WordStar. But, as the retail businesses grew they added untrained staff and the burden of support fell back on the publisher. WordPerfect staffed up to do this customer support, but MicroPro had trouble keeping pace.

Later at MicroPro, a third management team came in to run the company. I requested – and was given – a consulting position. Fred was upset at the fact that Gari Grimm did, but she did. And I offered her a lot of advice. And then I was even invited to participate with the rest of management at a conference in Barcelona. They had a guy in there whose name I don't remember who was head of sales. For the first time they realized that an intrinsic part of WordStar's design was to appeal to a touch typist, since the whole keyboard was designed around the fact that all the commands were executable by a touch on the control key. That was a deliberate design parameter, one that has never been duplicated except when it was copied. WordStar even came out with packaging and advertising that showed a hand saying, “The ideal touch typist tool.” This was six years from the time I had been out of the management. Finally, MicroPro “GOT” what the program was able to do because I told them!

**Yost:** Without Adler, how do you think things would have turned out?

**Rubinstein:** In the early 1980's WordStar had a franchise [it had over 70% market share]. The program was unique in its use because it was an extremely efficient tool for a touch typist and people loved it! We certainly could have done every bit as well as WordPerfect ever did and more. I mean, I had the concept of a front office type of suite of products at the outset. It was called Starburst, and it contained CalcStar, InfoStar and WordStar: the spreadsheet, the database and the word processor.

**Yost:** And Adler opposed it?

**Rubinstein:** Of course. He opposed anything and everything that I created.

## **LAWSUITS**

**Yost:** Bill Millard sued unsuccessfully in 1990. Can you speak about that?

**Rubinstein:** That's kind of a cute little sideline story. As I mentioned to you, WordMaster came from a basic idea that Barnaby had when he made this program called New Editor or Ned. But the truth of the matter is that whatever is in your head is yours, unless of course it was patented or something, which in this case it wasn't. So Barnaby did whatever he did from his personal knowledge and memory, which is perfectly legal, when he wrote WordMaster. He had a very good

memory and it did resemble New Editor in many respects. That was the theory on which Bill Millard decided he would launch a lawsuit against me personally and against the company.

But there are several things here. One, of course, was his motivation. When he was running ComputerLand, he certainly knew about all these things, and not only did he not sue me, but he did over a half million dollars a month worth of business with WordStar. So he didn't mind, whatever he did. But there were two ex-employees, Bruce Van Nata and Joe Killian, who were working at IMSAI when I first joined and who subsequently came to work for me at MicroPro. As it turned out, Bill didn't really do right by those guys, because they were the ones who really worked their hearts out helping him make IMSAI successful. He was able to do a bunch of shenanigans, first when it was IMSAI and then when it became IMSAI Manufacturing Corp. He reincorporated, moved some money around and was able to finance ComputerLand, which he subsequently sold to the Pritzkers for over \$80 million. And Van Nata and Killian got nothing. They were supposed to have stock in IMSAI, and because money from that was used to launch ComputerLand, they should have had a piece of that. Instead they wound up with nothing because of his shenanigans. So they sued him. The problem with lawsuits is financing the lawsuit. And they really didn't have any money for financing a large lawsuit.

But they finally found some lawyers to do it on contingency basis. My wife, who is now my ex-wife, was very interested in these proceedings. She was friends with Mary, Bruce's wife at the time, and she would go to court to listen to the proceedings. And when Bill saw her there, he decided that somehow I was financing the lawsuit. And that's why he sued. That's the only reason why he sued - otherwise he didn't really give a crap. But, when they sued him, one of the things that they got as evidence was Bill's diary. And in his diary, he had written down a note, "NED, like WordStar, sue Rubinstein" but he had never acted on it. And that note was like five years old. When we saw that, we decided to file for summary judgment. By the way, I was no longer in charge of the company, but I had certain legal rights in having the company defend me. I hired my own lawyers that the company had to pay for, and they're the ones came across this evidence and together we decided to file for summary judgment which is unusual in these cases, but the burden of producing evidence on discovery for Millard would have been hollow and he knew it. He was just trying to get even. But when the case came up before the judge and the judge saw this diary entry, he decided that Millard knew about the alleged infringement and theft of trade secrets long enough so that the statute of limitations had expired. So it was dismissed, just thrown out of court. We never had to produce any evidence. It was over, finished.

**Yost:** Was that five years?

**Rubinstein:** I think it was a three-year statute of limitations.

**Yost:** In 1995, you founded Prompt software to investigate document management, Internet research and patent discovery. Can you discuss this venture a little bit?

**Rubinstein:** Oh, yes, but that might take us into more time than we've got. It's already 1:00 PM-- I have to go. Tell you what - I'll be happy to have additional conversations with you on this and any other subject, including this one, which I think is important because this is actually technology that

you can use in what you're doing. You can organize incredible amounts of text in a very interesting way. So let's create a liaison here and talk about this later.

**Yost:** It's been a pleasure and thank you for your time.

**Rubinstein:** Sure. You're welcome.

**[The interview ended at this point; however, Seymour Rubinstein provided additional information in response to certain questions posed to him and the remainder of the transcript is his responses to those questions.]**

### **WHAT HAPPENED TO MICROPRO AFTERWARD?**

Ronald Posner was the last CEO at MicroPro. He had previously worked at Ashton-Tate and Norton Utilities. But he couldn't salvage the product line or introduce successful new products. So, unfortunately, this better understanding of the special nature of WordStar's positioning was too late to make WordStar competitive with WordPerfect or to make MicroPro profitable again. The new management team did not have sufficient software business experience and misread what was happening in the marketplace with Microsoft's successful release of Windows 3.0. They continued to spend heavily on the MS/DOS product line and so were late with WordStar for Windows which wasn't delivered until 1992. While the new product was a top-flight offering including PageMaker-like capabilities and newspaper layout functions, MicroPro no longer had the cash available to effectively market it in competition with Microsoft's Windows-based Word product. There also continued to be weak technical coordination and direction on improving Word 2000 or the New Word product. It was a dying product line and a dying company.

MicroPro was then purchased by a company which sold software through low-priced retail outlets, which was then acquired by The Learning Company. Later, Corel was licensed to sell WordStar, but Corel also acquired WordPerfect and focused on selling WordPerfect rather than WordStar. WordStar is still supported through independent user groups including the WordStar User's Group. It proves the axiom that good programs never die, but continue to be used.

### **WHAT WAS THE SIGNIFICANCE OF WORDSTAR?**

In my opinion, WordStar was the reason why the Intel platform took off, because it provided a reason for someone to buy a machine that could use WordStar; it came with something that made the computer functional and useful immediately.

I've been at various conferences and I've seen all the credit that VisiCalc gets and I'm not trying to take anything away from VisiCalc; it was extremely innovative. But I take exception to the view that VisiCalc was the program that launched the computer software industry. I think it was WordStar. For sure WordStar launched the Intel platform which has certainly become fantastically more popular than the Apple platform. And in fact, it wasn't until Lotus that there was a good spreadsheet

available for the Intel platform, but I can tell you that by then WordStar was absolutely dominant and we were selling many millions and millions of dollars worth of WordStar way before Lotus appeared on the scene. So while VisiCalc was there, it was selling in very modest quantities and certainly did not have the impact on the market at that time that WordStar did.

So I'm seeing this as a great misconception. A lot of people have been misled into not understanding what actually happened. In my mind, not that I'm trying to grab credit or anything, I honestly think that WordStar deserves the credit for launching the Intel platform and for absolutely justifying the purchase of a personal computer. They didn't call them personal computers, but a CP/M computer, certainly. CP/M was also dominant. It became dominant and remained dominant for a time. Apple is not considered a business machine today, and the spreadsheet certainly is a business application.

### **WHAT DID I DO AFTER MICROPRO?**

When I left MicroPro, I was able to negotiate a separation agreement which provided me with life-time medical insurance coverage and the right to keep and use whatever I had been working on without a non-compete with MicroPro. I started a new company called Prompt Software, hired two people to work for me and developed new technology for a personal information manager. The principal idea was to organize the file documents by the content, not relying on chronological or document title as the key means of recovery. From this work I obtained 4 patents on document organization and retrieval. This approach was combined with an idea from Ray Mussato's company in Texas which produced software to prepare automated abstracts through syntactical analysis, selecting key words and key phrases.

One of the employees at Prompt was multi-lingual (English, French and Arabic) and observed that long words have far more discriminatory information content than short words. So Prompt built a program to combine the selection process using syntactical analysis with the long word location model to enable users to find relevant documents more effectively and efficiently. But the lack of money prevented Prompt from packaging and marketing this program.

In the early 1990s I met Victor Shear who had a company marketing a digital rights management program and service. The company was later called InterTrust. I invested \$250,000 in the company and was actively involved including serving on the board of directors. The company obtained some other new investors who pushed to have the company go public even though the revenues were quite low. InterTrust had an IPO in November 1999 and the stock sold at \$15.00 per share. I left the company just after the IPO. By April 2000 the shares were up to almost \$100 per share. I used the stock as collateral against a large loan, but then the dot com bust occurred and the stock dropped to \$1 per share and I lost all of my holdings. Meanwhile the company had expanded, had brought in new outside management and was progressing in spite of the stock debacle. But Microsoft announced a directly competitive product and InterTrust sued them. Eventually the company was sold to a consortium formed by SONY and Phillips which paid \$420 million for the product and the lawsuit. A few years later, the consortium sold a non-exclusive license to Microsoft for the product for \$420 million which settled the lawsuit while retaining the right to use the product itself or license the product to other companies.

Currently, I continue to work part-time on iPrompt Solutions, the marketing name for the document organizing products, and have produced websleuth and supersleuth which embody this technology. I am still looking for the financing needed to successfully market these products while I also continue to do some consulting work.