"When we invented the personal computer, we created a new generation of entrepreneurs."

#3 *of a three-part series.*

Steve Jobs and his partner, Steve Wozniak, developed the first personal computer in 1975. Today, Steve Jobs is vice chairman of Apple Computer Inc., based in Cupertino, California. Apple has grown to be a leader in personal computing.

You've said that Apple is carrying on a Silicon Valley tradition. What do you mean by that, Steve?

Silicon Valley is the finest example of the American entrepreneurial, risk-taking culture. You won't find this kind of culture anywhere else in the world. Hewlett-Packard started here. Intel invented the microprocessor just eight miles from where we're sitting now. The heart of the semiconductor industry is here. Woz (Steve Wozniak) and I grew up in this Valley. Bill Hewlett and Dave Packard literally were our heroes when we were growing up, so it just follows that Apple would carry on the tradition.

Like a lot of entrepreneurs, Woz and I didn't consciously set out to start a company. We tried very hard to convince two other established computer companies to fund us while we developed the personal computer. We spent a lot of time and got nowhere. Ultimately, we had no choice but to do it ourselves.

Today, that entrepreneurial spirit *still* exists throughout the company. That's one of the reasons Apple's been able to attract and retain some of the finest technological talent in the world Our people want to work in an entrepreneurial environment — and they also want to

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help create a product that will affect the lives of millions of people.

Has Apple's entrepreneurial spirit permeated other segments of the personal computer industry?

Definitely. Right now, there are over 170 small-to-medium-size entrepreneurial companies supplying software packages and hardware peripherals designed *specifically* to work with Apple systems.

An Apple is a general purpose tool. It's these software packages

and hardware peripherals offered by Apple and these other companies that help the user tailor the Apple to his or her specific needs. It's the combination of Apple, software and peripherals that gives someone a personal computer solution. The more solutions available, the more Apples we sell. Here's an example.

Say an engineer who works full time at a large corporation buys an Apple. That person decides that, in their spare time, they can create a useful piece of software that other Apple owners might want to buy. Hypothetically, that engineer can manufacture the program for $10, the retailer would buy it for $25 and, in turn, sell it to the customer for $50.

If just 10% of Apple's installed base (over 150,000 owners) buy this program in the first year, that engineer would sell 15,000 copies. That's a $15 profit per copy, and that's a $225,000 total profit in just 12 months! And the only necessary capital equipment to make this possible was one Apple system that cost less than $5,000!

This phenomenon couldn't happen if the Apple didn't exist. In the past, it was possible for an entrepreneur working on a large computer or time-shared system to write a piece of software.

But there were three major roadblocks. There was a very small installed base to sell the program to, so the entrepreneur had to sell the program for maybe $1,000 or more per copy to show any profit. There was no distribution channel through which to sell this program, so they would have to hire salesmen which, of course, they couldn't afford. Finally, they might not have been able to write the program at all because you can't take a time-shared system home to create a program in your spare time.

That's why this phenomenon couldn't happen if the Apple

didn't exist. Our installed base is large, the entrepreneur's capital equipment cost is small, and there's an existing chain of soft-
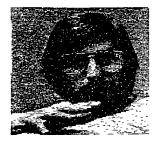
"The retail personal computer dealer is the entrepreneur who distributes the products of an entrepreneurial industry."

ware distribution through the retail dealers.

Apple pioneered the retail distribution of personal computers. To do this, we helped create a network of over 2,000 dealers worldwide. These dealers own their own business. They are the entrepreneurs who distribute the products of an entrepreneurial industry.

How is Apple going to maintain its leadership in the industry through the end of this decade?

Our industry is still in its infancy. It's continually evolving. Rather than just a series of events happening in the industry — new products, new companies coming and going — there's an underlying process going on here, a process to which Apple is committed: the integration of computers into our society on a personal level. We think that process is going to take 10 to 15 years. Let me give you two examples of processes like the ones I'm talking about, which we've all witnessed in our lifetime.

When was the last time you saw a mimeograph machine or used a piece of carbon paper? You don't use either today because of the invention of the Xerox machine — a tool that has radically altered the way we all work. Yet the first Xerox machine was introduced only 20 years ago, in 1960.

Second example: HP introduced the first hand-held scientific calculator, the HP-35, in the early '70s. In less than 10 years, the world's largest manufacturer of slide rules stopped making slide rules altogether. We believe the integration of personal computers into society will have an even greater effect than the calculator or the Xerox machine.

We also believe Apple's continuing success and leadership

position will result from innovation, not duplication. Innovation in products and marketing as well as in distribution.

For example, we've learned that one of the factors in the growth of our marketplace is that it takes about 20 hours to get truly fluent with your Apple. We'd like to reduce that to under an hour. The way this will be accomplished is to spend a larger portion of the computer's computational power on what we call the "user interface." The user interface is the way the computer and user interact with each other. Future Apple systems will spend more of the computer's intelligence to translate or adapt information in a way people are already familiar with, instead of forcing people to adapt to the computer. Let me illustrate this:

Look at any desk in your office. You'll see stacks of paper, the telephone, a calculator and a typewriter. The people sitting at these desks must intuitively understand *concurrency* — several things occurring simultaneously. They understand *priority* — stacks of paper on a desk, with the one on top being most important. And they understand *interruption* — the phone rings, a memo gets put on top of the stack, etc.

But if you went up to any one of them and asked if he or she could define concurrency, priority and interruption — you would probably get a blank stare.

Yet people intuitively understand things that they're not cognizant of; we all know more than we know we know.

Today, to use a personal computer, you must deal with these already-familiar concepts in a new way. Tomorrow, the computer will adapt itself to the way you're used to dealing with concurrency, priority and interruption — not vice versa.

But this leads to an interesting paradox: to make a computer easier to use requires a more sophisticated computer. And the more sophisticated the

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personal computer, the more expensive the personal computer. As this trend manifests itself — and it will — you should expect prices of useful personal computers not to decline over the next few years while we

develop and perfect this new technology.

It's always been Apple's objective to build the least-expensive, *useful* personal computer — not necessarily the cheapest. We build tools, not toys. Ultimately, you will get more Apple power for the same dollar.

But that's just part of the Apple strategy for maintaining our leadership position in the '80s. Obviously, I've only been talking to you *conceptually* about what's going on at Apple — after all, this is going to run in The Wall Street Journal.

Ultimately, the Apple must adapt totally to the way people work. The Apple has to change, not the Apple owner. And that's exactly what Apple is planning through the end of the decade.

This is part three of a series where Steve Jobs talks about the personal computer, and the effect it will have on society. To find out more about the Apple family of computer products, see your authorized Apple dealer. For your nearest computer store, call (800) 538-9696. In California, call (800) 662-9238. Or write: Apple Computer, 10260 Bandley Drive, Cupertino, CA 95014.

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