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History of Microdata and Pick

Historical...

Well, there's quite a bit of historical (and hysterical) information behind Microdata, McDonnell Douglas ISG, and Novadyne. On this page you'll find essays, stories, and anecdotal information that is sure to take you right back to the "good ole days". Enjoy!



Historical information on Microdata and Reality (Northgate) also available on Wikipedia.
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A Brief History of REALITY™
Microdata REALITY™ Marketing Brochure
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PICK Operating System - Implementation History

If you have an interesting story or essay you'd like to share, please e-mail it to: info@microdata-alumni.org

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History of Early Stages of Microdata Corporation

by E. Maxwell Malone

This history is written from the vantage point of the author. There are many other persons and events which went into the formation of this company and if they are overlooked or omitted, it is because of faulty memory banks due to old age.

The story begins in the fall of 1967 when a division of Control Data Corporation (Control Systems) in La

Anaheim) and further linked to a CDC supercomputer (6400). This system was to process all of the flight test data for the newest Navy fighter (F-14) and other military projects Grumman was involved in.

This consultant's name was Fred Cox. I met Fred in La Jolla since I was the department manager for the software group responsible for the programming of the system. Fred was a hardware system designer and it was there that we first made contact. Over many lunches, where the details of the system were discussed, we became friends as well as fellow workers. Fred proposed that we form a consulting company with two other people, Ken Allen and Alan Shapiro. We decided to form the company known as System Design Associates. Shapiro was completing a doctorate in EE at UCLA where he had designed a micro programmed computer as his dissertation. The four of us formed SDA.

Shortly after SDA was formed, we obtained a very large contract with CDC to perform many of the design and implementation tasks for the Grumman system. Eventually there were 20 or so consultants from SDA working on the system in California, Minnesota and Long Island. The arrangement was that half of the fees charged by the SDA people went back to the company to fund other people working on the micro programmed computer designed by Shapiro. Many computer specialists were hired at that time including Jim Lizzio, Bob Lowery, George Wells, Bill Roberts, Julian Sanchez, Bob Oakley, John Shon, Ray Ball, Tom Mulder, Dick Vahlstrom, Bruce Kirsten, Rocky Lambert, Erwin Warshawsky, Phil (forgot his last name), and a host of others. The general idea was to provide funding for the development of the computer through consulting activities. It worked. During the year 1968, SDA worked on the Grumman system, designed and implemented the first circuit testing system for Computer Automation (Cox design, Malone finished the system) and produced the first circuit test system for Microdata (Shon and Malone). Additionally, a French company, Intertechnique, licensed all of the technology to use in Europe. That particular license agreement came just in the nick of time (the fall of 1968) and provided badly needed funding for the computer project.

Circa 1970, Microdata obtained contracts to supply a new startup business computer company with all of the CPU's they would need. That company was Basic 4. For several years B-4, Cincinnati Milicron and others bought hardware from Microdata. This was not profitable business. Nevertheless, the company went public in 1971 and promptly lost 80% of its market value in the first year.

Don Fuller

Don Fuller, in 1970, was president of Omnus Computer Company. Al Shapiro had formed that company shortly following the initial stages of System Design Associates. He had further ideas regarding the development of computer systems and wanted to pursue those ideas independently and therefore severed his ties with SDA. A year or so later, he and Fred Cox decided to merge their respective companies and work together again. During the negotiation, the two sides could only agree that Don Fuller should come over to Microdata and assume the duties of CEO and replace Fred Cox. Cox would still remain on the Board of Directors. And so it was. Shapiro stayed with his Omnus Computer Company and Fuller (who brought along with him George Olenik and others) took over the reins of Microdata. Fuller was receptive to the ideas involved in developing software systems to directly compete with the existing customer base. This became crucial as will be seen shortly.

The Pick Years

first heard of a new computer architecture designed by a team of Don
in had gone on to other things, but Pick had hired Sha
ing this architecture. The general idea was to enable sol
architecture to operate on a minicomputer rather than a mainframe computer. This software architecture
was developed by TRW for the Cheyenne helicopter project in the 1960's and was in the public domain.

I first experienced the power of the new architecture at a demonstration at UCI computer center on a Sigma 7 mainframe. Pick and I crawled into the center on our bellies, turned on the Sigma 7, and did some things with the system. I was mightily impressed. The VP of marketing at the time, Ham Hawkins, was convinced to approve a \$50,000 contract to Pick to convert the initial system to a Microdata microprogramming system and later to the 1600.

At roughly the same time, I was involved in a competition with Lockheed Electronic Systems for a contract with National Inventory Control Systems located in Portland, OR to supply NICS with CPU systems. Microdata was proposing the 800 series of machines using a micro program set known as the 821. Following our acquisition of the rights to the Pick program, I substituted in our proposal to NICS the Pick system. Dave Jolly of NICS accepted our ideas and began programming his application software in the new architecture during which time the micro programs, a new version of Data Basic and many other software projects had to go forward in parallel. Two systems were delivered in December of 1973, one to NICS (now a division of ADP) and one to Contempo Casuals (a woman's clothing chain for inventory control).

Cliff Myers, Phil Mahru, Tom Ells, Art Shahan and many other Microdata employees participated in the first series of computer systems along with Chandru Murthi, Pick, Rick Davies, John Bohner, Mark Keeler, Mark Whittlesey, John Treankler, Ken Sims, Annette Jam, Sherry Elrod and others at Pick Systems to deliver those first systems in late 1973. John Keough was brought in from B-4 to put together a dealer network to sell the new systems for Microdata. One of his first acquisitions was Ted Saberisse in New Jersey, Jack Higgins in Chicago, Judd Van der Vort on the East Coast, Wally Haugart in Seattle, and others. This network began to sell many complete systems and Microdata stock began to move up in the middle '70s.

Bill Walsh, a Microdata employee, started the Denver dealership while Rod Burns; another Microdata employee (both of them had come over from CDC earlier) started the Phoenix dealership. Eventually Burns sold his dealership to the Seattle dealer and moved up to Seattle to start another Pick emulation company with John Drumheller. This company produced a Pick system for Prime Computer Corporation, sold the rights to the system to Prime and they retired.

Sometime in the 1975-76 era, another CDC refugee came to take over as VP of Sales. His name is Ron Murray. He reported to Phil Cleveland. By this time, sales of the system had surpassed \$60,000,000 annually--mostly to ADP, but other buyers as well. John Keough was the Southern California dealer and had Rich Lauer working for him. Sometime in the mid '70s, Tim Sullivan came to work for Microdata from the Chicago dealer. While visiting that dealership, I met a programmer there named Tim Holland. When I eventually left Microdata and became president of Pick Systems, I remembered how impressed I was with Holland and hired him to be chief programmer at Pick. Murthi had in the meantime gone on to other things in the San Francisco bay area.

Shortly following my departure from Microdata in 1977, Microdata sued Pick and I for theft of trade secrets. After an extensive period of discovery, I settled with Microdata on terms very favorable to myself while Pick continued fighting on for another year or so. The final result was that Interteknique licensed the Pick system from Pick and dropped the Microdata license, Pick established his ownership of the basic technology. Microdata sold itself to McDonnell Douglas and everyone went their separate ways. I

ronness. Some I remember with not so great fondness. One person who should be mentioned is Don Savitt. A great engineer and wonderful friend. He ran the engineering department for several years. Dick Vahlstrom was a terrific engineer. We remember Ken Sims for the kind and gentle person he was. Fred Barla, a super sales guy who was first in the door at NICS (later ADP) who always made me laugh. George Olenik who supported me on many occasions during all of the turbulent times in the '70s and Don Fuller who shared the vision. Who can forget Joan Clark, Joann Clark and Olenik's right-hand assistant, Sally Stevenson. Jim Fosberg kept us all on track with the numbers with his able assistant Amy Schmidt while Ray Lee took over for John Shon with distinction. Ernie Gauthier made many contributions in the field service area and kept systems alive in the field on all kinds of occasions. Ken Omahundra with Les Wellington who did the preliminary work on the 1600 (they later started Able Computer) and Bob Rowley who finished the engineering on that same 1600 project.

Dave House had a short engineering career at Microdata (the 3200) and then went on to be a key person at Intel in the mid 70s. He married Nancy, secretary to Phil Cleveland and took her up to the Silicon Valley with him. I have been on a few bicycle trips with House and a good friend, Leroy Pickett at Microdata. Bill Walsh, Don Savitt and even Pick on one occasion. Savitt and I toured France one summer on our bikes.

All in all, some of the most memorable times of my life and some of the most memorable people.

History of the Micro 800 and Micro 1600 by Ken Omohundro
Al Shapiro and I worked together at Interstate Electronics before he went to work for SDA. In fact, Al and I worked on a board together where we used a diode array, counter and steering logic to reduce logic by causing a sequence with feedback - Didn't know at the time that that was a set of "micro" instructions. I was in Quality Engineering designing all test equipment and was able to build a rapport with the engineers when they found that I could analyze their designs and usually find mistakes BEFORE they released them - that's how Al and I got acquainted. Al came up with the architecture for the Micro 800 and originally Ron Murr was going to do the design - but that got redirected and Don Pasternak and crew were brought in. They called the product company MicroSystems and later formed an umbrella company Microdata to bring in SDA and MicroSystems before they took it public. After the Micro 800 was released by Microsystem (on Young Street) - they figured out that they might need test equipment to make it in volume. Al Shapiro directed them to me - The next thing I know, I'm being given a story by Julian Sanchez (VP Operations) to come over and design their test equipment with a carrot that we would do a computerized ANALOG test system for the government - which at the time, digital was boring to me and I was getting into analog systems at Interstate. I believed them however and I spent the next few month designing backplane testers, board testers and memory testers for this great volume that was suppose to break. I was manager of Test Engineering & Manufacturing Test, working with John Shon. At that time, we had a "TOS" operating system (teletype that is) that Tom Mulder designed along with an assembler to count the number of ones so you could optimize your code for cost reduction as the ROM boards instead of chips had thousands of diodes installed diode=1, no diode=0 to create the firmware which at that time we called "microcode" since microprocessors weren't invented yet to cause confusion. I was sharing an office at the time with Don Parker (came with Pasternak) about the time I figured out that the "computerized Analog Test System" was just a ruse to get me to MicroSystems. Aerospace at the time was in the toilet and Microsystem was interviewing engineers from aerospace for openings in Design Engineering. Don overheard a call I got from someone wanting to hire me for a start up test equipment venture and worked on me to transfer to design engineering. The week I transferred (starting on

rew had quit and started another company (CDC). I was now the ONLY

Systems (The others were still SDA) not having a due

esters for boards was a little different from designing for computer systems.

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The Micro800 was a Baptism of Fire! The computer was NOT manufacturable - it had an instruction speed of 220 nanoseconds but would fail at 215 nanoseconds! I took a "J" roll of vellum and laid out the schematics of the Four (4) boards to determine Propagation and Race problems which there were MANY! In fact, I had to redraw each of the board schematics first! The schematics didn't have forward/backward annotation and they even changed names from board to board! The manufacturer's spec. sheets on the parts placed the worst case propagation at well over 300 nanoseconds! My FIRST job at a COMMERCIAL company was quite a surprise! I spent the next several months figuring out how to get the worst case closer to 200 so the "nominal" speed of 220 could be met reliably. This took selective part changes from standard 7400 series parts to 74H00 parts. This of course solved the propagation problem, but uncovered another. "H" parts used more power! It was obvious that Jim Lizzio designed where the power would enter the Micro800 - on the side where the core memory was plugged of course. However - the majority of the power was used by the logic boards - fed through wires and etch to the opposite side of the backplane. Noise was the next issue which now was into the analog that I liked, but NOT this way! The Micro800 stabilized and began to work somewhat reliably. The Price standard at the time to be competitive was the price for a box, power supply, processor (including firmware), Kbytes of memory and a serial interface card. The idea was to make the profit on the peripherals - 4Kbytes of core memory at the time was on our pricelist at \$4,000. Using that as the scale, I now carry a jump drive memory that should be worth \$1,000,000,000 (Billion) dollars. The engineering department expanded - we acquired a Director of Engineering, a Chief Engineer, and a Staff Consultant. I was still the only working engineer when they determined that the OEMs weren't taking units as fast as expected and cash flow was becoming a problem. The Chief Engineer had just left on a month's leave of absence and I attended the Design Review Meeting in the chief engineer's place along with the Director of Engineering. Since I did all the design work and generated the EOs at the time, it sorta made sense. This was a different meeting however - the president Fred Cox came in toward the end of the meeting and asked several of us to stay over; this included Tom Mulder, the Director of Engineering, Myself, and a couple of others. At this meeting, he indicated a concern about the ability of the Micro800 to compete and wanted to describe a new version of the computer that might eliminate one of the 4 boards to reduce cost. I took notes of all the request up to the response of the Director of Engineering telling Fred that we couldn't look at it until the Chief Engineer got back as we had no senior engineers capable of doing such a thing. To me - THAT WAS A CHALLENGE. I had to DESIGN a new computer in under a MONTH before the Chief Engineer returned! I had worked with and was friends with Dick Edwards who was a field engineer reporting to Dick Sholly who was in charge of Field Service. I normally worked until 8PM or later every night, but no more - I called Dick as I knew I needed another pair of hands and eyes just to draw schematics and documentation to meet my one month schedule. At 5PM we quit working for MicroSystem and worked till Midnight and weekends on what would become the Micro 1600. I spec'd the machine at 200 nsec (a nice round number) worst case was 190, Nominal was 150. Later, a contest with Jim Lizzio was performed with him tweaking his core memory as I was searching for the first failure that could be attributed to the logic. I hate to say, Jim won! I had a propagation condition at 125 nanoseconds - The Micro1600 would be the standard for MicroData. I not only met the one month time schedule I placed on ourselves, the initial design was a SINGLE board instead of 4 boards. By the time marketing got in the act wanting to add stacks, BCD arithmetic etc, etc etc it grew to a two board system. The original design could support Dual Processors which was eliminated by an improper engineering change after I left. I was reluctantly called back in to solve it - which I did. Dick took over Sustaining Engineering on the Micro800 while I finished up the 1600. Dick Pick was working out of his garage I believe and tried to get MicroData to do something with him. I think if Max really recalls what

er lent Dick the micro1600 wire wrap prototype to develop the firmware
section at least. After Fred Cox was replaced by Don Ful
design a computer capable of emulating other compu

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that kind pulled me on the head saying it was impossible until I drew a block diagram on his white
board at which time CalData Processors was to be launched in 1971. Fred Cox, Jim Lizzio and myself
were its founders. Jim would quit later and form Concept Development. Later, after starting Able
Computer in 1975, my first contract was from a company called Bitek that purchased a single board
computer from Microdata that was a subset of the 1600. They asked if I could design a substitute board
as their failure rate was 1.5 to 1 (they would return on the average 1.5 boards for each they received). I
told them no I couldn't- as I didn't find it challenging enough - I gave them a full blown 1600 design on
a single board instead - they then had a reliable board which they built. A Brief History of REALITY™
topThe forerunner of Reality was called the "General Information Management" GIM System and was
designed by Don Nelson and Dick Pick for the TRW company, being delivered to the US Army in 1969 to
support the Cheyenne helicopter. The main design aims were that it was to be an efficient database, with
integrated data retrieval, which could be applied to many physical computer systems. In order to achieve
the latter a "virtual machine" concept was used that emulated typical physical computer systems. This
places GIM as one of the first multi-platform, general-purpose computing environment projects. As no
commercial use was made after the delivery of the GIM project, Dick Pick progressed the technology
further. His work was deemed to be in the public domain, as it was developed by the patronage of the
United States Department of Defense. Microdata developed the first commercial system to use this
technology based on the Microdata 1600 8-bit CPU and in 1973 they created the Reality operating
environment, implementing the "virtual machine" in programmed microcode. This places Reality as one
of the first software products derived from "open technology". Microdata marketed this system by
appointing dealers worldwide, with the Computer Machinery Company - CMC being appointed for the
UK. By 1976 CMC had been merged with Microdata. Reality grew from being a "few user" interactive
system to one covering 10's and then 100's of interactive users. It was applied to commercial, public
sector and government applications, with functionality being extended in terms of data access and



networking. During the 1980's Dick Pick furthered his work, independently of
Microdata, on what was to become the Pick operating system. By 1984 both Dick Pick & Microdata
agreed that both parties had equal rights to the technology. Microdata continued to develop Reality,
while Pick did the same - as well as enabling the technology to other third parties; e.g. Ultimate, Applied
Digital Data Systems/NCR, Prime... At about this time, Microdata U.K. became an IT division of the
McDonnell Douglas aerospace company, known as MDIS and developed Reality across a range of
proprietary systems before porting it to run on top of various "open" UNIX platforms. However, while
the international use of Reality continued, the company focused on providing vertical market solutions
for the UK marketplace. Reality was used to as the basis for the development of a number of mission
critical applications which were successfully implemented in a wide range of customers.

Continual development in Reality has built on its foundations as an efficient, scalable, resilient multi-dimensional database and operating environment. Reality can now be deployed on the Sun Solaris, Linux, HP-UX and AIX derived UNIX platforms and Windows - from a single-user workstation to 2000+ user 24*7 failsafe enterprise systems. While maintaining its "virtual machine" concept, Reality now has open interfaces - using ODBC/JDBC SQL and simple extensions to DataBasic (an extended Dartmouth BASIC language with exceptional database and string handling abilities) in order to implement comprehensive HTML web interfaces. Remote calls to DataBasic can also be made in order to provide integration with existing Microsoft Visual Basic and java applications.

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A Short History of the Pick Operating System

by David Raber

Note: This was originally written in the late 80's. Even at that time, Pick had a 20 year history. This article highlights some of the circumstances and individuals who contributed to the success of Pick. The author would be grateful for any additional suggestions, additions, or corrections. Contact information is at the end of the article.

Our story begins in late 1964. TRW won a major defense contract to work on the Cheyenne helicopter project. In the early part of 1965 two of TRW's programmers, Richard Pick and Don Nelson found themselves on a project to write an information retrieval system to keep track of subcomponent parts on the development of the Cheyenne helicopter for the U.S. Army. The real contribution these people made to data processing is the realization that it was impossible to construct a multi-functional, user-friendly data retrieval capability that is capable of working on any data format. Nelson and Pick insisted on control of the data formats as a prerequisite of delivering the generalized data retrieval capability. Thus, the specifications for this software looked more like a database management system than a parts inventory inquiry system. Specifications included user-friendly data retrieval, transportability between hardware, and fast execution speed. Target hardware included both a Burroughs 5500 and an IBM 7094.

In the same year some lucky person whose name I can't remember obtained a master's degree. His project was a microprogrammable computer, that is a processor which has an instruction set that can be defined in microcoded ROM. Using this concept, a very powerful and rich instruction set can be created for a simplistic processor by using the microcode to chain several machine instructions together to perform one assembly instruction. This concept was brought to the marketplace by a little company that Max Mallone and his friends started called Microdata, but we are a bit ahead of the story.

In the Summer 1968 Pick and Nelson had a data retrieval system up and more or less running on the mainframe at TRW. By this time the project had a name which reflected the general nature of the data retrieval function which was being built. It was called Generalized Information Management, or GIM (yes, that is pronounced gem, as in a diamond-in-the-rough). It had most of the targeted features described above. and many of the features of the Pick retrieval language. or "English" that we know today. It used

This system was on the slow side. Some observers claim that it took about one cpu second on the IBM 360/65 for each item listed. That sounds slow today, but it was painfully expensive even by 1968 standards.

There were some slip-ups at TRW early in 1969 in which GIM, GIRLS, and DM-512 failed to be placed under proprietary protection. The Army passed all of the data processing functions which were developed by TRW for the Cheyenne helicopter project in the public domain. Dick Pick was very interested in continuing development of the system. He started an outfit called Syscom. Chandru Murthi was one of the original people in this organization.

In 1978 Pick and his friends were trying GIM out on several pieces of hardware. By this time the GIM concept had developed into an entire operating system with many of the features (except Basic) that we know today. The system had its virtual memory manager, virtual (or "soft") operating system, English, dynamic arrays, and the data base structures (including the concept of item and group, and for that matter, group format errors) that we have today. Development team consisted of Dick Pick, Chandru Murthi, Phil Earl, Warren Morrison, Hsu, and Pacheco.

Later in 1970 Pick ran across Microdata's MICRO 800 processor. The big advantage they found is that the processor could be microcoded to run almost any instruction set imaginable. Finally, their "soft" operating system could be made to run almost as fast as if the whole thing had been implemented in hardware. Thank goodness it didn't run just as fast, or Dick wouldn't have Vulture to talk about now. (Note, this was the hardware project underway when this paper was originally written.)

By February of 1971 Syscom went bankrupt. At the time Pick and his staff was working out of his home in Irvine. Hardware consisted of a 110 baud teletype machine which was connected to University of California, Irvine's Sigma 7. The Sigma 7 was being used to run simulations on the data base performance. The terminals were leased back from bankruptcy, and they were back in business again.

Around September of 1971 Hsu, Morrison, and Pacheco left Pick to reimplement the system on a Cincinnati Millicron machine. You laugh, but Cincinnati Millicron produced the "other" general purpose microprogrammable machine. They were in the same game as Microdata, and every bit as unknown. It is of passing interest to note that even today, Cincinnati is a relative hotbed of activity in the used Microdata equipment market. I doubt there is any connection, but there is some poetic justice for all of those old processors emanating from Cincinnati these days.

In 1972 Pick and Associates was incorporated. There was considerable effort made to bring the product to market. The "associates" at this time consisted of Chandru Murthi, John Timmons, Phil Earl, and Ken Simms. It was around this time Pick obtained Microdata's newest processor, the MICRO 1600 for a one year evaluation. It had a 5 meg hard disc and a "full" 32k of memory. To bring in revenue, timesharing was sold on the machine, even before it was operational. Irvine corporation (the people who owned most of Southern Orange County) was the first customer. Pick would later turn against his first timeshare customer (see 1983).

In 1972 a software house from Portland called World Dealer Services came to several hardware vendors looking for a minicomputer. They came to Irvine wanting to see a MICRO 1600 with a multi-user business oriented operating system on it. Microdata arranged with Pick to demo Pick's operating system on the Micro 1600. Pick agreed to demo the system. Although it was slow and full of bugs, the visitors

this kind?

By 1973 Pick was fully implemented on the MICRO 1600. Of course, the operating system was not called PICK. A popular series of IBM advertisements actually provided the name. The ads featured vividly photographed landscapes with the caption "It is not just data, It's REALITY." Apart from his name, Dick Pick did make some significant contributions to the system. For example, Pick wrote the famed n-way polynomial sort in one frame (512 bytes of code).

The system was very much like the product we have but there was still no Basic. English was there, with the exception of the "A" conversion. A now defunct process called BATCH/UPDATE was implemented to load data into the data base. During this time Microdata and Pick were jointly developing some enhancements along with periodic bug fixes. Microdata also picked up a new President, Don Fuller.

In December of 1973 system #1 was shipped to either Contemporary Casuals or ADP, depending on who you are talking to. System #6 was shipped to a very large customer in Chicago who was frantic to get a copy of this new data processing breakthrough. That was Allstate Insurance. Who said this system would not appeal to large companies?

By 1974 the Pick development team consisted of Byran Seagraves, John Emil Treankler, Ken Simms, and John Whittlesey in addition to the original Pick group. Ken Simms and Dick Pick met when Ken was a computer science student at UCI. One of Ken's more notable achievements prior to joining Pick was his Star Trek program on the Sigma 7 written in Basic. Ken wanted to implement Star Trek on Reality, but didn't want to convert it from Basic to Reality Assembler. As the story goes, Dick asked Ken why he "Didn't just write himself a basic compiler." Ken had come in contact with a compiler generator called META-II, and decided to give it a try on the Reality system. The original product was called SBASIC (presumably the S stood for Simms). It took about a month to get the first version working.

At the same time interest was building within Microdata for the Pick system. Microdata was still mainly a hardware OEM with very few end users. Microdata was shipping the Micro 800's and Micro 1600 to companies like Basic Four for incorporation into other systems. At one time two brands of typesetting machines used Micro 1600's. Many universities that had a hardware oriented computer science curriculum had a Micro 1600 sitting around for the students to try out. In fact, the MIX tutorial assembler even ran on a Micro 1600.

Microdata at that time was working on some projects of their own. While Simms was working on SBASIC, a young grad named Tom Ells was working on something similar called DATA/BASIC (of all things to name a language!).

Pick thought a lot of Simms work, and wanted to get more control over Microdata. Pick wanted a better contract, and absolute control over the product. Pick took an enhanced version of SBASIC directly to Microdata's dealers for an evaluation. All of the dealers except SMI in Chicago went nuts over SBASIC.

This maneuver had several major implications for the development of the system. First, Pick and Microdata were clearly in competition with each other now for control of the system. Second, Microdata gained an unhealthy mistrust of its Reality dealers by having to compete for their loyalty. Third, SBASIC and DATA-BASIC both received a lot of development attention. Fourth, Microdata's largest dealer, SMI was the only one that did not like the BASIC concept. One of their analysts, Tim Holland developed a

super-proc language called SMI Language Extension, or SMILE for short. Later, much of this language became Microdata's PQN, where the N stands for New, as in new proc. SMI developed a well respected set of application programs using this "super proc" language, which they have since enhanced and renamed RPL. RPL is still a popular language in the Midwest, due to SMI's influence.

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On April 1, 1975 a time bomb went off in all of the SBASIC compilers Pick had "lent" the Microdata dealers. Rather than just stop working, the compiler flipped 1 and 0 under special circumstances. Not only did this stop the widespread use of SBASIC, but it also gave Microdata the chance to label Pick as a flake for giving the dealers a compiler with a time bomb in it.

Microdata had several other people working on Reality at this time. One of them, Rodney Burns, found the time bomb in SBASIC and patched around it.

Somehow most of the problems between Pick and Microdata blew over. 1976 was the height of the golden age of the Pick-Microdata relationship. Some of the new players in this era included Carl Margolis, Dennis Auler, and Mike Breeden. Pick and most of his employees were also token employees of Microdata so they could receive company benefits, what ever they consisted of.

Late in 1976 Microdata and Pick split ways. There were several reasons. First, Pick still wanted exclusive control over Reality. Second, Pick enjoyed playing with new hardware, and not all of the new hardware Dick played with sported the Microdata logo. Dick liked experimenting with larger discs, and faster processors. Third, both Don Fuller and Dick Pick were interested in the same woman, a Microdata production line worker who I believe spelled her name Junelle. Anyway, she ended up marrying Dick. As the story goes, it was the second Friday of December in 1976 when Chandru was looking for a tape to mount on one of the two Microdata's that Pick was using. Much to his amazement, he found that all of the file-save tapes were missing. Later we find out that all of the file-save tapes had been "inadvertently" moved over to the Microdata building. When Pick confronted Fuller, Fuller said the mutual development effort was over, effective immediately. All of Pick's employees were "fired" from their token \$1 per year job at Microdata on the spot. Later that same day, a truck showed up at Pick's office and attempted to take their two Microdata's back. By the way, these two machines are referred to as "Twiddel Dumb" and "Twiddel Dee". Pick and his loyal associates did not let the machines go. They still had a copy of the operating system rotating on the disc, so guess what they did first? Right, start a file-save. Also, the firmware was in AROM which would be lost if the power went out. This was also backed up before someone would have the audacity to turn power off to the building. Dick remembered that Microdata had quoted him a price on the two machines several months earlier, but he had never taken them up on the offer. Dick immediately wrote out a check for the machines. There seems to be a controversy over who put up the money to cover the checks, but that is another story.

The receivable department at Microdata didn't catch wind of the political situation in time, so they went ahead and cashed Pick's check. When the Microdata legal department showed up with a warrant for the machines, Pick was ready in court with both the quote Microdata had extended on the machine, and the canceled check.