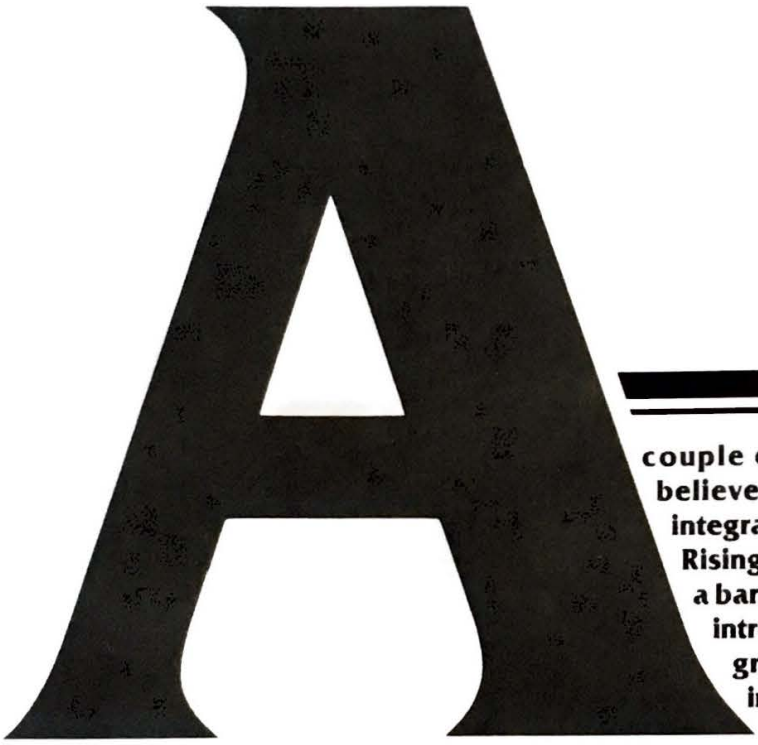
WHAT IS A RISING STAR?



couple of years ago most "experts" believed that it was *impossible* to do integrated software on a micro. But at Rising Star, the word impossible isn't a barrier; it's a challenge! In 1982 we introduced VALDOCS—the first integrated software for a micro. That introduction set the stage for most if not all of the important software developments that have occurred since.

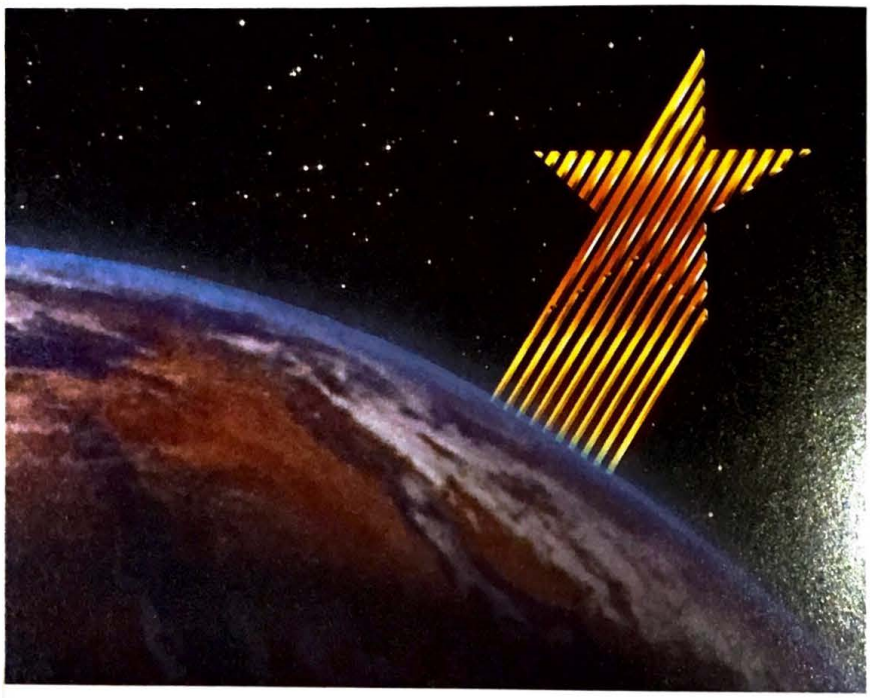
Quite simply put, Rising Star started a revolution with VALDOCS, and we are carrying that revolution forward with work on the soon-to-be-released VALDOCS 2. We are a company which thrives on challenge and the work we do continually redefines the cutting edge of technology. Our products reflect our philosophy that the world can be made a better place in which to live. We are a Third Wave company using such Third Wave technologies as the "electronic cottage" and "flex time" work schedules to produce Third Wave products.

The Rising Star story is more than just another "silicon chip success story." It's a window on the future.

WHAT IS A RISING STAR?

The Conception, Creation, Current Status, and Future of a New Corporate Phenomenon—The Future Tech Electronic Cottage Industry

by
GORDON MUSTAIN



THE MAN BEHIND THE IDEA

Exploring the question, "What is Rising Star Industries?" is actually a bit of an adventure. Just when you think you've got a handle on it, you look at it from another angle and a whole new reality appears.

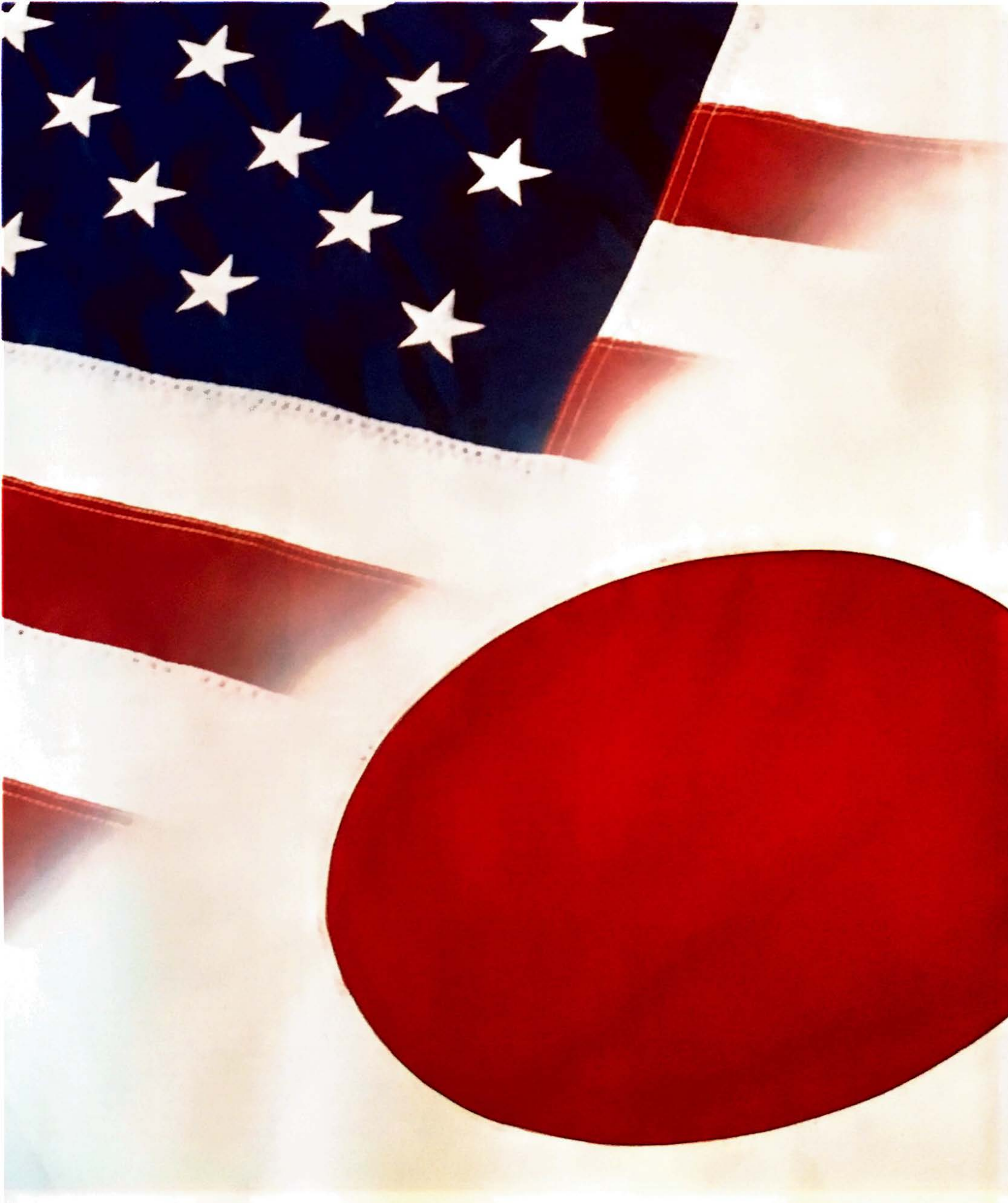
From one viewpoint, it is a small, closely held corporation founded in January of 1982 in Torrance, CA., by Chris Rutkowski, to design and develop hardware and software for the Epson QX-10 personal computer.

From another, equally valid viewpoint, it is a collection of slightly off-beat future tech creative crazies (who refuse to walk down the halls of IBM wearing three-piece business suits), lead by someone self-described as "a little wild and woolly around the edges and not quite civilized", all "riding the curl of Alan Toffer's Third Wave on a silicon surfboard" flat out into the future.

From still another viewpoint, it is a model for the new "Information Age" corporation. It's an Electronic Cottage Industry, using the potentials of the personal computer to do everything from eliminating the aggravation and wasted time of Southern California freeway traffic, to allowing staff to live where they wish while tailoring work schedules to individual biological and metabolic clocks. In short, it's a company utilizing developing technologies to maximize creative output while simultaneously enhancing personal freedom.

What's this? A game where everybody wins? Impossible, right? But then, according to the Rising Star Industries company motto, "Only the Impossible is Worth Doing." Therein, as someone once said, lies a tale.

To reach an understanding of this multi-faceted organization, it is first necessary to know a bit about RSI's founder, Chris Rutkowski, and the two most important things to know about him are: 1) He firmly agrees with Buckminster Fuller that "the only thing required to be brilliantly negative is a mouth"; and 2) He



Even in those early days, however, Chris was thinking of the personal computer as a tool which could be of immense cultural and social value.

believes it *really is possible* to make the world a better, more comfortable place in which to live.

As he puts it, "I have this silly concept that I can change the world....Since I was a little kid, I've had this feeling: 'If we don't like the world the way it is, why don't we just change it?'...Relatively speaking, the problem we are facing is a fairly simple one. There are a number of key technologies missing on this planet, technologies which mankind really needs in order to hit his stride. I've isolated what those technologies are through the study and development of a subject I call *Architectural Stabilization* which involves an entire theory of systems evolution *(for a more complete explanation of Architectural Stabilization, see the November, 1982 issue of BYTE Magazine: AN INTRODUCTION TO THE HUMAN APPLICATIONS STANDARD COMPUTER INTERFACE)*. That theory not only isolates the needed technologies which we don't currently have, but helps to put them within reach."

"Don't get me wrong, I'm not talking about a Utopia. Every attempt to create a Utopia has failed. I just want to make the world a little safer than it is. I just want to make it a place where I want to be able to create and where his principle reward and goal schemes are based on creation rather than destruction."

So what does all this have to do with developing software for the Epson QX-10? Quite a bit, actually, and it goes back to some fundamental observations Chris made, and to some understandings he reached, during the first years of his involvement with micro computers.

To set the stage, the micro-computer industry actually began in January of 1975 when the Altair computer was first introduced to the "home/hacker" market. Chris had just returned from an extended stay in Europe and was, in his words, "looking for the next technology to get involved in, the next major technical product which would have a positive effect on society." Thus, when he ran into an old friend who introduced him to the embryonic technology of the micro computer, he was ready.

By mid-1975 Chris was studying micros both from a marketing standpoint and in terms of Architectural Stabilization. Since Architectural Stabilization involves (in broad terms) the study and prediction of the evolutionary stages something goes through before it is accepted and used on a mass scale, he was already thinking about those stages which lay ahead for the personal computer.

In January of 1976, he joined forces with Roger Amidon (currently the head of the Systems Group for RSI), and Carl Galletti (former owner of Computer Design Labs) and they formed a com-

pany called Technical Design Labs. In August of that year, at the first computer trade show ever – the Atlantic City Computer Festival – they started selling their first product: the ZPU, which was the first Z80-based product for personal computers to hit the market. The idea had been Carl's, Roger had done the design, and Chris arranged the financing, set up the introduction at the show, and designed and wrote the manuals and ads. In the next 24 months they sold 7000 boards.

During the two years of its existence Technical Design Labs came out with a number of "firsts" in addition to the ZPU. They were the first Z80 software publishers in the world, bringing out the first BASIC, the first macro assembler, the first editor, and the first text processor to do word processing. In two years they grossed over three million in sales.

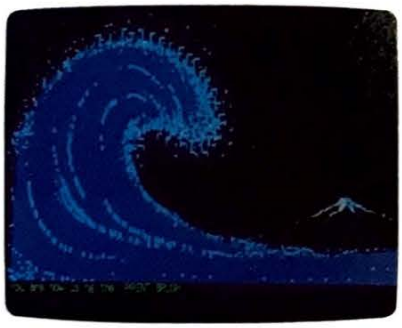
Even in those early days, however, Chris was thinking of the personal computer as a tool which could be of immense cultural and social value. He had found that once he got past the apparent complexities, computers were actually quite simple. "The problem in

his words, "was to strip away those complexities so that Mr. Average wouldn't have to fight with them."

In 1977 he put those ideas down on paper for the first time, doing the basic design work on a product line for TDL consisting of a desktop microcomputer, a keyboard, two disk drives, a CRT on top, and an integrated software package which would handle the needs of the average person. Beginning to sound familiar? Keep in mind that in those days there was nothing like it on the market.

"That's where our name comes from, by the way – a combination of the Rising Sun and the Stars and Stripes – Rising Star."

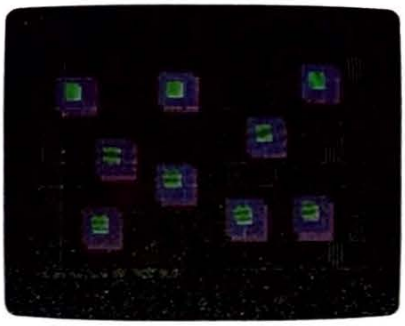
By 1978 they had a working prototype, a name (The General), a workable retail price ($4000), sixty plus dealers signed up, and $35 million dollars in orders. What they didn't have and couldn't get was the venture capital financing to start



production. The General never went on the market.

As Chris puts it, "I saw, as early as '76 that mass production capabilities were going to be the key to the success of the personal computer. It's the only way to get it out inexpensively and in volume. Unfortunately, in '78 there was no widely recognized market yet. Apple was just starting to grow with a major infusion of venture capital, but there was not much of it around at that point.

"It's just one of those things. It seems like I've always been right on the leading edge of things. My ideas today are not better than they were then. But today I've got seven years of experience and a couple failures under my belt, and with Epson, I've got the back-up I've never had. It's a perfect combination: the Japanese mass production capabilities



(probably the best available anywhere on earth today), and good old Yankee ingenuity. That's where our name comes from, by the way – a combination of the Rising Sun and the Stars and Stripes – Rising Star."

In mid-1978, TDL was bought by some consultants who tried to arrange [illegible]. Eventually, in May of 1979, [illegible] deeply in debt from [illegible] (avoided bankruptcy as imminent, and eventually repaid all the debts), Chris packed up his family and moved to Monterey, Ca., where he went to work for Omnigistics, a direct mail marketing company in Salinas, Ca.

On his own time he continued to work on his theories of systems evolution and Architectural Stabilization, and he began to realize they applied not just to technological products like the automobile or computers, but to virtually all human systems. Using the theory as a predictive tool, he began to see which products and technologies were going to have to evolve for mankind to achieve anything like a stabilized social system on a planet gone mad.

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One of the first and most important steps was the widespread acceptance

and use of personal computers to help individuals cope with the massive outpouring of data being occasioned by the dawning of the Information Age. Pulling out his notes on The General, he began refining them, looking for the ideal configuration of form and function (the architecturally stabilized design) which would allow that widespread acceptance and utilization. The concept of HASCI (Human Applications Standard Computer Interface) was born. It was still to be a while, however, before the concept would become reality.

In October of '79, Chris left his marketing post with Omnigistics to dedicate himself full time to the research of his theories. "We were penniless," he recalls, "and my decision to go it alone provoked considerable hardship on my family. But I believed, as Bucky Fuller had said, that if one were aligned with the force of Universal Evolution, the wealth of the universe would provide one's support."

Not quite a month later, through a friend, he met Mr. Yashuhiro Tsubota, the President of Epson America. It turned out to be a meeting of considerable significance.

MARKETING MAGIC AND THE MX-80

When Chris and Mr. Tsubota met, Shushin Seiko – part of the Seiko group of companies – was already well established as the world's largest manufacturer of precision electronic printers, turning out seventy percent of the world's supply of calculator printers (700,000 to one million units per month). The company was then almost exclusively an OEM (original equipment manufacturer), producing the components which other companies then turned into consumer products.

Shushin Seiko's subsidiary, Epson America, had introduced their first consumer product to America the previous year, the TX-80 dot matrix printer. They had, however, sold only a few units. Epson wanted to develop a nationwide dealer network for an advanced version dot matrix printer (which would eventually become the MX-80), and Tsubota was looking for an innovative American for the job.

According to Rutkowski, "I was a little wild and wooly around the edges, and not quite civilized, and a little bit crazy. When I said, 'I'll make you number one,' Mr. Tsubota laughed. But he hired me."

Chris came onboard as Manager of Market Research & Development. Twelve months later he became National Sales and Marketing Manager. In the interim he had been busy.

Epson had the key ingredients for storming the microcomputer market as he had envisioned back in 1975. Their high engineering standards, virtually unlimited working capital, and mass production capabilities were an unbeatable combination. The task he set for himself was to discover the best way to make use of these resources in order to make the MX-80 the number one selling printer in the U.S.

He began by conducting a multi-level questionnaire survey of the market place. This survey very quickly indicated that. From the first, Chris recognized that the public's number one concern with printers was reliability. This was the first major asset in the quest for dominance. Epson, as a supplier to manufacturers around the world, had learned to contend with long shipping distances and very high volume production, both of which require exceptionally good quality control. As Chris explains it, "When you're making a million pieces of anything a month, anything more than a .1 percent failure rate would require enough repair technicians to short circuit both output and income." Epson's products were reliable.

Second in importance to reliability was excellent print quality. High quality text was attainable in the market place, but only with expensive and slow daisywheel printers. Inexpensive dot matrix printers such as the MX-80 still lacked sufficient image quality, even though users surveyed did not insist on the ultimate precision of a Selectric-typeface look.

Oddly enough, despite what a lot of people were claiming, print speed was not essential – it placed sixth or seventh on the list of priorities.

In trying to find a way to meet this demand for print quality, Chris discovered a unique feature of the printer which Epson had not capitalized on. Epson's designers had met specifications for double-strike printing (which fills in each letter with extra dots) in order to boldface a word or phrase within a sentence. What had not been seen, however, was that using this double-strike mode for an entire page or document provided an enhanced print quality (at a minimal cost in terms of printing speed) which would more than satisfy most print quality demands. Chris coined the phrase "Correspondence Quality Printing" to describe the feature which, while not quite Daisy-wheel quality, was more than adequate for most business correspondence.

The market research further revealed that the ideal printer would also have to have graphics capabilities, the third most important feature according to the surveys. Graphics flexibility, including the ability to print a variety of fonts, was what Chris wanted. However, making this happen was not quite as easy as solving the image quality problem. It required new software inside the printer.

Having determined what it would take, Chris contracted with Richard Mossip to produce the new internal software package to multiply the features of the printer. It provided superb graphics, and italics, and the result – Graftrax – was added to the MX-80 in mid-81. The Japanese later expanded the software, now known as Graftrax-Plus.

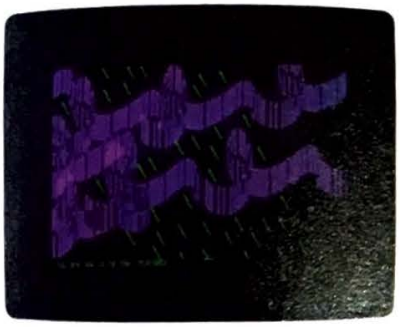
Armed with an excellent and exciting product and backed by a company able to produce reliable products in volume, Chris put together an effective sales network. He hired the sales staff and trained them to meet the customers' needs, basing the work on his marketing research.

The surveys, however, had pointed up another very interesting fact. They had indicated that many dealers were dismayed and put off by the lengthy contracts then necessary to do business with many printer manufacturers. These contracts often required complex calculations to determine unit pricing at various purchase quantities, and burdened the dealer with excessive minimum purchase amounts. He decided that the fastest way to capitalize on his superior product would be to make it very easy to do business with Epson. At his suggestion, therefore, Epson simplified purchasing procedures as well as reducing the dealer agreement to a bare minimum of legal language.

This still was not enough, however. The dealers had to learn about the new program and be convinced to sign on. To accomplish this, he conceived an advertising and direct mail campaign, writing most of the ad copy during the

first year of production. His "BUSINESS SIMPLIFIED" brochure, part of the introductory dealership campaign, won the 1980 Western States Advertising Association Award.

The combination of his marketing campaign and well trained staff produced remarkable results. The MX-80 printer was formally introduced September 1, 1980. By the end of November that year, less than 90 days after its introduction and before the printer had really even begun to attract notice, Chris' crew had signed up Epson's 1000th dealer. The sales boom was starting.



But this was only the beginning. It has always been a tenet of Chris' that what happens after the customer carries the product out of the store is as much a part of marketing as is the advertising which got the customer into the store in the first place. Earlier, pursuing his belief that the user should get a tool which would both do the job and be easy to learn, he had hired David Lien to write the owner's manual for the MX-80. Lien had written the TRS-80 manual, one of the first computer manuals which a lay person could actually use. Lien's manual was a radical and welcome departure from the usual technical jargon and complex schematics which had characterized most printer owner's manuals. Now, with the sales happening and customers learning and using their manuals, Chris also made certain that there was an after-sales service function set up and operating to support the product. Word of mouth advertising quickly became an important force working in Epson's favor.

Having combined the product attributes of low cost, high quality print, and reliability, with an innovative and hard-hitting marketing campaign, Chris watched the Epson MX-80 quickly become the dominant dot matrix printer in America. When it was first introduced, in September of 1980, Centronics was the industry giant with a 50 percent market share, followed by Integral Data Systems, Texas Instruments, and Anadex. The swift development of Epson's dealer network and the "blitzkreig" marketing program caught the leaders sleeping.

Chris relates that at the time he kept cabling Japan, saying, "Make more printers! Make more printers!" By April of 1981, they were selling tens of thousands of printers a month, limited only by production schedules.

By the end of 1981, Epson was widely acknowledged as the industry leader. Chris had made Epson Number One, and Mr. Tsubota was still laughing, but not for the original reason.

"We were successful," Chris says, "because we combined good old fashioned Yankee ingenuity with the best engineering and manufacturing on Earth. Bringing those two things together made an unbeatable combination. I believe this about the world, as well – taking Japanese and American concepts and combining them will probably make a much stronger society than anything we have today."

By mid-81, riding the crest of their success with the MX-80, Epson management made a decision: they decided to enter the microcomputer marketplace. When they told Chris about it and asked him what he thought their products should be like, it was Chris' turn to smile. He'd been ready for that question since mid-1975.

THE CONCEPTION OF THE QX-10 AND THE BIRTH OF A RISING STAR

"Not now."

That's how Mr. Yasuhiro Tsubota,

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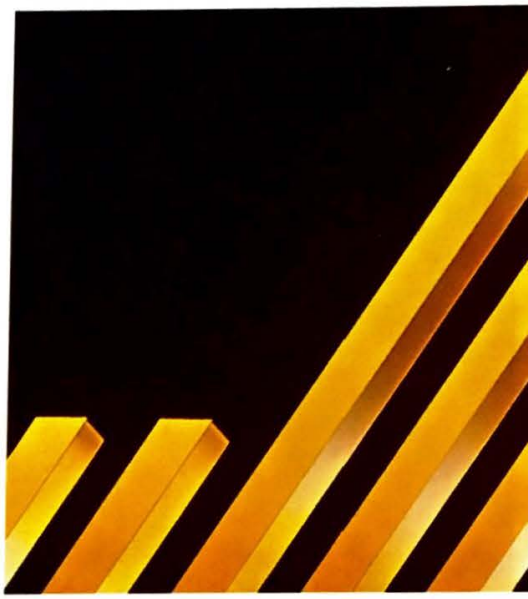
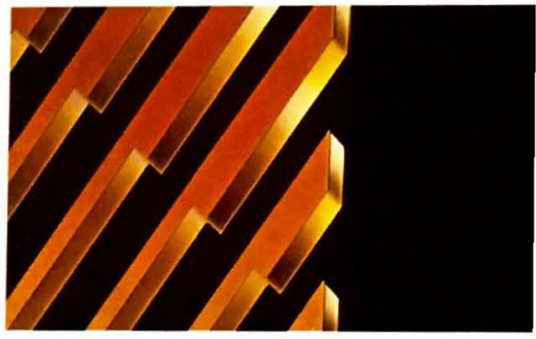
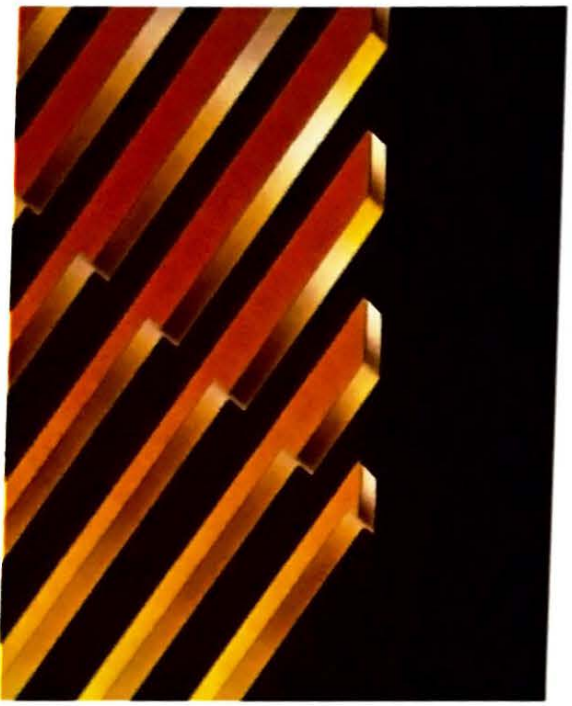




Roger, with nothing more than the hardware specs and drawings, began writing the system level support code.



President of Epson America, responded throughout 1980 and early 1981 whenever Chris brought up the idea of Epson building a microcomputer for the American market.

As Chris tells it, "It was always the same response. Never, 'No,' – just 'not now.' So I never gave up. I kept asking."

Then, in the spring of '81, Japan-side Epson management made a decision. Due, in large part, to the success of the Epson MX-80 printer in the U.S., it was decided that Epson America was no longer going to be an Original Equipment Manufacturing (OEM) company. They were now to become a consumer products company.

"I remember the day the message arrived," Chris says. "Basically they were asking, 'What kind of consumer products do you want to sell? If we can build them, we will.' When Mr. Tsubota told us about it, I figured it was time to get busy."

Much of the preliminary design work on what he wanted in a microcomputer was already done, but Chris knew that would not be enough. He began work on a report that included, in addition to those designs, product illustrations, a complete accounting of marketing considerations, and the design philosophy upon which he thought a product line should be built. When it was finished, the report was 150 pages long.

With Mr. Tsubota's approval, the report was translated into Japanese and submitted to Epson Japan for consideration.

In June of '81, Mr. Nakamura of Japan, and Mr. Tsubota, asked Chris to go to Japan to make a presentation to a group of Japanese engineers and managers. He didn't require a lot of persuading. He and Steve Semos, who is still with Epson America's Marketing department, made the trip.

"What I tried to stress in the presentation," Chris recalls, "is that in an ideal product line, what should vary from product to product are price and quality. There are certain fundamental functions, however, which should be consistent throughout. It's like, if you put a Rolls Royce and a Subaru side-by-side, it is easy to see that they both have four wheels, and steering wheels, and windows that go up and down. They both carry people and can be used to get people from point A to point B. Functionally, which is to say

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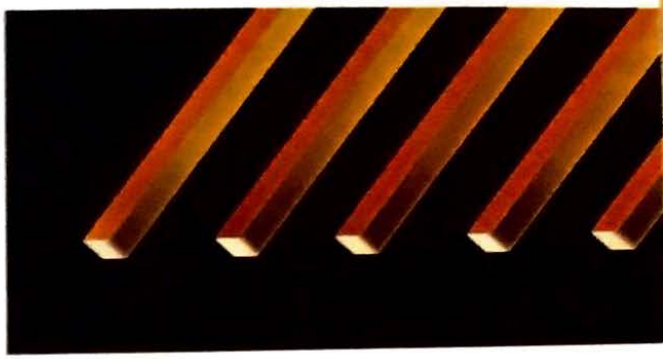
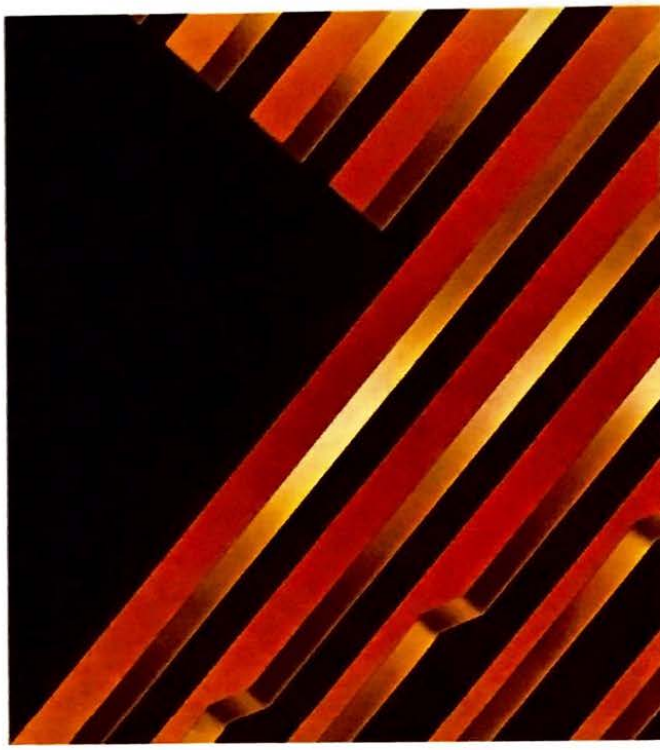
"So I came up with this concept to form a sort of artists' stable in which some of the brightest, craziest, most creative minds we could come up with could be brought together to work on this goal I had laid out, this integrated software system called VALDOCS. It could be set up so they could work their own hours, in their own homes, on the parts of the project which most interested them, and they could share financially in the product.

"The idea was to form an amplifier circuit -- a knowledge amplifier. We would develop the best, most creative software possible and sell it to Epson, who would in turn sell it to the public, feeding royalties back to us to finance more research and development. It was a feedback circuit, which is the definition of an amplifier circuit, combining the best creative talent in America with the best of





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"When we got back from Japan," Chris says, "I knew two things. One, we were going to get a computer to sell. And two, we – in America – were going to have to develop the software for it. It was while wrestling with the problem of how to get that software done that I hit on the idea which eventually became Rising Star Industries.

"I'd been around the industry since '75 and I knew all these really bright, creative, crazy people – people like Richard Mossip who had done the original Graftrax software for the MX-80, and like Roger Amidon who I had worked with on the General back in my Technical Design Lab days. But they were not people you could make into 'employees.' If you put them in a suit and made them punch a time clock every day, you would lose that creative sparkle, that freewheeling genius which made them the people who create breakthroughs in the industry.

"Traditionally, these are the kind of people who form the backbone of American entrepreneurship. They come up with an incredibly valuable product and then a cadre of businessmen form around them to manufacture and market that product, and they get a piece of the action and the freedom to go on working on new problems and products.

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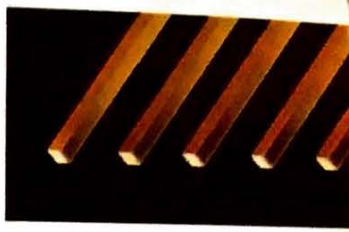
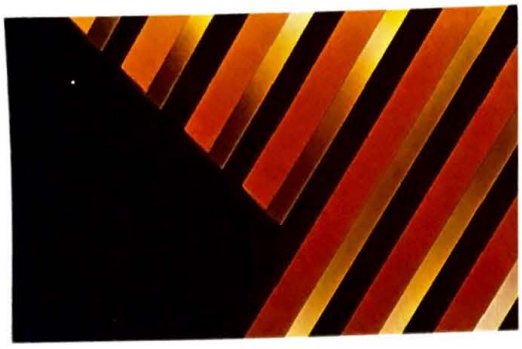
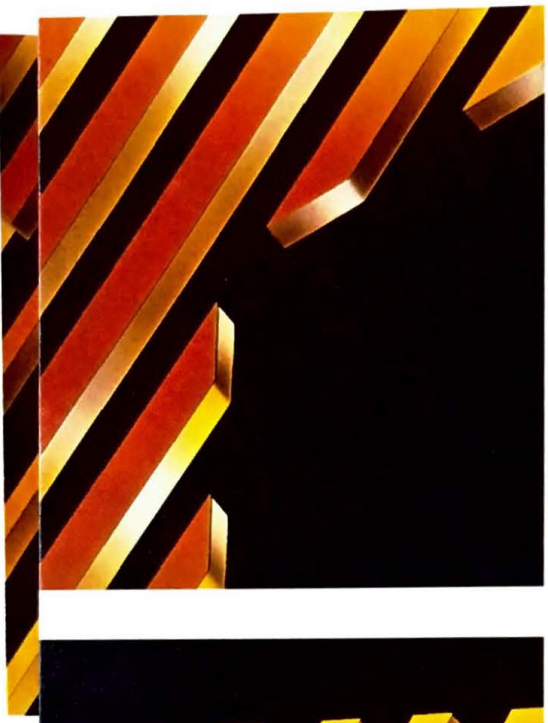






Conventional wisdom at the time held that truly integrated software which was truly easy to use was an impossibility on any microcomputer.

Japanese manufacturing and marketing."

In September of '81, Chris presented a written proposal for the establishment of Rising Star to Mr. Tsubota. It was approved, and Chris began work on the details.

Meanwhile, development work was continuing apace on the QX-10. Chris contacted Roger Amidon and Richard Mossip and laid out the situation. They agreed to work with him on the development of the software.

In early November, in a hotel room in Princeton, New Jersey, Chris, Roger, Richard, and Steve Semos met with three Japanese engineers to talk about the QX-10.

"Roger had come to work for Epson so he could work full time on the project, with the full knowledge and agreement that when Rising Star was set up and functional, he would leave Epson and become a part of Rising Star. So he, I, and Steve were there as Epson America employees, and Richard Mossip was there as a consultant to Epson.

"The Japanese brought their hardware design drawings and circuit board specifications and we brought the preliminary design for the HASCII keyboard and some preliminary concepts for the VALDOCS software which had, of course, evolved out of the HASCII design. It was an incredibly productive meeting. The hardware specs were fine-tuned to the requirements of the software, the HASCII design was finalized, and we came away knowing what the QX-10 was going to be. It was and is a truly outstanding design. I can honestly say, I know of no better hardware on the market. We knew then that it would take years to develop software to fully take advantage of all the design features."

Chris had known the hardware and the software would have to be developed simultaneously, and he left the meeting assured it could be done. Roger, with nothing more than the hardware specs and drawings, began writing the system level support code which would be needed, and Richard Mossip, in his continuing role as a consultant, started developing the first pieces of VALDOCS, utilizing Chris' design concepts.

Development work continued apace through December, and in the meantime Chris had hired Gale Carr, a woman he had known for many years. He had worked with her administratively and knew she was the kind of totally competent and trustworthy person he would need to handle the administrative side of the company while he handled the technical side.

It was near Thanksgiving of '81, while Chris was working on the legal structure necessary to set up his company, that he hit upon the name. He had come up with and discarded several possibilities because they were either already being used or because they were too far removed from what he was trying to accomplish with the company. As is his wont when a problem won't resolve, he went back to the fundamentals.

"I asked myself, what is it that I'm trying to do, and I found myself thinking again about the knowledge amplifier concept, the combination of the best American ingenuity with the best manufacturing and marketing on earth. America and Japan. The Rising Sun and The Stars and Stripes. And bang, there it was. Just that simple. Rising Star.

The decision on the name was made there. That decision became a reality on the 15th of January 1982 when the corporation was officially formed. As of that day Chris resigned his post at Epson and took up his post as President of this newly formed company which consisted of himself, Roger Amidon, and Gale Carr.

"We knew we had a big job ahead," Chris remembers. "After everybody was signed, we just sat there for a moment, the three of us, looking at the future. Then we shook hands and said: It's up to us now. It's up to us to do it."

THE LDOCS ADVENTURE

e Rising Star had been made a n January of 1982, Chris was with the task of translating his con- or VALDOCS into reality. He knew would not be easy. Conventional at the time held that truly inte- software which was truly easy to s an impossibility on any micro- er, and especially so on a Z-80 achine.

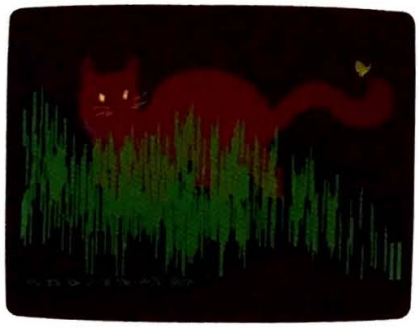
urse there was absolutely no al evidence to support this conten- his recalls, "because at the time had ever attempted to write truly use integrated software. None- s, that was the prevailing view at e. The Rising Star motto, *'Only the sible is worth doing,'* came into nce very early on.

e of the key concepts in the early pment stage of HASCI/VALDOCS at the choice of processors didn't matter. The Z-80 was chosen pri- y because none of the other proc- s available had the stable, mature necessary for development work. Comparing the relative merits of vari- us processor chips is like comparing the merits of four, six, and eight cylinder engines. There are four cylinder engines which are refined to the point of being faster and more powerful than eight cylin- der engines. We felt that no one had ever really exploited the full potentials in the Z-80. In fact, VALDOCS 2 will be the first software to ever come close."

With Roger busy developing the basics of the operating system code (working off nothing more than spec sheets and design drawings from Japan), and with Gale busy setting up the admin- istrative side of the company, Chris retired to a cabin in the woods near Carmel, California, and spent a month with Richard Mossip hacking out a first cut at the HASCI interface and the top level of the VALDOCS software design.

"Right from the beginning," Chris says, "the guiding design principles were to *simplify* and *amplify*. I had had a chance to study the principles used in the Xerox Star, the precursor of Apple's Lisa, and I found the concepts interesting but still far too complex. The desktop metaphor of multiple documents on the screen at the same time, while it might have a place in VALDOCS' future, was far too complex to be a fundamental requirement. And the use of icons, if carried to its logical conclu- sion, ends up at the 16,000 character kanji set which is the written Japanese language. Even Apple only uses icons on the first level of choices. Beyond that, the complexity introduced by the ambiguity inherent in icons, forces them to use word labels."

Early in that month at the cabin, Chris arrived at what he felt was the central, key concept of the HASCI interface: *The end user should be able to point to the function he or she wants the computer to perform, push a button, and have the computer perform that function.*



"I emerged from that month with reams of notes, and sketches of interface designs which turned out to be pretty close to the final design," Chris remem- bers. "Now those notes had to be fleshed out."

He spent March and April on two tasks: looking for the special people he knew he would need to get the software done; and fleshing out the notes into what became a preliminary operating manual for VALDOCS. "That manual, or user's guide, became the blueprint against which the software would be written."

Out of this work, Chris distilled the two articles on the HASCI/VALDOCS concepts which were later published in successive issues of BYTE magazine in October and November of that year.

Roger, meanwhile, had been making considerable progress on the systems level software, still without having seen any actual hardware. In early May the first hardware "prototype" arrived, a wire wrapped board in a metal box, and Roger could finally start testing his code.

"The first actual QX-10 didn't arrive in this country until June, four days before the National Computer Conference. Our development efforts had been so tight with the Japanese, that in four days Roger was able to get the operating system up and running, and Richard Mossip had the first cut at the interface working with a little editor and a couple other things in it.

"We had a private showing for the editors of major computer press maga- zines during the show, and that's where the press reports started."

By fall of 1982, Rising Star Industries had grown to fifteen employees. Fall Comdex that year marked the first public showing of VALDOCS software. "We had managed to get an early version together for the show which sort of worked," Chris recalls. "There was a Scheduler, and Indexer, a crude Editor, and rudimentary Mail program. But it was enough. After the show we got the go ahead from Mr. Tsubota and Epson to start development on Version 2."

Even before VALDOCS Version 1 had been finished and introduced into the marketplace, Chris began design work on VALDOCS 2.

"The point of Version 1 of VALDOCS was to prove it could be done; to prove that, in spite of conventional wisdom to the contrary, it was possible to write integrated and easy to use software."

That proof came rapidly after the introduction of the QX-10 and VALDOCS into the marketplace in March of 1983.

"Even our harshest critics – and there were a few things about 1.14 which merited criticism – but even our harshest critics admitted that VALDOCS was *incredibly easy to use,* and that it was *truly integrated software.*"

Further proof appeared over the next months as integrated software became a buzzword in the marketplace with more and more products showing up with some degree of integration

between modules.

"In a little over fourteen months," Chris says, "we had accomplished the impossible. That there were bugs in the first release was not only not surprising, but to anyone familiar with software development, it was inevitable. Within three months, by June, we had released VALDOCS Version 1.16 which handled many of those bugs, and by September we had released 1.18 which not only handled most of the remaining bugs but enhanced the overall program with the addition of numerous new features. I am very, very proud of the development work done by, and the accomplishments of, the Rising Star team. I honestly know of no other group anywhere who could have pulled it off.

"Now we have VALDOCS 2, and the intention here was to take Version 1 and turn it into truly *world class software.* We proved it was possible, and now we have done it right. What VALDOCS 2 actually does is to *establish the minimum acceptability level for personal computer software at any price.* That's what it does. VALDOCS Version 2 will become the minimum standard which people will demand and expect in the computer as mind amplifier, computer as personal tool class.

"Meanwhile, we will continue to refine and add features to VALDOCS, and to work on Version 3. Version 3 will incorporate some of the theory of HASCI which has never been published. It dates back to a formal document I wrote in 1980 defining a particular capability which will be necessary for the personal computer to attain anything close to its full potential, a capability which does not exist today on any system. When Version 3 is done, my original design goal for VALDOCS will have been achieved: VALDOCS will be the only software ninety percent of personal computer users will ever need."