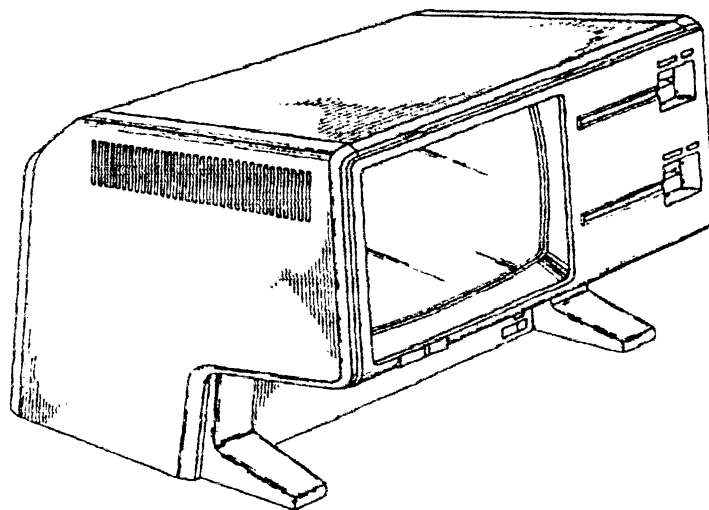Apple Lisa Computer Technical Information

BYTE Magazine Reader Replies to the February 1983 Issue Featuring the Apple Lisa Computer

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Lisa Feedback

Like everyone else, I awaited with great anticipation Gregg Williams' in-depth review of Apple's new Lisa machine (February, page 33). However, upon completing the article, I found myself wishing that the author had provided more searching analysis and less parroting of the manufacturer's promotional fog and vague promises.

As a longtime admirer of Apple's corporate verve, I've hoped that the Lisa would provide the transfusion of fresh blood necessary to keep the company from otherwise inevitable crushing under the IBM juggernaut. From the article, I'm not sure this is the case. Maybe Williams just missed some fundamental points, but I'm sure that the corporate purchasing agents who will be making searching evaluations of this very expensive machine will not miss such points as these:

The microprocessor: The 68000 is more or less current state-of-the-art, but what's the point if the multiuser, multitasking, networked operating systems aren't in place? Trying to separate promises from deliverable hardware, it seems that quite a bit of such support has yet to be implemented.

Drives: What's so "revolutionary" about an 860K-byte variable speed drive? Chuck Peddle put 1.2-megabyte variable-speed drives (double-sided version) in the Sirius I (Victor 9000) two years ago.

Display: It's hard to tell from the photos, but the display seems to be just black on white or pale blue. If so, it may be a serious mistake. While such a display may be necessary for logic implementation of the desktop-with-icons metaphor, it sacrifices the utility and pizazz of the full-color graphics rapidly becoming industry standard with Apple's competition. And black on white is just hopeless for long-term word processing; even executives must sometimes draft long reports.

Input Devices: People doing any serious spreadsheet work will surely long for cursor movement keys and curse the need to remove hands from the keyboard to use the mouse. The mouse itself seems pointless; why replace a device you're afraid the executive is afraid of (the keyboard) with another unfamiliar device? If Apple was seriously interested in the psychology involved it would have given said executive a light pen.

Software-Bundle Concept: Certainly Apple must be applauded for its willingness to take the software-bundle concept to new heights. However, I wonder whether in some areas it goes too far. For example, while the desktop-with-icons metaphor may be useful, were I a Fortune 500 company vice-president, I would be mortally insulted that a designer felt my computer had to show me a picture of a wastebasket to direct me to the delete-file function. Such offensive condescension shows up throughout the design, even in the hardware (e.g., labeling the disk release button "Disk Request").

The individual programs seem well thought out, except for the word processor. If this machine is really aimed at executives, it probably ought to trade some of the sophisticated manipulation and formatting for a spelling check (they probably aren't much as typists), grammar checker (they want their reports to be readable and articulate), style manual, and thesaurus. They'll want to be able to creat sharp, lucid *drafts*; they'll expect their stenographers to take care of formatting and printing with the right margins and other details.

Image: I'd hoped (apparently in vain) that Apple finally understood how badly its cutesy, whimsical image hurts its chances of executive-suite penetration. This image crops up in too many ways in the Lisa: the Apple (control) key, the mouse, and on and on. Please, guys, the next time you're in the executive-suite waiting room, flip through the magazines on the table. You'll find *Fortune, Barron's, Forbes,* etc., but certainly not *Nibble.* There's a lesson there.

Price: $10,000 is ludicrous. Most customers may feel that with existing competitive hardware and other software bundles that will reach the market before the Lisa, they can get good enough performance. Why pay $2000 to $3000 more to be condescended to by a machine? And it becomes hopelessly worse if Apple goes through with the imbecility of locking machine and software together with electronic serial numbers. What company in its right mind is going to spend $4000 many times over for repetitive bundles of software? Times are gettin' hard, boys. Money's gettin' scarce, in case you didn't realize it already. It would be far more sensible to license the package to a network of stations.

Don't get me wrong. I vigorously applaud the effort, initiative, and obviously deep consideration that Apple has given to the Lisa. I really hope it succeeds. My remarks are not a debunking diatribe, but an earnest effort to point out that there are still some significant bugs in a generally pretty snazzy machine.

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Thank you for your comments on the Lisa system and my review of it. I think you summed it up when you said that the Lisa is the result of "effort," initiative, and obviously deep consideration." Of course, no project of such complexity can satisfy everyone, and many of your criticisms are valid personal objections. I particularly agree with you that the $10,000 price is regrettably high (although I would not call it ludicrous) and that the capabilities of Lisa Write do not mesh well with Apple's intended audience of corporate executives. I also thank you for pointing out that the Victor 9000 (as it's called in the U.S.) disk drives do outperform the Lisa's; I was dead wrong on that, although I still think that other aspects of the drives (like the redundant directory and the Disk Request button) are very valuable.

At this point, however, we part company. Your opinions as a potential Lisa customer have the utmost validity but may not be widely shared. For example, I don't think that most people are "mortally insulted" by icons that give them visual clues about the machine's operation, nor do I think they find a Disk Request button, which keeps them from taking a disk out and losing data, to be "offensive condescension." You imply that Apple's use of the mouse is perhaps not the best pointing device for the typewriter-shy executive; maybe so, but Apple spent a lot of money on research that caused them to choose a mouse over light pens and other input devices. Such research also recommended a black-text-on-white-background video display, which you call "hopeless for long-term word processing."

Finally, you make several misleading statements. You say that the Lisa is at fault for not having color graphics, which are "rapidly becoming industry standard." This is simply not the case. Machines like the IBM Personal Computer and the Texas Instruments Profes-

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sional Computer have color, but most business software does not make routine use of it. The reason for this is simple: software vendors, attempting to maintain product portability to other computers, shy away from implementation-dependent features like color graphics. Also, the "imbecility of locking machine and software together" does not exist because the Lisa is sold only with legal copies of its software. The idea of Apple licensing the software to a network of Lisa machines does have merit and is a good compromise between paying for each copy and pirating multiple copies from one legal one.

I agree with you that "there are still some significant bugs" in this "pretty snazzy machine," but I think that Apple (or other companies) will iron them out as the price of such technology decreases and more variations of it become available to suit more people's needs. As it turns out, you are not alone in your dissatisfaction, as you will see from the next letter. . . . G. W.

I read "The Lisa Computer System" by Gregg Williams and "An Interview with Wayne Rosing, Bruce Daniels, and Larry Tesler" by Chris Morgan, Gregg Williams, and Phil Lemmons (February, pages 33 and 90) with hopes that I would learn some of the shortcomings of the Lisa. Instead, these articles, like so many others, read like they were written by Apple's marketing department.

I have not set eyes on a Lisa, but from what I know about the Star and the Worm (remember the Worm that was going to eat the Apple?), and from what I have read about the Lisa, I do not think that the Lisa will be the success that the media have presented.

I dislike being negative because the Lisa does have many marvelous features, which were well presented in your article. However, I think the mistakes made in designing the Lisa and its predecessors should be pointed out by someone.

Mistake #1: The philosophy that computer designers know what users need is arrogant and usually wrong. Every computer user has different desires and needs. The Apple II successfully caters to this market by allowing users to select a machine configuration to meet basic start-up requirements. Users can later purchase additional hardware and software from numerous sources. Users can also customize their machines or software, attaching all sorts of devices and making all kinds of modifications to both hardware and software.

It appears there is one configuration of hardware and software available to potential Lisa users. The Lisa software has six application programs for what appear to be basically word-processing applications. The graphics are excellent, but what if I am offended by the garbage-can concept? How do I change the graphics symbols to ones I prefer? How do I change the commands to ones I like?

What language was this all written in anyway, and why isn't it available to the user? These questions and their answers are missing from all the articles I've read about the Lisa and imply to me that its designers do not believe purchasers of the machine should modify what they have bought.

Mistake #2: The mouse. The mouse is an inexpensive graphics input device that is beloved by graduates of Stanford's computer science program. It has been around for about 15 years in a variety of forms. The Lisa's designers have improved upon the mouse by reducing the number of buttons on it to one. Whether they have removed the other problems with the mouse—poor reliability, intermittent behavior, and inability to move in a natural direction—remains to be seen.

The poor reliability and the intermittent behavior both result from the fact that mice get dirty rolling around on a table. Dirt gets into the potentiometers, which then have "bad spots" and eventually do not work at all. A bad spot is a spot on the display which you cannot point to. You can work around this by lifting the mouse and moving it so the bad spot moves too, but this rapidly becomes annoying.

The unnatural direction results from two wheels mounted perpendicularly to each other. To move diagonally, you need to move along the x-axis and then the y-axis rather than along a diagonal as you can with a joystick.

Because I have no experience with Lisa's mouse, these comments may be unfair. My experience is based on Star's mouse, which had these problems. Gregg Williams' article only pointed out the button improvement, so I assume the rest remains the same.

Mistake #3: The disk. Why the designers of Lisa needed a nonstandard disk package is beyond me. This will make the disks far more expensive with no great improvement in performance. That is, there is no great improvement in the amount of information being stored or in the speed of access. The reliability claim is nice, but in terms of reliability, floppy disks are not a weak link in a system. If anything, the mechanics of the disk need

looking at, not the recording technique. The method of storing two directories is a good redundancy technique that can be done in standard packages.

Mistake #4: Performance. This is a difficult issue to evaluate by reading glowing articles about the Lisa. This is mostly a worry because of the size of the programs mentioned in the article and because of the lack of a display processor, not because of the chip chosen for the Lisa. I have seen old PDP-8 word processors with a tiny memory outperform 16-bit word processors with large memories, so it is a matter of software, not hardware.

If I were to check a Lisa, I would type in a page of text. Then I would block copy the page to create 2 pages of text, then block copy the 2 pages to create 4 pages and so forth until I had 128 pages. This would require only seven block copies and should be done relatively fast if the machine performs well. I would then go to page 50 and cut out a paragraph and insert it in page 1. I have done this on a variety of word processors. Some will not even allow a small number of block copies.

We will be seeing more small computers that use the Motorola 68000. I hope we will someday see one that shares Apple's original philosophy of letting users decide what they need.

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Thank you for raising concerns that I have not heard elsewhere. You bring up some important points: why doesn't the Lisa allow you a choice of ways to do things? Is the mouse reliable enough and easy enough to use? Why did Apple choose an expensive, nonstandard floppy disk? Will the computer be responsive enough when dealing with large, "real-world" tasks? Let me respond to each of these in turn.

You say that the Lisa does not have the protean nature of the Apple II. That opinion is not quite fair to the Lisa computer; after all, it does have three expansion slots for extra hardware, and Apple will be releasing a "programmer's toolkit" that will allow third-party vendors to create whatever software they feel is best. Aren't these the very features you applaud the Apple II for? I grant that you will never have the wide variety of hardware and software add-ons for the Lisa that you have for the Apple II, but that is because of three factors. First, the Lisa doesn't

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need them—many Apple II add-ons correct deficiencies in that computer's design. Second, nobody has had time yet to develop new software and hardware for the Lisa. (Remember, when the Apple II was first introduced, nothing was available for it, either.) Third, the Lisa is a more expensive machine that will not sell as widely as the Apple II; this will significantly influence the number of vendors who will consider creating products for it.

Your criticism about the Lisa coming in only one configuration is certainly a valid one. Probably the only customization you will be able to do is what Apple allows you to do; the software is written in 68000 machine language and is too complex to be modified by the user. The Lisa computer is the first of an entirely new kind of computer. The computers that follow it will improve on the first design; if people like you convince the designers that they must include more customization to satisfy the potential user, they will probably do so.

I think your fears about possible unreliability in the mouse pointing device are unfounded. Of the many details I didn't have time to put in my product description of the Lisa (please note that the article was a description, not a review), one was that Apple designed a new kind of mouse that is meant to be cleaned by the user. The design also isolates the rolling ball from the decoding mechanism as much as possible so that dust and eraser shavings entering the mouse have little effect on the performance of the device. Also, the mouse I tested rolled equally well in all directions; I did not have any difficulty making diagonal movements with it.

I agree with you that the Lisa floppy disks will be more expensive than similar disks because of their nonstandard design. However, I disagree with your opinion that software enhancements such as redundant directories "can be done in standard packages." The place to put such enhancements is in the operating system, so they will be there regardless of the opinions of individual software designers who will either reinvent the wheel and charge you for it or leave it out. Redundant directories take up relatively little space and will save you a lot of grief if they are ever needed; other operating system designers would do well to follow Apple's example.

I like your word-processor test and will keep it in mind for future evaluations. However, I'm not sure you can fault the Lisa for not having a dedicated video-display processor. As I said on page 43 of the description, ". . . according to the designers, the use of a dedicated hardware graphics chip would limit itself and slow down the system. . . ." It would be hard to check this point directly, so we will have to rely on the technical explanation given by the Lisa designers on page 106 of the February BYTE.

I hope you find some merit in my opinions. Thank you for writing; the quality of future microcomputers will, I think, be influenced by discussions such as ours. . . . **G. W.**

A Slight Improvement

It was ironic that the reviews of the two new Apple products, the Lisa and the Apple IIe, both appeared in the same issue (February, pages 33 and 68). It was hard for me to believe that both computers are made by the same company. In the case of the Lisa, it sounds like Apple did a superior job of design and implementation. The modular approach displayed by both the hardware and software demonstrates a mature, serious product.

On the other hand, the Apple IIe seems like only a slight improvement over the engineering hodge-podge that was the Apple II. For example, checking a game-paddle port to see if a shift key is pressed, pressing Control-R (unless between quotes) to restrict the keyboard to uppercase, and the presence of numerous seemingly incompatible graphic modes (to name a few) make me feel that the Apple IIe isn't much of an improvement. Actually, the whole thing contributes to my suspicion that the Apple II's primary reason for success was its being at the right place at the right time. The design errors (or perhaps oversights) in the Apple II were serious enough to make the inventors of replacement processor cards, 80 column boards, and the like rich. While there's no doubt that the Apple IIe is an attempt to rectify some of the most serious difficulties, further repackaging and advertising hype don't contribute to a solution.

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