

BEYOND THE BASICS AT MICROSOFT

An inside look at the largest independent software developer

Who Are Those Guys?

Of the approximately 5,000 companies developing software solely for microcomputers, Microsoft is the oldest, largest and most profitable. Bill Gates, 28, co-founder and CEO, wrote the first BASIC for Micros with his high school friend, Paul Allen. That was back in 1975. Two years later, Microsoft did \$5

BY GREG GIANAS

million in sales with five employees. Last year the company sold \$68 million worth of languages, operating systems, RAM cards, OEM contracts, and applications tools.

Today, the burgeoning company em-

ployes more than 500 people and plans to occupy a fourth, 62,000-square-foot, building before the end of the year. Who are those guys? What makes this company tick, who are the innovators at Microsoft, what are they doing, and where do these exuberant people believe they are taking the microcomputer industry?

Dormitory Atmosphere

If you were to walk through the narrow halls of any of Microsoft's three buildings in Bellevue, Washington, you would see that nearly everyone, from self-proclaimed "go-fer" to product manager, has his own office with windows. The halls are virtually quiet with the only noise coming from people typing on their Zenith terminals inside their glass-and-plaster "bubbles." Except for the modern windows, the atmosphere resembles a college dormitory for math majors. Everyone is dressed informally and there is an air of intense concentration.

Despite the quiet facade, many of those who are recruited by Microsoft feel a strong undercurrent of pressure.

... It's like an honors class in college: it's not easy to excel here."

A Terminal in Every Room

As in most prestigious schools, there is almost an invisible bond linking everyone together. Having a terminal in nearly every room helps establish this bond at Microsoft.

Perhaps foreshadowing the future, the workers are tied together via MILAN (Microsoft Local Area Network). The Xenix-based network enables people to work together and to respond to the requests or comments of others instantly. The gray-and-green, utilitarian terminals aren't just for show; they are used extensively, almost passionately, for both product development and sending



CEO Bill Gates studies a new software proposal.



Microsoft President John Shirley at the keyboard.

Pete Higgins, recently recruited from the Stanford Business School to manage the marketing of Multiplan, described the atmosphere at Microsoft. "You can come here any time of day or night, any day in the year, and find someone here. ... It's not considered unusual here to be an extremely hard worker.

and receiving electronic mail.

Microsoft's products are constructed on the terminals using "C" language. Leo Nikora, Manager of Systems Products tells why C is used. "We write in C because it's a high level language," says Nikora. "Therefore you get high productivity from it, and it's a portable lan-

guage. It's efficient because it can be mapped from its source to its object effectively; and it's being adopted by the universities as their standard language. If we picked MESA, for instance, we might have all of the above, but we'd have to get programmers in here and then train them." Microsoft's Xenix is the multi-user OS which links their Zeniths to each other and to their DEC 2060, the PDP-11/70s, and the Vax 11/750. Everyone praised the effects of using the terminals to send electronic mail. "We have an extremely high bandwidth here," said Nahum Stiskin, General Manager of Microsoft Press, "when you get talented and hard-working people within E-mail of each other, you get an extremely exciting environment."

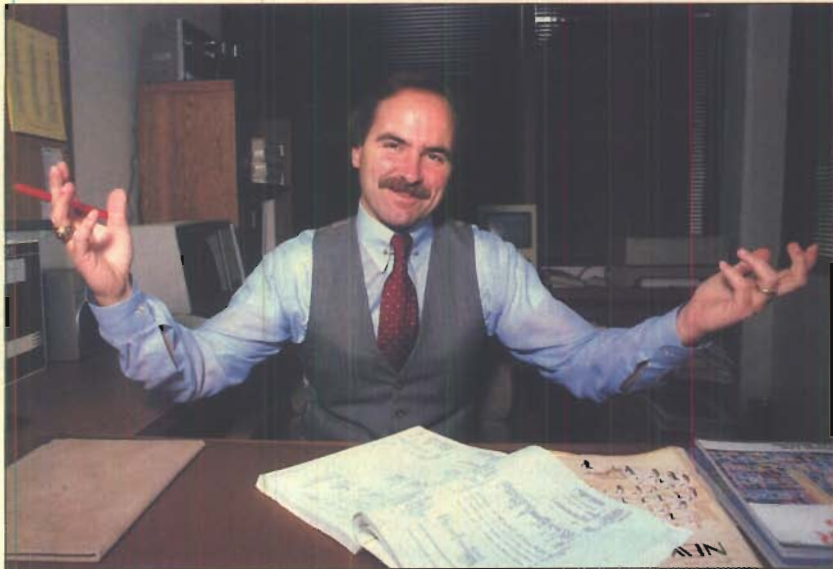
Center of the World

At Microsoft there are no ergonomically designed work stations to hold the computer terminals which clutter the individualized offices. The terminals sit on simple desks. Expensive paintings don't decorate the walls either. Instead, posters curl around plastic tacks. Some show a map of the world with the word "Microsoft" placed in the center. It is the only location which is marked and identified on the maps.

"It's the center of the Universe here," said Nikora. Nikora was recruited from

The growing Microsoft campus housing 500 employees.





Rowland Hanson is in charge of Corporate Communications.

Xerox's office systems division, where he supervised the development of Ethernet services.

Making Computers Like Hammers, Windows, and Colt 45s

"Where's Microsoft going? We're making it so that computers will be like hammers you buy in a hardware store: you just grab it and use it. That's how PCs will be after Windows," he said.

Revealing a universal feeling at Microsoft, Nikora explained that Microsoft Windows would democratize soft-



Leo Nikora manages systems products.

ware and make computers more readily available to more people. Windows will make it so "you will no longer have the wizards, the guys in the white capes who know all the control sequences," said Nikora. Windows will enable users to feel that "I'm as good as the next guy; I can make it (the software and computer) perform just like the next guy. Windows is like the Colt 45 of the west; it's the great equalizer: we have the same fire power as the next guy. Most applications in the future will be written in the Windows environment. Forty-two major

OEMs have joined in our effort. This is a monument to the way Microsoft works."

Developers and Marketers

Nikora was surprised to discover how Microsoft works. Sitting crosslegged on the top of his desk, he recounted his reaction to the position he was offered. "I told Bill (Gates) I wanted to help Microsoft get into the network business, that I knew it cold. I was asked, 'how would you like to be in marketing?' I thought that marketing was for parasites—the people who make it difficult for developers—but marketing is different here." At Microsoft marketing people are transferred from the ranks of developers, within the languages and system sections, so they know what can and cannot be done. Thus, when a marketing manager requests that a certain product be made, he knows what it will take to accomplish the mission.

Much care is taken at Microsoft to enable everyone to standardize the microcomputer industry and make Microsoft the "IBM of microcomputer software."

Microsoft's New Face

Microsoft's managers and product developers seem committed to serving the needs of the novice user. This differs from the past. Gates has taken purposeful steps to create a new perception of Microsoft by hiring a former image maker of a leading cosmetics firm to help "make Microsoft a quality name," like Estee Lauder or Mercedes.

According to Rowland Hanson VP of Corporate Communications at Microsoft, Gates went to an employment re-

cruiting firm in New York and said "he wanted him to get the best cosmetics marketer he could find—someone with the cosmetic point of view." Hanson was called, while he was VP of marketing for Neutrogena and asked to visit Gates in Bellevue on a Sunday afternoon. Hanson's reaction was: "Bellevue, where's that?—some place in outer Siberia—and, Microsoft? What's this Microsoft—never heard of it!" Nevertheless, Hanson was impressed with Gates's understanding of marketing concepts.

Moisterizers and Microsoft's Makeup

Hanson began his meeting with Gates by questioning why Gates wanted someone with cosmetic marketing experience to create the corporate image of a software company. Pointing to cosmetics ads in magazines, Gates asked Hanson the difference between one moisturizer and another, besides the fact that one was sold for \$40 an ounce and the other for \$1 an ounce. "There is no difference, essentially," replied Hanson. To this Gates said, "In a nutshell, that's why I'm talking to you. There is a major difference between reality and perception. It's nice to be the technical leader, but we also need to be perceived as the technical leader, because the reality without the perception isn't going to get us anywhere."

Creating the proper perception of Microsoft in the mind of John or Jane Doe is Hanson's mission, and he has a precise plan for doing it. "We are mak-



Microsoft Press Director, Nahum Stiskin.

ing high-performance software," said Hanson, admitting the intent of wanting people to associate Microsoft software with the performance and quality of Mercedes. "People have a product ladder in their mind," Hanson explained, "when they think of quality frozen food, for instance, they think of Stouffers and Sara Lee. . . . But people can't tangibly tell you why they're the best—they just have that perception."

Women Won't Be Left Out

When asked if he plans to ignore

women as a valid market, as most software developers have, Hanson smiled and took another ad off the wall which showed a woman's hand holding a Multiplan disk. Then he showed another ad with a man's hand holding the "Word." The art work is intended to attract both sexes by subliminally suggesting that, yes, men can benefit from word processing software, just as women can enjoy the time-saving features of spreadsheet software.

Caring about addressing women as an important market segment is not the consideration of just Rowland Hanson. Other developers are also keenly aware of this growing segment of the software marketplace.

Dr. Charles Simonyi, manager of the End-User Applications Group, gave a surprising commentary to the fact that most data processing managers view with disdain the cute little icons on Apple's new Mac. "Their opinion (data processing managers') is not significant," said Simonyi, "I want to know what secretaries and housewives think!"

Simonyi was recruited from Xerox PARC where he was instrumental in writing the "Bravo" software for the Xerox Alto. In 1972 this software em-



Multi-Tools Group Mgr. Charles Simonyi stands in microforest.

ployed a "mouse" to move the cursor to a menu of icons—like Apple's "Lisa" and "Mac"—and showed "what you see is what you get" on the screen. Yet, Simonyi had intensive experience with computers long before he wrote software for Xerox. Simonyi's first job was writ-

ing a compiler for a first generation Russian computer (with vacuum tubes) while living in Hungary in 1966. His second job was working his way through college, using a second generation computer, a CDC 6400, at the University of California at Berkeley. Simonyi helped

C&E TALKS WITH BILL GATES

Bill Gates, 28, has built Microsoft from a small 5-person operation to a \$68-million enterprise which employs 500 people. Gates's beliefs in open management and developmental freedom, analysts say, are largely responsible for Microsoft's impressive growth as a leading independent software company in the United States. To get some understanding of how Microsoft's chief executive officer sees the future, *C&E* interviewed Gates at Microsoft.

Q. What do you think computers are really for? What will they do for humanity? Will they bring us closer together?

A. It's kind of corny to say that computers are meant to bring us closer together. But we actually believe stuff like that. Computers spark creativity. One day everyone will have one.

Q. What are you doing at Microsoft to make this possible?

A. We were the first microcomputer company. We are the leading microcomputer software company. Our primary mission is to develop state-of-the-art software. We are staying away from vertical markets. That limits our leverage.

Q. Do you intend to bring software companies closer together?



A. It used to be that hardware was moving ahead of software development without them interfacing with each other. Now we have more of a balance because there is a software layer in between. Microsoft "Windows" is an example of this new technology.

Q. Are you conscious of leading the technology?

A. The industry has a natural direction of its own. We are trying to keep in touch with what the user needs.

Q. How are you trying to do that?

A. We get feedback from our technical support department. People call in and say they wish they had this and that. And we take these inputs and collect them. But we still use our own intuition.

Q. How do you make it all work so well at Microsoft? Was electronic mail at Microsoft one of your ideas?

A. Electronic mail will be a part of the office of the future where networking is totally central.

Q. Are there any new products you want to talk about?

A. Windows is important. Networking is on its way and so are enhancements to Word such as an upcoming mailmerge, tutorial disk, and new documentation.

Q. Will word processing bring more people to computers or will spreadsheets?

A. I've always been surprised at how well spreadsheets sell. But I think in the long run, word processing will outsell spreadsheets. Word processing can construct ideas not realized in graphics . . . I've always thought it was important to have a notepad for thinking. ◇

Microsoft



Rick Farmer, Product Support Manager, talks to Clay Jackson, seated.

create what he calls the "first real personal computer," (the Xerox Alto), at Xerox. Now, at Microsoft, he's working on the next generation of computer software. "This gives me a unique perspective: I have the same perspective (of computer technology) as a 55-year-old, American computer scientist," he said. Simonyi is 35 and one of the oldest manager/developers at Microsoft.

When asked what attracted him to computers at such an early age, he said, "Why is a fly attracted to fly paper? Flies land on all kinds of objects. They just stick to fly paper. Really, the question should be, 'What makes computers so sticky?' For a young person, computers give the only opportunity to express himself in a serious way. I can count on the finger of one hand the professions a 17 year old can have where he is doing something serious. When I was young, computers gave me a way I could do something serious. . . ."

It's no wonder that Simonyi viewed science with seriousness. His father is an electrical engineering professor who is currently writing a book on the history of physics for the University of Chicago Press. What did he learn from his father that may have helped him at Microsoft? Simonyi confessed he had trouble with word problems in his mathematics as a boy. His father taught him an approach to problems he has used ever since: "He (Simonyi's father) said, 'If I told you the result is five, how would you know it is correct? Assume you know the answer,

then checking the answer will give you the equation.' "Simonyi uses this problem solving method when he programs, in addition to dimensional analysis, which he also learned from his father. Essentially, Simonyi said, "dimensional analysis means that you must not add apples and oranges: you can't add temperature and pressure. Einstein said $E=MC^2$ (Energy is equal to mass times velocity squared). We see that this was dimensionally correct. However, if we heard that $E=MC^3$, then we would see that this is not dimensionally correct, because energy is measured in $Kg M^2/sec^2$ units. In programming, it's the same thing: we wouldn't want to be comparing a month with the number 31; you

would know that something is suspicious. . . . Just by looking at the dimension, you can find a lot of errors. . . . You won't find all the bugs—it (dimensional analysis) won't tell you what's right—but it will tell you what's wrong."

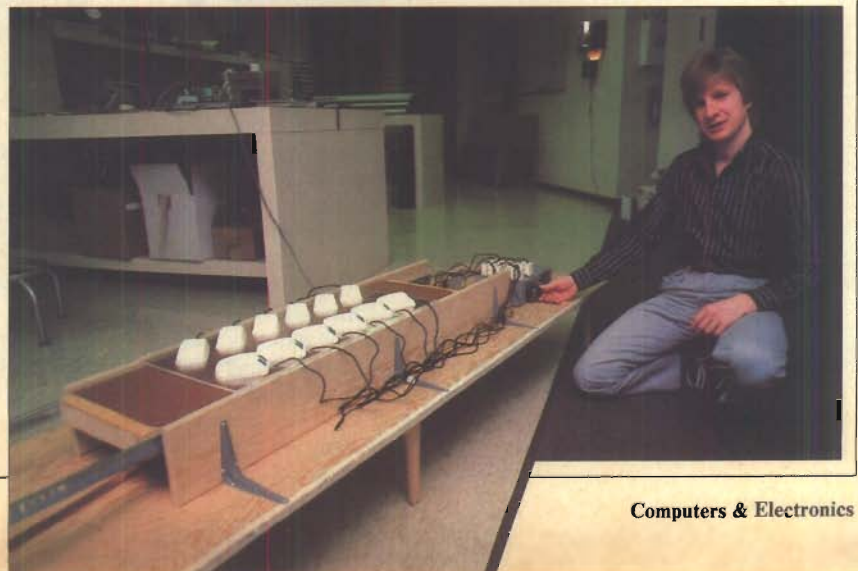
Softer Software

Simonyi sees stability and standards as goals that software developers need to achieve. "In the software business at this point," said Simonyi, "we desire stability. Now we have standards: MS-DOS, the Mac environment, Windows, Xenix. These things will develop a more stable environment so better and better software can be developed." What will make software better? "We want 'softer' software." Such software will "acquire knowledge while the user is in the process and then modify its behavior. . . (for example) noticing that the user is proficient in a certain area and then allowing the user to escape unneeded sequences." Just as we must train our pets to have good manners in the house, so too we must train our computers to "behave" the way we wish, said Simonyi. Simonyi does not believe people should be taught to adapt to computers, but that computers should be adapted to people. "Before mice, you had to execute commands which you had to memorize. Now you won't need as much knowledge to operate the machine. With Multiplan, for instance you will use the mouse and just point to the column boundary, push down on a button and the boundary becomes gray. Then you will point where you want the the column to be and press a button and you'll have it. Now, that's

(Continued on page 98)

Greg Gianas is a former newspaper reporter currently working for a large computer retailer in the Seattle area.

Willie Tilse and his mouse testing device.



Microsoft

(Continued from page 70)

direct. The difference is like telling a robot to move so many spaces left and so many spaces right . . . versus grabbing the darn thing and moving it."

What is the secret to making a software company "move"?

King Arthur on a High Bandwidth

Leo Nikora offered this picture of what Gates is accomplishing at Microsoft: It used to be, before Bill Gates came along, that companies thought they had to produce proprietary products, otherwise you couldn't make lots of money, he said.

"Now Bill Gates has shown that the person who gets everyone to work together will share in the wealth. It's like what happened in the Middle Ages with King Arthur, when all the lords were fighting for dominance and each one of them living in their own crummy little castle. Now, thanks to Bill Gates, we're all getting together to do this symbiotic stuff and everyone's got a nice castle," he said. Simonyi explained why he likes working for Microsoft.

"Two things make a company good to work for," said Simonyi, and Microsoft offers both. "First is faith in management. You want to avoid, as you get older, wasting precious time. It's easy to contribute to something which is going nowhere (in this industry). Simonyi explained that because Gates has a technical background, there is no time wasted trying to "educate management" at Microsoft. "We're on a high bandwidth communication here," Simonyi said. He said the people at Microsoft communicate much like infantry soldiers who know their jobs and each other very well: "We exchange information in grunts and get on with it, like the way two infantry soldiers who understand each other communicate. One doesn't say, 'you go around that building over there and start firing,' he grunts and the other knows what he means. That's the way it is here."

17-hour Days

Larry Levitsky, national marketing manager of Microsoft Press, has a simple reason as to why people work so hard at Microsoft. "I can answer that question in two words," he said. "Bill Gates. Bill sets the pace. Everyone's running trying to keep up with Bill. Fifteen- to seventeen-hour days are not unusual here, six to seven days a week. I've worked eight years in corporate offices in New York, and I've never seen a chairman of the board work this hard. It's good to see him work so hard. He inspires you." A former graduate student of Russian lit-

erature and translator of Russian computer manuals for the United Nations, Levitsky marketed books for Harcourt Brace, EP Dutton, New American Library, and Grove Press, and he was hand-picked to market Microsoft's books.

Microsoft's new Press is managed by Nahum Stiskin, former founder and owner of Tokyo's "Autumn Press," a counterculture press in the 1970s. Stiskin was educated in the 1960s "when technology was evil. . . . We had the conception that we were better off without technology—technology to us then was the B-52, Vietnam, and nuclear weapons—technology was dangerous." So what's Stiskin (an author of books on Physics and Zen, Philosophy and Cooking, Politics and Medicine) doing managing a press which publishes books about computers? As a writer, Stiskin used a computer to "liberate the creative process." He knows the value and frustration of using a computer as a person who has never liked machines. With his background in publishing, his knowledge of computers and of the neophyte user, Stiskin is perhaps just what a computer book company needs: a manager with a deep love for the humanities, em-

pathy for the largest, untapped, market segment, and a desire to help others use a potentially intimidating machine to promote communication between people.

Contrary to what you might expect, Microsoft Press is not a company whose purpose is to explain and clarify Microsoft's manuals. The Press will publish books which not only address Microsoft software, but also "the culture as a whole," as shown by *The New Papyrus*, a collection of 21 essays about computers and culture which, according to Stiskin, will be the "classic compendium, showing the evolution of the industry." In short, Microsoft Press "is not a vanity press only related to Microsoft products." Stiskin's Press is going after a particular market of book buyers with the intention of creating the standard in computer book publishing.

Book Buyers Have Changed

Stiskin explained how the market for computer books has changed recently. It used to be that the buyers of computer books didn't care how the books were packaged or written. They were hobbyists, for the most part.

"Now the market is more mainstreamed; business executives are using the machines far more, and there's a penetration into the home market. There's an upward tick in the marketplace. We are appealing to a quality audience: young, 18-35, upwardly mobile as a result of their education, life style, taste, and what they read. The rest of the publishers are moving down stream; they're moving 'down market,' using low-cost paper with swiftly written copy, swiftly packaged." That's not where Microsoft Press is going, with Simon & Shuster distributing their books by such authors as Peter Norton, Cary Lu, Mitchell Waite, and a dozen other well-known writers.

Why will Microsoft Press do well? ". . . We can achieve the highest levels of accuracy in the industry (because) we (Microsoft) are the people who drive the industry. We know what's happening in 1985; for God's sake, we're doing it!" Stiskin said.

Product support is an acknowledged area of concern. Some dealers who have called Microsoft describe how they have to wait on the line for an average of 35 minutes before someone has an opportunity to answer their questions. Rick Farmer, manager of product support, is aware of this problem. In fact he knows precisely how many people get tired and hang up—more than 50%—and he doesn't see the problem being solved by hiring more support technicians. "I fore-

MICROSOFT SOFTWARE PRODUCTS

Operating Systems

- MS-DOS
- Xenix
- MSX
- MSX-DOS
- Windows

Languages

- BASIC Interpreter
- BASIC Compiler
- Business BASIC Compiler
- Applesoft BASIC Compiler
- FORTRAN Compiler
- FORTRAN-80 Compiler
- COBOL Compiler
- Pascal Compiler
- C Compiler
- Assembly Language Development System (for Apple II)
- Macro Assembler
- muLISP
- Sort
- Edit

Applications Software

- Word
- Multiplan
- Typing Tutor II
- muMath
- Decathlon
- Flight Simulator
- Project
- Chart (for Macintosh)

see this as an never-ending problem," said Farmer, "the more people we put on, the more people are encouraged to call. If more people would read the manual, then fewer people would call."

Microsoft Licensed Training Centers

To help the thousands of frustrated users out there, Allen Stewart, National Training Manager, is going around the country, building relationships with software training centers so that Microsoft's users will get the maximum support possible in the most professional environment available. By this summer, Stewart estimates Microsoft will have established more than 100 authorized Microsoft Learning Centers throughout North America. He believes that these training centers will take much of the load off the software support lines in Rick Farmer's section and give Microsoft's customers what they want and need—professional, person-to-person training.

Why are there so many calls asking for help with "user-friendly" software and what is being done to help the growing, silent majority of confused consumers?

Telepathic Computers

According to Farmer, a former programmer in the oceanography department at the University of Washington, "The people who use computers now are a product of the TV generation. Their attitude is, turn it (the computer) on and it's done; turn on the TV tube and it will do all for you; you don't have to do much... therefore, you don't have to read the manual. Most people are into the thing of 'sit back and watch the ele-

phant dance.' They can't understand why this thinking machine will require them to think. The goal of development (at Microsoft) is to make it easier to tell the machine what to do—closer to a telepathic computer." Until this time arrives, Farmer plans to develop a data

Why are there so many calls asking for help with user-friendly software?

base of answers to the 300 most common problems. People will call in, describe their problem, and a computer will search, using key words, and eventually offer an answer.

More 'Human' Computers

One of the developers of Microsoft Windows is John Butler, a former cardiologist turned programmer. As a cardiologist, Butler was angered by the quantity of facts which doctors must memorize, especially regarding testing procedures. The use of computers would help doctors spend more constructive time with patients, he thought, thus encouraging them to view people as something more than "bags of pathology." Yet, Butler noticed that computers appeared to be "serviced by priests;" and, (because of the perceived nature of their complexity), computers have been kept from people who could most benefit

from them.

When trying to determine how he could best "improve the world" with his talents for understanding people and discrete mathematics, Butler decided that he wanted to be intimately involved in "making computers available to real people." Microsoft Windows is Butler's first step toward making computers more "telepathic" for the average citizen who doesn't have the time or inclination to program a computer.

An almost childlike joy of *playing at your work* seems to characterize Microsoft. This attitude is seen from top management down to an assistant to an engineering tech like Willie Tilse, who built the "Mouse Mileage Life Test Machine" from "bits and pieces, whatever I found lying around."

Tilse was given the job of "exercising the mice to extinction" to make sure that the life span claims of the mouse packages were accurate. To do this, Tilse collected furniture legs, a desk top pad, kitchen drawer slides, scrap copper tubing, Boeing surplus parts, shelf brackets, and a used kidney dialysis motor. He made the tester with a switch box that had a fail safe circuit and counting circuitry. He then cut the plexiglas with a router and drill press he brought from home. Why such devotion?

Tilse expressed his view of why the people at Microsoft work so hard and accomplish so much. "Here you're allowed to be whomever you are... just being able to function without anyone looking over your shoulder... helps me want to work hard; it doesn't seem like work to me (even though he described more than a few 17-hour days)... These are my toys. I'm out there playing with my toys. It's fun to me." ◇

IBM Portable

(Continued from page 25)

would each require full-sized slots. Many of the cards from other manufacturers are full-sized cards, too. The Portable's limitations on card size will undoubtedly spur development in this area. Another problem is that the XT motherboard, with more slots, doesn't permit card widths that can be used in the PC.

Benchmarks. I have a series of benchmark programs which I've used to compare the speeds of various computers. They range from a simple FOR... TO loop to measure rudimentary BASIC speeds, through computation and disk operations. I expected no difference between the speeds of my PC and the

speeds of the PC portable and, in fact, the speeds were identical for all tests.

Overall Comparison of the Portable and PC. As I mentioned earlier, I could well imagine that a discerning buyer might take a full-sized PC in preference to the Portable. Pricing, however, doesn't seem to be the factor. Current prices for the PC with Color Graphics card, one disk drive, and a "foreign" monochrome monitor are about \$2200 at a discount dealer and \$2500 from an authorized IBM dealer. With the IBM monochrome monitor you're up to \$2400 to \$2700 or more. This compares to \$2795 for the Portable. A two-drive version of the PC ranges from \$2700 to

\$3200, compared to \$3220 for the Portable configuration.

It appears that buyers are probably influenced more by the unconventional amber screen and the expansion limitations of the Portable in choosing the standard PC over the Portable. For a user who is solely intrigued by the newness of the Portable and doesn't really travel frequently, it probably makes more sense to stick with the PC, unless he's pining for the amber screens and amber brews of Munich.

The PC Portable Vs. Compaq

The second portion of this review must, of necessity, compare the PC Por-