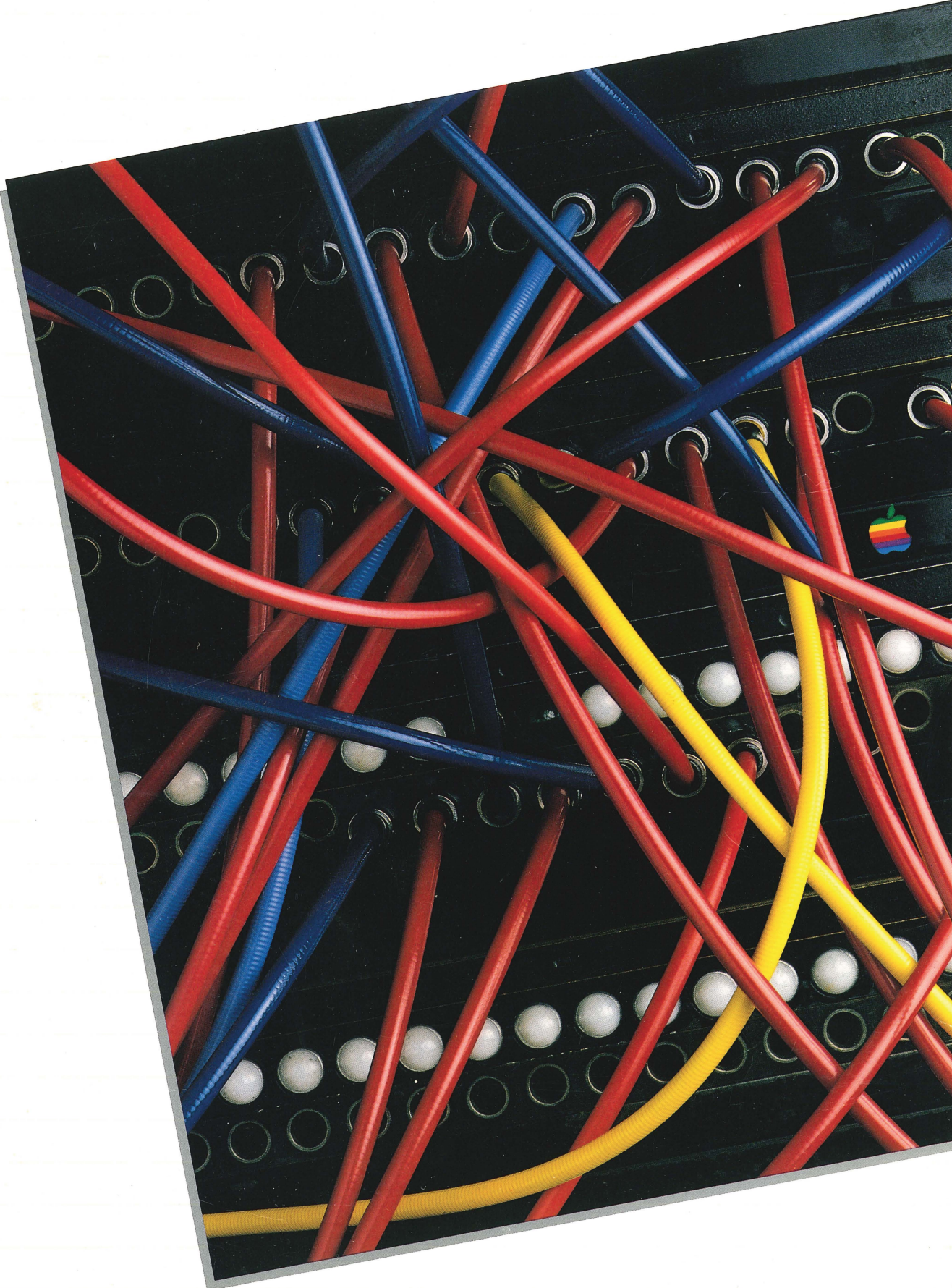


Apple

The Magazine

For Apple

Computer Users



Logo

Plugging Into
The Networks

Lisa and The
Apple IIe:
The Whole Story

Apple on Apples



The Magazine For Apple Computer Users

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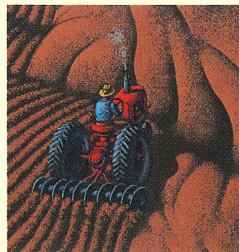
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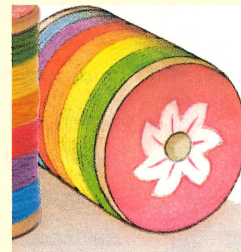
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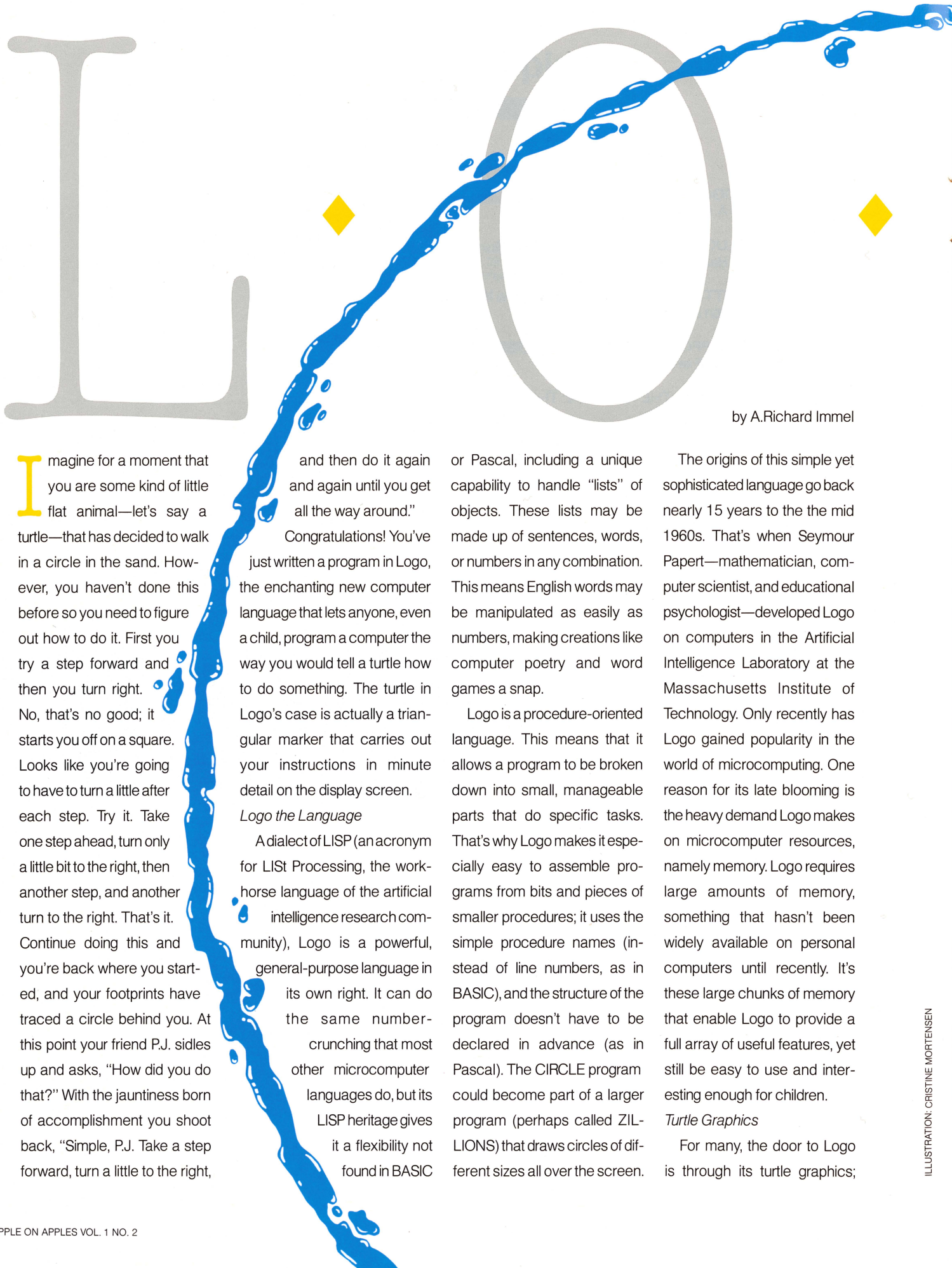


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L O

by A. Richard Immel

Imagine for a moment that you are some kind of little flat animal—let's say a turtle—that has decided to walk in a circle in the sand. However, you haven't done this before so you need to figure out how to do it. First you try a step forward and then you turn right. No, that's no good; it starts you off on a square. Looks like you're going to have to turn a little after each step. Try it. Take one step ahead, turn only a little bit to the right, then another step, and another turn to the right. That's it. Continue doing this and you're back where you started, and your footprints have traced a circle behind you. At this point your friend P.J. sidles up and asks, "How did you do that?" With the jauntiness born of accomplishment you shoot back, "Simple, P.J. Take a step forward, turn a little to the right,

and then do it again and again until you get all the way around."

Congratulations! You've just written a program in Logo, the enchanting new computer language that lets anyone, even a child, program a computer the way you would tell a turtle how to do something. The turtle in Logo's case is actually a triangular marker that carries out your instructions in minute detail on the display screen.

Logo the Language

A dialect of LISP (an acronym for LIST Processing, the workhorse language of the artificial intelligence research community), Logo is a powerful, general-purpose language in its own right. It can do the same number-crunching that most other microcomputer languages do, but its LISP heritage gives it a flexibility not found in BASIC

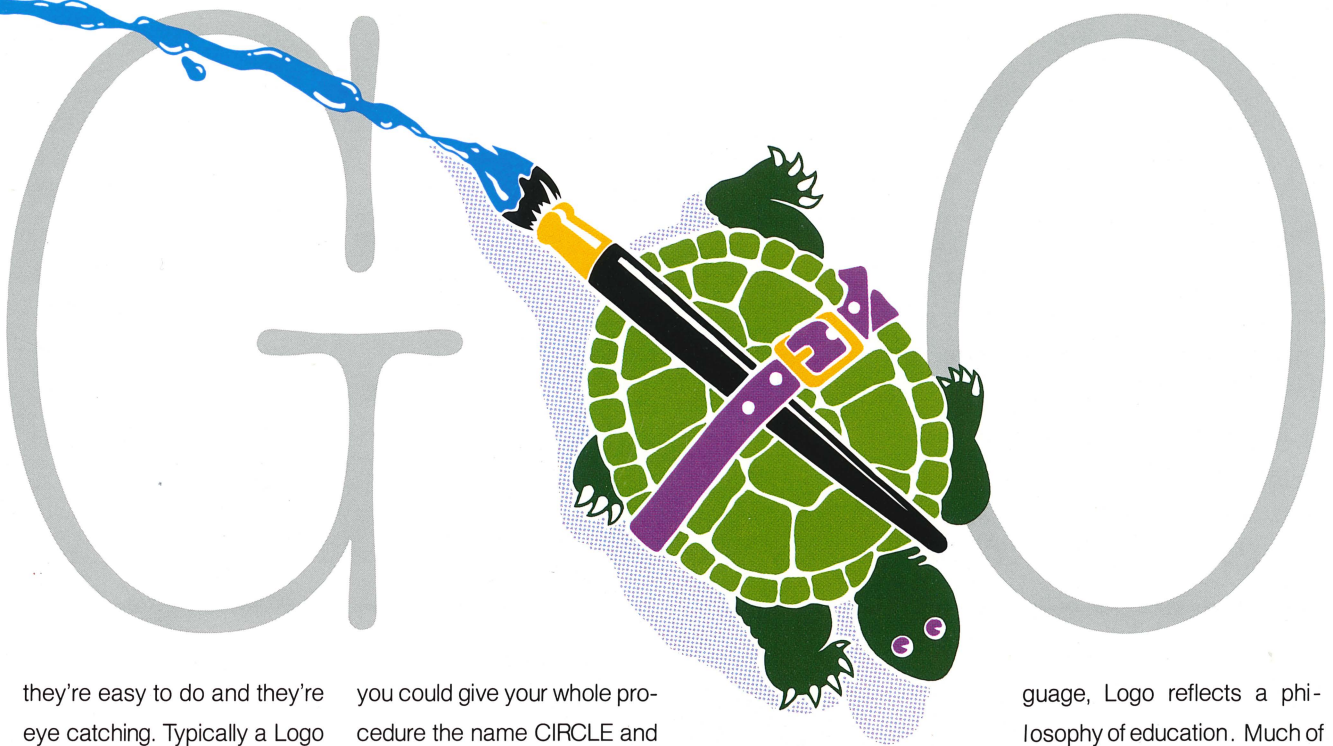
or Pascal, including a unique capability to handle "lists" of objects. These lists may be made up of sentences, words, or numbers in any combination. This means English words may be manipulated as easily as numbers, making creations like computer poetry and word games a snap.

Logo is a procedure-oriented language. This means that it allows a program to be broken down into small, manageable parts that do specific tasks. That's why Logo makes it especially easy to assemble programs from bits and pieces of smaller procedures; it uses the simple procedure names (instead of line numbers, as in BASIC), and the structure of the program doesn't have to be declared in advance (as in Pascal). The CIRCLE program could become part of a larger program (perhaps called ZIL-LIONS) that draws circles of different sizes all over the screen.

The origins of this simple yet sophisticated language go back nearly 15 years to the the mid 1960s. That's when Seymour Papert—mathematician, computer scientist, and educational psychologist—developed Logo on computers in the Artificial Intelligence Laboratory at the Massachusetts Institute of Technology. Only recently has Logo gained popularity in the world of microcomputing. One reason for its late blooming is the heavy demand Logo makes on microcomputer resources, namely memory. Logo requires large amounts of memory, something that hasn't been widely available on personal computers until recently. It's these large chunks of memory that enable Logo to provide a full array of useful features, yet still be easy to use and interesting enough for children.

Turtle Graphics

For many, the door to Logo is through its turtle graphics;



they're easy to do and they're eye catching. Typically a Logo novice will start out by moving the turtle on the screen, drawing lines and simple shapes like squares, triangles, circles, or arcs. Next come variations: lines that spiral, squares that fan, shapes that change size. Then combinations that form pictures—flowers, birds, landscapes, and more. From there you can go as far as you want. Simple turtle designs can be “glued” together with a couple of easy commands to create intricate, mesmerizing, full screen patterns.

As students build various triangles and polygons, they begin to absorb relationships between sides and angles from their own experience instead of having to memorize them from examples in a book or a teacher's explanation. Later on, it's only a “turtle step” from concrete example to abstract generalization.

In the example of the circle,

you could give your whole procedure the name CIRCLE and summarize the instructions this way: REPEAT 360 [FORWARD 1 RIGHT 1]. This would tell the computer to repeat, 360 times, the following instructions: go forward one turtle step, then turn to the right one degree. There are other, faster ways to make circles, but this program works, and from it you get the idea of how to use the language.

Don't be misled by the simplicity of this example, though. The beauty of Logo—indeed, one of its most charming attractions—is that relatively simple programs can produce sophisticated results. Children as young as three years old are actually creating programs that do things like the circle. At the other end of the spectrum, college level physics students are learning the principles of Newtonian motion from Logo. Logo is also changing the lives of many handicapped people

by giving them real access to the computer for the first time.

Logo the Philosophy

Because Logo accommodates various approaches to programming, it encourages different types of people to try programming. They range from highly analytical personality types to casual, intuitive people whose solutions seem to evolve more or less by trial and error. In this respect, learning to program is only a superficial aspect of Logo. Actually, Papert sees turtle graphics as an alternative route into mathematics and physics for students who don't do well under conventional teaching methods.

That's why universal computer access is a major premise of the Logo philosophy. Yes, philosophy. More than being a computer lan-

guage, Logo reflects a philosophy of education. Much of it stems from the theories of Jean Piaget, the Swiss psychologist with whom Papert worked for five years in Geneva. Piaget's theories of child development emphasize the role of learning through self-discovery. In Logo, Papert has married these theories to computer technology.

He's fond of reminding people

- that “teaching is something that's done to you; learning is something you do yourself.” And this is reflected in the key ideas of the philosophy of Logo—experimentation, intuition, and learning from mistakes.

Oops! Scratch “mistakes” and make that “bugs.” There are no mistakes in Logo, only bugs. The notion of the “bug”—something unexpected—is central to computing; no program ever runs the way you expect it to the first time.

LOGO



This concept comes naturally to children, but grown-ups—particularly those without computer experience—have a lot of hang-ups about it. John Eisenberg, one of Apple's resident Logo experts, has had to find ways to deal with this hang-up because he often

demonstrates Logo to adults who are wary of making a mistake. His solution incorporates the essence of the Logo philosophy. When something unexpected crops up, Eisenberg tells them, "It's not a mistake, it's just part of something neat you hadn't thought of yet." ■

At present, Logo runs only on Apple II computers with a language card (or its equivalent) and a disk drive.

If you have an old P6A PROM (Programmable Read Only Memory chip) on your disk-controller card, you may not be able to boot Apple Logo on your

Apple II. Not to worry: Apple Computer, Inc. has instructed all its authorized dealers to give a new P6A PROM, free of charge, to anyone who brings in the old disk-controller card for exchange.

TWO VIEWS OF LOGO

Apple Logo
by Harold Abelson
200 pages
BYTE/McGraw Hill, 1982, \$14.95
ISBN 0-07-000425-0
Reviewed by Steve Hix

Harold Abelson has provided novice Apple Logo users with a clearly written introduction to the language. He also does a good job of introducing Logo to programmers with experience in other languages.

Each chapter builds steadily on previous material, so that by the end of the book you are ready to tackle some fairly sophisticated projects.

Chapter 6 will be of particular interest to anyone learning to program. Most of it is taken up with a discussion of *Nim*, a game program. Unlike most tutorial programming books, you get more than a description of the rules of the game and a program listing. The entire programming process, including planning, development, debugging, and refining the game are described clearly. This alone is almost worth the price of admission, since a novice programmer can get a feel for the degree of effort and level of detail required to program a somewhat complex application.

A nice touch is an appendix describing Texas Instruments' TI LOGO™. It allows you to convert published programs written in

that Logo dialect into Apple Logo. The book also includes a glossary of Logo primitive commands, a listing of references for further study, and a quite reasonable index.

Mindstorms - Children, Computers, and Powerful Ideas
by Seymour Papert
Basic Books, 1980. \$12.95 (hardback), \$6.95 (paper)
Reviewed by Jon Butah

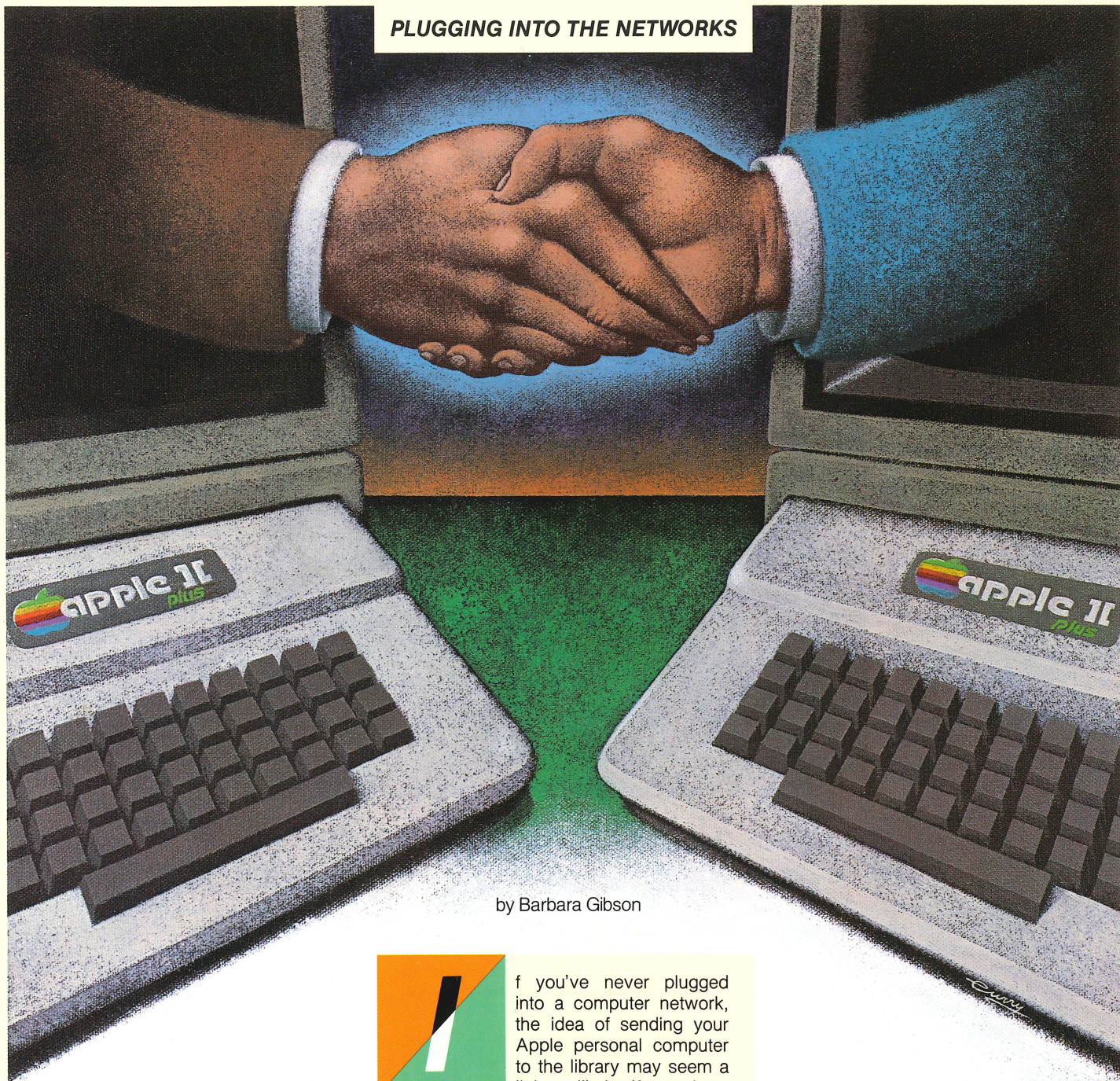
Mindstorms is an eloquent manifesto for Logo and the Logo movement. Like any manifesto, some of its claims may strike the casual reader as exaggerated. But an increasing body of classroom experience shows that kids (and adults) really do enjoy becoming Logo programmers, and that for many it can be a genuine cognitive, even emotional, liberation.

In many classrooms, the traditional interaction between computers and kids goes something like this: the computer presents information—a lesson on geometry, say—and then asks the student to respond to a series of questions. The program instantly corrects the answers, keeps a tally for the teacher, and allows the learner to continue or go back for review. Basically, the computer serves as an electronic teaching machine.

In *Mindstorms*, however, Seymour Papert turns the tables by asking the student to program the computer instead of being "programmed" by it. Drawing on the work of Jean Piaget, among others, Papert contends that the Logo environment profoundly affects the cognitive development of children. Working with the language introduces them to the powerful ideas of geometry in a natural, pleasurable way. They learn math as spontaneously as they learn to speak their native language. They're faced with "thinking about thinking," learning to encounter a problem, and having to "debug" it.

By programming the computer, Papert writes, "the child acquires a sense of mastery over a piece of the most modern and powerful technology, and establishes an intimate contact with some of the deepest ideas from science, from mathematics, and from the art of intellectual model building." No one concerned with education should miss this important book. ■

PLUGGING INTO THE NETWORKS



by Barbara Gibson



If you've never plugged into a computer network, the idea of sending your Apple personal computer to the library may seem a little unlikely. If you *have*

plugged into a network, though, a library is probably just one of the places you send your Apple — and you may do that with all the effort of collecting the evening paper. A library, the bank, your friend around the corner, your office downtown or around the world — all are available to you within minutes, at the touch of a few keys, with your Apple II or III and access to a computer network. Two or more computers linked to each other either by telephone or cable — that's all a computer network is, but it can vastly increase the usefulness of your personal computer. As part of a network, for instance, you can:

- "Read all about it" in electronic editions of the nation's major newspapers;



- analyze the performance of the stocks that you have been following;
- work at your office from home;
- work at your company's mainframe from your office;
- research *anything* without ever leaving your armchair;
- send a letter to business associates throughout the country (or your aunt in Des Moines, if she belongs to a network);
- check the weather in New York before you pack for your trip; or pin a notice on a national bulletin board;
- play a round of bridge with a friend across town and two others hundreds of miles away;
- practise for your College Board exams;
- check the newsletter of your special interest group.

How Networks Work

To do all these things, though, you have to become part of a computer network. Most commonly, you hook your Apple to the telephone by means of a device called a modem; this way, it can communicate with other computers anywhere in the world. Then you subscribe to a *commercial network* or timesharing service, much like the way you would subscribe to a magazine. Hundreds of commercial networks are available, offering services for educational, business and home use. If you use your Apple computer in an office, you can become part of a *local network* in which your Apple computer would be one of several in your office linked, usually by cable, to a central storage system. This way you can communicate with other colleagues on their computers (as many as 64 on one system), and share common information kept in the central storage system, much as you might share common file cabinets. A local network also allows you to tap information from your company mainframe, and share peripheral equipment (such as printers and modems) with several other Apple users.



Find Out...*ANYTHING* through Commercial Networks

Through commercial networks, you can do most of the things we've already mentioned, and more. Some networks, such as The Source and CompuServe, are information services. Like general interest magazines, they offer a broad range of both personal and business services. These include daily stock market reports, UPI news reports, educational programs, electronic mail (more about that later), a consumer buying service, and an airline/restaurant/theatre reservation service. Other networks house specialized information banks, or "data bases," which provide subscribers with electronically updated information on any subject from butterfly wings to Mickey Spillane. One of the most widely-used specialty networks, for instance, is the Dow Jones News/Retrieval Service. It provides all the stories on the Dow Jones Financial Wire for the previous three months, and new stories within ninety seconds after they're on the wire. If you happen to pilot your own airplane, you might tap into Jetplan at DIALOG Information Services to find out which reporting airports have the surface weather you need for flying in or out. A subsidiary of

Lockheed Missile Corporation, DIALOG provides access to 160 other data bases, including abstracts from and indexes to over 1400 magazines and newspapers (including *Time*, *Business Week*, the *New York Times* and *Christian Science Monitor*); millions of books from the Library of Congress; the *Congressional Record*; and Standard and Poor's *Daily News* and *Cumulative News*. If you're a physician, there's the National Library of Medicine, a service you might use to investigate antidotes in a poison case. Blood Stock Research is a service that catalogs the pedigrees of racehorses; and the New York Times Information Bank catalogs — what else? — all the

news that's fit to print.

Electronic Mail: *The Split-Second Letter*

One particularly valuable service that both commercial and local networks offer is electronic mail — the term for picking up and sending messages by computer. By messages we mean anything from standard business letters, memos, financial reports, and graphic data to a note reminding Harry to bring the wine on Saturday. You collect messages at your convenience, and you leave them for others knowing they'll be properly received. Sending mail electronically is easy. You don't need paper at all, and you can send messages to as many people as you want (providing they subscribe to the network you're on) with a few keystrokes. Several commercial networks provide electronic mail services, but, as we've said, you also can exchange electronic mail with colleagues in your company when you have several Apples linked in a local network.

How to Hook Up to a Commercial Network

Before you can subscribe to a commercial network, you'll need a modem — a device that links, via telephone, your Apple computer to another computer. (In some instances, when the modem you

NETWORKS



have chosen does not have a controller, you also will need the Apple II Plus Super Serial Interface Card: Apple Order No. A2B0044.) The modem (MOdulator/DEModulator) translates electrical signals into sounds suitable for telephone transmission, and reverses the procedure for sounds coming from another computer via the telephone. Costs for modems vary according to the number of features they offer, and the speed (or baud rate) with which they transmit signals. Typical low-cost modems operate at 300 and/or 1200 baud (30 and 120 characters per second). Costs for network services also vary. They often include a one-time entry fee (\$100 for The Source), a monthly flat rate or an hourly charge for computer time, and telephone charges (often nothing more than the cost of a local telephone call). For electronic mail transmission, there also may be a charge based on length and number of messages transmitted. When you subscribe to a network service, ordinarily you will receive an account number and password to use whenever you "log on" (plug into

the network). Passwords are important items in networks; they give you access to certain computer services and information, and they give you privacy when you want to protect confidential information that's kept in a centralized storage area. Hourly charges for computer services run from less than \$5 per computer hour for general information services to more than \$150 per hour for highly specialized data bases. Some services offer discounts during non-business hours, and some are available twenty-four hours a day, seven days a week. We've presented some of the most widely used commercial network services. The list at the end of this article will make it easy for you to contact them. To find out about others that are available, you can write Tymnet at 2710 Orchard Parkway, San Jose, CA 95134, or Telenet at 8229 Boone Blvd., Vienna, VA 22180, and ask for their free directories of computer-based services. Another resource for commercial networks is *The Information Industry Marketplace 1983*, published by R. R. Bowker Co., New York.

The Source
Telecomputing Corporation of
America
1616 Anderson Road
McLean, VA 22102
703-821-6660

CompuServe Incorporated
5000 Arlington Blvd.
Columbus, Ohio 43220
614-457-8600

News Retrieval Service
Dow Jones & Co., Inc.
P.O. Box 300
Princeton, N. J. 08540
609-452-2000

DIALOG Information Services, Inc.
3460 Hillview Avenue
Palo Alto, CA 94304
415-858-3736



TWO ROUTES TO A LOCAL NETWORK: NESTAR AND CORVUS

If you want to hitch Apple computers together so they can share information and communicate with each other, investigate Nestar and Corvus. These companies have developed the equipment most commonly used to link — in a single network — computers in both the Apple II and Apple III families, as well as other brands of personal computers.

One particularly important feature of both the Corvus and Nestar networks is the number of operating systems each can support. All computers in the Apple II and III families — whether they use DOS, SOS, CP/M, or Pascal operating systems — can use the network for different applications at the same time. Those with common operating systems can share the portions of the database assigned to them and communicate with each other, but they can't communicate with computers using different operating systems. (The Apple III in Apple II emulation, however, can communicate with another Apple II.)
Nestar's Cluster/One Model A Network

In Nestar's Cluster/One network system, the Apple II file server is the real manager. It accepts and responds to requests for information stored on the hard disk. It also maintains disk directories and files, delivers messages from one Apple to another, keeps track of the time, and prevents people from gaining access to password-

protected files.

To set up a Nestar network, you'll need, besides the personal computers and peripherals you want to link together:

- one or more hard disks to store information the network community will share;
- an Apple II, which acts as "file server," to control the hard disk and manage network operations;
- a cable to connect each Apple to the file server;
- an interface card for each Apple;
- the program that lets each Apple tap network services;
- (optional) an Apple II to act as "print server" so network users can share a printer;
- (optional) an Apple II to act as "telecommunications server" so network users can "talk" with other networks;
- (optional, though recommended) a cartridge tape to back up information on the hard disk.

For more information, contact Nestar Systems, Inc., at 2585 East Bayshore Road, Palo Alto, CA 94303, (415) 493-2223. Nestar also has just introduced Plan 4000™, another network that links Apple IIs and Apple IIIs.

The Corvus Systems

Corvus offers two network systems: Constellation and Omnet. The Constellation is an inexpensive network for as many as 64 Apple IIs, Apple IIIs, and other personal computers over a distance of up to 100 feet away. Omnet, Corvus'

faster and more sophisticated network, currently can support only Apple IIs and a few other personal computer brands—but at distances up to 4000 feet.

To set up the Constellation, you'll need, besides the personal computers in the network:

- a hard disk;
- a "multiplexer" board (one for every eight Apples on the network) to manage network operations;
- an interface card for each Apple on the network;
- (optional) an Apple computer to operate printers and modems on the network;
- (optional) a cartridge tape to back up information stored on the hard disk.

Omnet's setup is similar, but it uses a disk server rather than a multiplexer to interface the hard disk(s) with the network, eliminating the need for a central or master computer to do this. Another difference: a transport card, instead of an interface card, is attached to each Apple in the network. Each transport card contains a processor and software, enabling it to manage the network for its computer, thus eliminating the need for a central computer to act as a master network controller.

For additional information contact Corvus Systems, 2029 O'Toole Avenue, San Jose, CA 95131, (408) 946-7700 ■



As one of two General Managers of Apple's Personal Computer Systems Division (PCS), Paul Dali is charged with developing, marketing, and engineering personal computer products built around the Apple II and Apple III families. Paul oversees the finance and marketing functions of PCS, while Dave Paterson is in charge of engineering, operations, and manufacturing.

Paul has a degree in finance from the University of California at Northridge. He was Director of Sales and Marketing for Computer Sciences, Inc., the largest software company in the world, and Vice-President and Director of Info National, a company which specializes in computer packages for mainframes. He then founded Positive Systems which became one of the largest systems houses in California and went on to be a consultant at Arthur Young, one of the country's leading accounting firms. In 1982 he joined Apple.

Paul is quiet, assured, and relaxed, with flashes of fine humor. He's also tanned and fit, since he loves the outdoors, including snow and water skiing. What shines through, though, is his dedication to his work, and the people at Apple.

JON BRUCE: What do you think has been the single strongest factor influencing the popularity of the Apple personal computer?



PAUL DALI: I guess I'd have to say flexibility—

Apples can do so *many* things. In the case of the Apple II, there's lots of software and peripheral devices. You can open up the box, get to the inside, and attach almost any kind of interface card to it—so it can do a lot of things. Something like 98 percent of Apple owners use our personal computers for more than one thing. Having a flexible device like the Apple is wonderful—they can use it for games at home, or for *Visi-Calc*®, word processing, personal finance...

JB: With so many product possibilities to choose from, how do you decide what hardware or software product to develop?



PD: We get ideas from market research, changes in technology, and from trends reported by our sales people—the ones who are out there working with potential Apple owners. Apple is a stimulating and creative place to be...so we get a tremendous number of suggestions from folks within the company.

Also, a great deal of research is done both before and after a product is introduced. We're a very market-research-driven company, with a good research department to guide us. For new product introductions we use focus groups. And we run ongoing surveys all year long with the Apple II and Apple III families—user surveys and competitive analysis studies, for example. This provides a lot of good feedback for us to make sure our products are meeting customer's needs.

JB: With the advent of Apple IIe and Lisa,



how do you see the future for both the Apple II and Apple III families?

PD: The Apple II and Apple III families are going to provide roughly 80 percent of Apple's worldwide revenue in 1983. The other new products coming out of Apple are carefully positioned, so there is a market for the Apple IIe, a market for the Apple III, and a market for Lisa.

JB: Is there any chance that Lisa is going to cut into Apple III sales?

PD: We doubt it. A computer that costs around \$10,000 is going to have a certain type of buyer, and that buyer's going to need the advanced functions of a \$10,000 computer. A buyer who doesn't need those functions will buy an Apple III, because it costs half as much, and it does many similar things. The Apple III will be more for the small business market.

JB: How does Apple ensure that outside vendors develop programs that make the most of Apple systems, and are easy for people to use?

PD: We have what we call a hardware and software "seeding" program. Sometimes we bring in certain hardware and software vendors to have them test their products in advance on our new systems. Sometimes we ask them in advance to develop specific programs for one of our systems. If it's for a new





system, we have the vendors sign a letter of non-disclosure, and they come in and work right on the product.

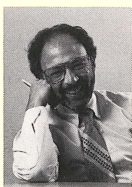
JB: What has been their reaction to the Apple III's Sophisticated Operating System (SOS)?

PD: They love it. It lets them do things they used to be able to do only on big machines. It offers more flexibility than they've had before, and makes it easier for them to document and test their programs.

JB: What about the home market? What's Apple up to?

PD: We're coming out with a variety of software packages for the home including computer literacy tools, additional games, and educational software packages, to name just a few. Most surveys indicate that the home market is only beginning to emerge. If you figure that there are 100 million families in the United States, and about 1 percent of them have personal computers, that means we have a long way to go. Especially when you see statistics that 97 percent of these families have radios and 87 percent have color TV's.

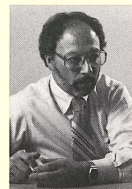
In the late 40's and early 50's it was kind of an elitist thing to have a TV. Now it's normal. In the same way it will become normal for every home to have a personal computer. Networking will



be critical to this development, since so many home applications—such as banking, searching the yellow pages, buying airline tickets, checking books out of the library, and paying bills will use data bases.

JB: How much importance do you put on home computer games?

PD: Well, I think they're very important—one-fifth of all our purchasers buy the computer for home use. They're very important for promoting the Apple II's qualities, such as color. We have about a 30 percent share of the education market, so computer literacy games are very important, too. They teach people how to use computers in a friendly way, so they're not afraid of them. Games do a lot to raise awareness of what a personal computer can be used for.



JB: What about Logo, then? It's being used far beyond the education market it was developed for—in homes, particularly. Why did this happen?

PD: Because it's a good educational tool for young children and it's a great way to be exposed to what a computer will do. But it's not just a child's programming language—it's also a very good way for *adults* to experiment with programming.

JB: Why did you choose to come to Apple?

PD: I'm a risk lover as opposed to a risk avoider, and I have a high energy level, so

I've got the right kind of personality for Apple. I really enjoy diverse tasks and incredible challenges—Apple provides all this. If you're stimulated by trying to get things done, this is a good place for you.

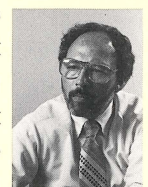
I think one of the characteristics I like best about Apple is its people—their teamwork. In our particular division, PCS, it's like a family of managers, a family of people. Engineers go into Marketing, and marketing people go into the Publications Group just to help out. The esprit de corps is at a very high level.

JB: Apart from your outdoor activities, do you have any time left for hobbies at home?

PD: None. Apple is like another marriage. It's all consuming. You get so interested in your work, you want to do a good job.

JB: Just to complete the picture, what do you see in the future for the personal computer ...say over the next five years?

PD: I think it's going to be very exciting. The costs will continue to come down, and the processors will get more powerful. Basically, personal computers are going to become easier to use. There will be a lot more local data bases, and a lot more personal computers in networks. Our biggest challenge, though, is going to be teaching people about all the ways they can use their Apple computers. ■



THE PEOPLE BEHIND THE

Talented programmers—people who can write software that is wonderfully simple for the normal person to operate—are in great demand these days. Well-written programs make it easy for us to harness our computers to get things done, be it word processing, forecasting, statistical analysis, teaching kids, or annihilating space invaders trapped in the Milky Way. Neither talented programmers nor computer companies get too far without one another, however. The relationship between the two is a marriage, of sorts. While programmers need the necessary technical information and marketing support of the computer company to do a good job, the computer company needs a substantial base of top-notch software programs available for the product. Apple's Vendor Support Department was created to provide



software developers with the technical and marketing assistance they need to help them design programs specifically for Apple systems. "We're providing technical support, classes, seminars, and the comfort level of a huge installed computer base," states Vendor Support manager Norma Odenweller. "By doing this we hope to encourage more and more developers to produce software for Apple computers."

Technical support includes access to internally developed tools, technical documentation not found in manuals, periodic announcements, updates to existing materials, and fast answers to technical questions. A soon-to-be-implemented electronic mail service will provide even speedier answers to technical questions. "Now we're tied to the phones to provide this support, and it limits us a great deal," explains Bob Martin, manager of Apple's Technical Support Department, an arm of Vendor Support. "The electronic mail system will give us enormous flexibility."

Odenweller says Vendor Support deals with two kinds of developers—those interested in distributing their software through Apple's dealer network (more than 3500 dealers worldwide), and those intending to market their program through their own distribution channels.

"If a developer would like Apple to distribute the software, we evaluate it and assess its marketability," explains Odenweller. Specifically, the new program is analyzed for its sophistication—how slick it is, how fast it operates, and whether it has a good user interface. Evaluators try to determine whether it's good, usable software, or something the user will get tired of.

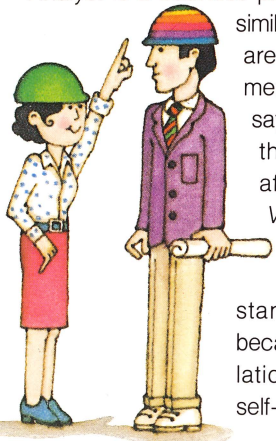
"If it's good, we sign a contract; but if the market for the software is too vertical or small, we suggest other alternatives," says Odenweller. This often involves referring the programmer to another software publisher.

PROFILE: ALLEN DZIEJMA, THE ANALYST BEHIND SR. ANALYST

One of the more successful program-

mers to benefit from Apple's vendor support is *Senior Analyst* author, Allen Dziejma. Dziejma (pronounced "Jayma"), 35, graduated from Carnegie-Mellon University with a degree in mathematics. He got started in the computer business 15 years ago as a programmer for Interactive Data Corporation, a time-sharing service. There he worked closely with *VisiCalc*® coauthor Robert Frankston. Like *VisiCalc*, *Senior Analyst* is a business planning tool; their

similarities, however, are few. "The fundamental difference," says Dziejma, "is that one month after creating a *VisiCalc* model, chances are you won't understand that model because the calculation rules aren't self-evident."



PROGRAMS...

by Neil Fitelson

Senior Analyst, on the other hand, features arithmetic formulas expressed in words that are readily understandable and can be recreated by others. "We optimized on the literal representation of the model, so that it can be easily grasped by any number of people within an organization. It simplifies the consolidation of models."

Senior Analyst History

It took Dziejma and four programmers 18 months to generate the *Senior Analyst* prototype, which he then tried to market to Personal Software (now VisiCorp, publishers of *VisiCalc*), as well as Apple. After four months of negotiations, Apple and Dziejma reached an agreement.

"Frequently people don't have a feel for the effort involved in producing a piece of software," he notes. For *Senior Analyst*, quality-assurance debugging alone required two full-time testers, and documentation (200 typeset pages) required a full-time writer. "It took a large investment just to get the Apple II version to Apple, not to mention Apple's production costs—boxes, diskettes, labels, and so on." (*Senior Analyst* versions are now available for the Apple III as well as the Apple II.)

Dziejma History

Dziejma has an impressive career behind him: designer of branch information systems for General Motors; director of marketing for Datapoint; group product manager of small systems, terminals, and intelligent terminals for Digital Equipment Corporation; and Systems Division vice president/general manager for Applied Digital Data Systems.

It was two years ago, while Dziejma was working on *Senior Analyst*, that he started Business Solutions, Inc., a software development company devoted exclusively to the production of Apple-compatible programs. The firm originally occupied the lower 2000 square feet of his Long Island, N.Y. home, but has since relocated to more





spacious surroundings. Business Solutions now employs nine full-time programmers, all stockholders in the company, who hammer out code on Business Solutions' seven Apple computers.

Dziejma himself has temporarily abandoned programming to concern himself with marketing and "architectural" issues, such as how much speed (versus memory) the software he develops should feature.

Dziejma's Latest Software: Incredible Jack for the Apple II

Business Solutions claims that its newest program, *The Incredible Jack*, can transform the Apple II into a "Jack of All Trades." It combines several applications—word processing, personal filing, electronic spreadsheet, and mail list management—in a single package. "One of the beauties of it," points out Dziejma, "is that it allows you to do hybrid operations. You can type a letter imbedded with calculations, for example. The response has been very good so far. People can't believe we're giving away that functionality for well under \$100—which is about one-fifth of what it's worth."

PROFILE: PAUL LUTUS, APPLE WRITER'S WRITER

Few software developers have reaped the publicity or profits enjoyed by *Apple Writer* author, Paul Lutus. A high school dropout, Lutus is a self-taught programmer and soon-to-be (if not already) self-made millionaire whose saga made the front page of the *Wall Street Journal*.

After running away from home and school at 16, Lutus relied on his whiz-kid knowledge of electronics to survive. He supported himself as a TV repairman, and as a medical instruments engineer (following a mid '60s hippie phase).

The Story Behind Apple Writer

Around 1977, on the heels of a two-year stint with NASA, during which he designed lighting systems for the space shuttle *Columbia*, Lutus bought an Apple II and

taught himself to program. He wrote the original version of *Apple Writer*—a text-editing program—in nearly half a year.

"In the succeeding year or so I was at work adding a word-processing language and improving the product—writing a new product, really," Lutus recalls. (He estimates that it took him two to three thousand hours to develop the new *Apple Writer* features.) "At the same time," he recalls, "Apple sales of *Apple Writer* were increasing enormously, so Apple's software evaluators came back to me and said 'This has been a very successful product, and we're open to suggestions you may have on improvements.'" In response, he showed them his new and improved *Apple Writer*.

The new *Apple Writer*, incidentally, has been selling like hot cakes. Lutus speculates royalties are currently earning him thousands of dollars a day. "I sold the original version of *Apple Writer*," he notes, "for almost nothing—at a time when there were only 20,000 Apples in the world." (Apple now has a worldwide installed base of approximately 750,000 personal computers; and *Apple Writer* is available for both the Apple II and Apple III.)

"Two features distinguish *Apple Writer* from its competition," according to Lutus. "It's deliberately mode-free. It does not, for example, have "Delete" and "Insert"—those modes don't exist as separate entities. The program assumes that anything may have happened with the last keystroke, and it conducts itself accordingly, updating the screen at a fast speed—which most word processors don't do.

The second thing that distinguishes *Apple Writer* is its built-in language which makes it programmable—owners of the program can write applications for their specific needs. This distinguishes it from dedicated word processors. They're not user-programmable, they're pre-programmed with various information that

makes them as flexible as possible, but not as flexible as *Apple Writer*, which is utterly flexible.

The Lutus Lifestyle

Until recently, the 37-year-old pursued a relatively simple, frill-free lifestyle. But he's left the 12 by 16-foot cabin he built in the wilds of Kerby, Oregon, for a 2800 square-foot Spanish villa some 40 miles away, on 32 acres north of Grant's Pass. "I decided it would be nice to have more room to move around in. With the number of books and computers I have, the cabin was getting prohibitively cramped."

Lutus has donated his 20 acres in Kerby—along with \$50,000 and his plane, a Cessna 170 (he has since purchased a Moonie 201)—to the Nature Conservancy, a nonprofit organization in Arlington, Virginia, dedicated to land preservation. "I found out about them a few years ago when one of their field workers came to Eight Dollar Mountain while I was struggling against the possibility that it might be strip-mined," he recalls. (The plan is to use Lutus's acreage to create a preserve, a biological island that includes the many endangered species of plants on the mountain.) "Hopefully, this will decrease the likelihood that the mountain will be mined to death."

Has success spoiled Paul Lutus? "I still eat the same kind of food [he's a vegetarian], and I still have the same kind of life, except there are more toys. I have a Celestron 8 telescope, a hot tub, a video system, and my musical instruments—all of which get played at one time or another. I have more computers [four, including three Apple systems] and more books, and when I'm particularly knotty and I've done everything else I can think of, I turn on the satellite receiver I have that picks up all the cable services in the entire country. "All I ever really wanted," Lutus says, "was a high-quality place in the woods." It appears to have been part of the program. ■

Lisa and the Apple IIe

The Whole Story

By Brad Crystal

Ever since word first leaked out that Apple Computer was working on a revolutionary new computer system, public curiosity about the soon-to-be-released Lisa has been intense. The public guessing game ended on January 19 at Apple's annual stockholders meeting: Lisa was officially announced to the world.

As if the Lisa introduction was not enough news for one day, Apple also used the gathering as an opportunity to announce that an improved version of the Apple II Plus, called Apple IIe, would be available immediately. And though Lisa has captured most of the limelight recently, the story behind the Apple IIe is no less interesting.

This article will provide descriptive information on Lisa and the Apple IIe, as well as a behind-the-scenes look at the making of these two systems. But, first a little background.

You may be wondering why Lisa has been called "revolutionary," while the Apple IIe has been called "evolutionary." You may also be wondering what their names stand for.

Lisa is considered revolutionary because it represents a breakthrough in technology and creativity—an office computer system that will take the user less than 30 minutes to begin doing useful work.

Despite rumors to the contrary, the name "Lisa" originally had no significance other than the fact that it was a female name. (During the late 1970s, computer industry officials frequently assigned female names to various secret projects, so that they could talk in public about them without attracting attention.)

Later, when it came time to pick a permanent name for the system, Apple officials



The theory behind
Lisa was to make a
computer system for
nontechnical business
professionals...



realized that Lisa would be the ideal appellation (pun intended), because it happened to be the acronym for Local Integrated Software Architecture. "We felt there was no other acronym that better exemplified the concept and the simplicity of the machine," says John Couch, vice president and general manager of the Personal Office Systems Division.

The Apple IIe is considered evolutionary because Apple regards it as a more sophisticated and up-to-date version of an already proven computer product, the Apple II Plus. As for the "e" in Apple IIe, it stands for "enhanced".

The fundamental question that comes to mind concerning this dynamic duo is, "Why were they developed in the first place?"

The Lisa Story

The theory behind Lisa was to make a computer system for nontechnical business professionals who have no prior knowledge of computers, but who could greatly benefit from them. The visionaries who conceived Lisa sought to create a system that would allow these business professionals to take advantage of computer technology without having to change their natural way of doing things. *And Now For Something Completely Different*

And so it was just over three years ago that Couch and Apple Board Chairman Steve Jobs proposed a completely different concept in user friendliness, a product that would integrate computers into the office as never before. From the start, Couch and Jobs wanted a machine with software so transparent the user would not really be a-

ware of working on a computer.

That's where the idea of a "mouse" came in. A mouse is a palm-size push-button device, which, when moved on a flat surface, changes the position of a pointer on the video screen. As you move the mouse with your hand, the pointer matches the mouse's movements. For instance, when you want to move the pointer to the left, just move the mouse to the left.

Apple decided to incorporate this mouse technology, pioneered at Xerox, into the design of Lisa so that users could take advantage of the intuitive relationship between hand and eye. Using a mouse, you can instinctively point to any image on the screen. Even the most complex functions are as easy as "point and select."

Integrated Software

With the mouse and easily recognizable graphics such as file folders, memo pads, and diskettes, Apple sought to eliminate conventional computer commands. You use Lisa in the same natural way you work at your desk. Just as you have folders, documents, and other typical office objects on your desk, Lisa's screen is a "desktop" with the same kinds of objects.

Unlike other computers that require you to type commands when you want to locate information, Lisa allows you to perform office tasks simply by moving the pointer to the representative pictures on the Lisa screen.

If you want to compose a document, for example, you move the mouse so that the pointer is sitting on top of a little picture of a memo pad (labeled LisaWrite). Press the mouse button, and Lisa assumes all the qualities of a powerful word processor. When you want to store a document, use the mouse to move the document symbol onto a folder symbol.

Then, let's say you want to insert some numerical information from a LisaCalc financial modeling program into your word processing text. All it takes is a few more clicks on the mouse, and you can electronically cut and paste information from one application (LisaCalc) to another (LisaWrite). This concept is called integration between applications.

Ease of use, however, was not the only criterion that led to the birth of Lisa. Power and memory were just as important. Lisa's "brain" is built around the fast and powerful MC68000—a 32/16 bit microprocessor with a hefty megabyte of random-access memory. Complementing Lisa's other hardware features are two high-density, 5 1/4-inch, built-in disk drives, a ProFile™ Mass Storage System hard disk, and a detachable keyboard.

Apple also wanted to make Lisa as pleasing to the eye as it is to the mind. To that end, engineers designed a 12-inch, bit-mapped, black-on-white video screen with extremely high resolution. It displays 364 lines of 720 dots each (more than a quarter of a million dots total) for crystal clear images.

The Apple IIe Story

Several factors led to the development of the Apple IIe, the most significant being Apple's desire to make the Apple II Plus an even friendlier machine than it already was.

The Apple IIe achieves this evolutionary objective by featuring upper and lower-case letter display, sculptured keys, and a familiar typewriter style keyboard containing all 128 ASCII (American Standard Code For Information Interchange) characters and control codes. Additionally, the Apple IIe boasts automatic repeat for every key, and a full set of arrow keys to let you move quickly around the screen. A further re-

Lisa

Ile

finement in user friendliness—converting the Apple Ile video display from 40 to 80 characters per line—is easily accomplished by installing an Apple Ile 80-Column Text Card.

Competition: the Mother of Invention

Another factor in the development of the Ile was competition from Commodore, Radio Shack, and IBM, which pointed up the need to enhance the Apple II Plus keyboard and video display. As Apple Ile product manager George Johnson explains it, "Consumer research indicated that you need an IBM Selectric-type keyboard to be acceptable in the kind of market in which we compete."

Competition also dictated the need for an enlarged memory. The Apple Ile comes with 64K RAM, and can easily be expanded to 128K RAM.

Another important factor in the revamping decision was cost. Although the Apple II Plus vastly outsold its head-on competitors last year, manufacturing and production costs had "bottomed out" according to Dave Larson, Apple Ile product marketing manager. Apple engineers determined that the only way Apple could continue to offer the system at a competitive price would be to redesign the circuit board, thereby taking advantage of more efficient, reliable, and economical technology.

Parlez-Vous Apple?

A third major factor resulting in the creation of Apple Ile was international market considerations. Whereas the Apple II Plus keyboard has long been considered inadequate for multilingual purposes, the 63-key Apple Ile keyboard is ideally suited for foreign language applications.

Underlying each and every one of Apple's

redesign goals was the need to maintain consistency. No one wanted to create a machine so fundamentally different from the Apple II Plus that you would need completely new software to make it work.

Fortunately, the host of Apple Ile enhancements will have a negligible effect on the system's ability to use Apple II family software. Apple designed the Ile keyboard to be compatible with more than 95 percent of pre-existing Apple II family software. Within the next few months, software manufacturers are expected to modify their products so that virtually any disk that runs on the Apple II Plus will also run on the Apple Ile.

The other question likely to be uppermost in your mind is "How were these machines developed—what kind of technical expertise was involved?"

The Lisa Story

In the three years since Lisa was conceived, more than 200 person-years of labor effort and more than \$50 million in research and development expenses have gone into bringing the system to fruition. Couch calls the Lisa project "by far the biggest undertaking in Apple history."

Lisa's research staff is comprised of 100 engineers, some 60 of whom are full-time programmers involved exclusively in Lisa software development. They have worked intensely to transform Lisa from concept to



reality. "Over the last two years, I've learned that Apple believes in miracles, but we haven't figured out how to schedule them yet," says Couch.

Prototypes of Lisa have been used as test and demonstration models for more than a year. The final stage of testing has been going on since August, when Apple began inviting potential corporate customers for a hands-on glimpse of Lisa technology in action. Reaction to these corporate "sneak previews views" has been extremely favorable, according to Office Market Manager Joy McCully.

John Love, Product Support Engineer, tells of one skeptical Fortune 500 previewer who walked into Apple exclaiming, "I've never used a computer, and I have no intention of using one." By the end of the day, says Love, the man was not only using

Lisa

The Apple IIe enhancement will have a negligible effect on the system's ability to use Apple II family software...

IIe

the Lisa, he was also enjoying it.

The Apple IIe Story

The Apple IIe was created over a period of two years, drawing on the talent of more than 50 full-time employees devoted to research and development, at a cost of about \$4 million (\$1 million in nonlabor expenses and \$3 million in labor expenses), according to Dave Paterson, Director of Engineering for Apple's Personal Computer Systems Division.

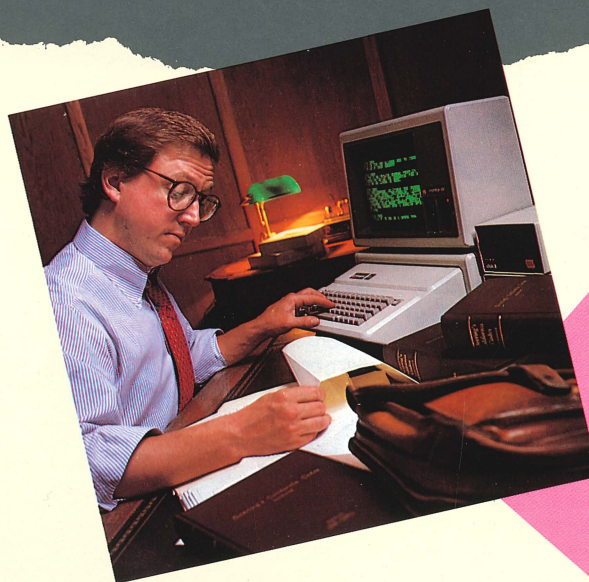
"The primary goals of the project from an engineering standpoint," Paterson says, "were to make the machine more friendly, reliable, and cost efficient."

Just how did the engineers attempt to achieve these goals?

First, they redesigned the Apple II Plus circuit board to use 64K memory chips instead of 16K chips. The next step involved creating two custom, large-scale integrated circuits. Thanks to new technology, the total number of chips was reduced from about 130 in an equivalent Apple II Plus system to 31.

The initial 100 Apple IIe prototypes rolled off the production line in January of last year. Between then and now, the IIe has undergone exhaustive and demanding tests to ensure that the product would not reach the marketplace until it could meet the most stringent standards. Only after a year of grueling tests were the engineers satisfied that the Apple IIe was ready for mass distribution. ■

IIe PHOTOGRAPHY: DAVE MONLEY





More than 1000 companies produce programs and peripherals for your Apple computer. In this column, we describe some that you may find of interest—for play or profit. They are not Apple products, nor are they endorsed by Apple Computer, Inc. *The Games People Play...*

Games programs are as popular as ever—they're a great way to keep the kids occupied and they do a super job of entertaining you. Already there are several "old" favorites which have stood the test of time. If you're not familiar with them, now's the time for an introduction:

- *A2-FS1 Flight Simulator*, from SubLogic Communications Corp., gives you a real-time, 3-D, out-of-the-cockpit view of flight. Learn how to take off, land, and handle an aircraft. Then, while trying to destroy the enemy's fuel depot, take part in a dog-fight. It's a must for high fliers.
- Be a pinball wizard with *Raster Blaster* (from BudgeCo), the definitive simulation of the original 1980 electro-mechanical pinball machine. Enjoy full-color, high-resolution graphics, animation, and sound effects as you flip over the flipper action.
- Rescue Princess Priscilla from the dread wizard, Harlin, in the great mountains of the Land of Serenia. You're armed only with a flask of water, a small knife, a loaf of bread, and a blanket. *The Wizard and the Princess* from On-Line Systems still casts its spell as a most enthralling adventure game.
- Be an Allied soldier in World War II, escape from the hands of the SS, and steal the Nazi war plans hidden in the *Castle Wolfenstein* (Muse Software). Your only weapons are a loaded pistol (from a dying cellmate) and your brain. Fast, furious stuff.
- ...Or give yourself a sporting chance in the *Olympic Decathlon* (Microsoft). You'll need strategy, timing, coordination, and physical endurance to take part actively—and "actively" is the word!—in the ten events. The realistic graphics make just playing Olympic Decathlon an event in itself.
- *Choplifter* from Broderbund is taking off from the crowded field of new games coming out. It challenges you to rescue 64 delegates to the United Nations Conference on Peace and Child Rearing in the Bungeling Empire. How? With your helicopter (smuggled in, disguised as a mail-sorting machine). Fire breaks out and...the fun begins...with interceptor jets, homing mines, and tanks—for a start. For additional information about the

games mentioned above, see your authorized Apple dealer, or contact the publisher listed below.

Broderbund Software
P.O. Box 3266
Eugene, OR 97403
(503) 343-9024

Budgeco
428 Pala Avenue
Piedmont, CA 94611
(415) 658-8141

Microsoft Consumer Products
400 108th Avenue, N.E.
Bellevue, WA 98004
(206) 454-1315

Muse Software
330 N. Charles Street
Baltimore, MD 21201
(310) 659-7212

On-Line Systems
36575 Mudge Ranch Road
Coarsegold, CA 93614
(209) 683-6858

Sublogic Communications
713 Edgebrook Drive
Champaign, IL 61820
(217) 359-8482

For Stock Market Devotees

- Tickerscreen, a computerized stock market bulletin, is free to any investor who has a personal computer equipped with a modem and communications software. The service provides closing New York stock exchange prices, closing market averages, brokerage commission computation, and a demonstration of Tickertec, a more extensive service. Tickerscreen is available from 5 P.M. (EST) Friday to 9 A.M. (EST) Monday. The system operates at 300 baud. To connect your Apple computer to Tickerscreen, call (212) 986-1660.
- Tickertec is an on-line personal stock market monitor and quotation system available for the Apple II computer. It allows direct connection to the low-speed ticker-tape lines from the New York or American Stock Exchanges. Users may track 150 or more stocks of their choice and monitor the last 10 trades and ticker-tape reported volume by simple keyboard command. For more details and price information, contact Max Ule and Co., Inc., East 43rd St., New York, NY 10017,

(212) 687-0705.

Other Products

- Typeshare, Inc., can accept sequential ASCII files from any computer and return typeset copy according to the user's specifications. An Apple owner anywhere in the United States and Canada can keyboard and format material for typesetting on the computer, send it to TypeShare over the phone, and get back typeset copy ready for paste-up and printing. All this is done at a fraction of the cost of conventional typesetting. For further information, contact Data Equipment, 8315 Firestone Blvd., Downey, CA 90241, (213) 923-9361.
- Hollander Office Products has introduced an electronic typewriter adaptor that converts your IBM Selectric or equivalent typewriter into a computer output printer. Called Tyroop, the new device features a printing speed of 600 characters per minute, a variety of computer interfaces compatible with all types of computers, and a built-in, self-diagnostic function that enables users to monitor printing functions easily. For further details, contact Hollander Office Products, 41 Duesenberg Dr., Suite B, Thousand Oaks, CA 91362, (805) 496-2533.
- *Chart-Master* is a software package that enables the Apple II or Apple III to be connected to any Hewlett-Packard plotter to produce business graphics in as many as eight colors. It allows the user to create, edit, store, and plot bar graphs, scatter diagrams, and line and pie charts, as well as text pages, signs, and abstract graphics. Chart-Master interfaces directly to VisiCalc® for quick and easy plotting of VisiCalc rows and columns. For further details, contact Decision Resources, 44 White Birch Rd., Weston, CT 06883.
- *On Three* is a new reference source for the Apple III computer. More than just a magazine, it is a complete service for the Apple III owner and user. Each issue is filled with useful articles, helpful tutorials, and reviews of the latest hardware and software. A one-year subscription to ON THREE within the U.S. is \$30.00. For subscriptions outside the U.S., rates are higher. For more information, contact: ON THREE, P.O. Box 3825, Ventura, CA 93005, (805) 644-3514. ■

MIXED APPLE SOS: Loading VisiCalc files into Apple Writer reports...

by Patty Winter



Contrary to popular belief, it's entirely possible to put your *VisiCalc*® file into a report created with *Apple Writer* without too much hassle. Skeptics: take heart. Although there are a number of steps outlined below, once you get the hang of how to integrate the two files, it's easy. Much easier, in fact, than being stuck for a lifetime having to print out separate *Apple Writer* files and *VisiCalc* files, and then having to merge the two manually.

Here is a step-by-step approach to putting your *VisiCalc* file into your *Apple Writer* file. But first, let's give credit where it's due: all this time-saving wizardry is brought to you courtesy of the Apple III Sophisticated Operating System (SOS). It's called "sophisticated" because it's such a versatile software interface, acting as a buffer between software programs and the Apple III hardware. It can convert a data file from one program into a format compatible with another program. This is not ordinary stuff for a personal computer to do. In the example in this article, SOS converts the file from *VisiCalc* into a standard *Apple Writer* text file.

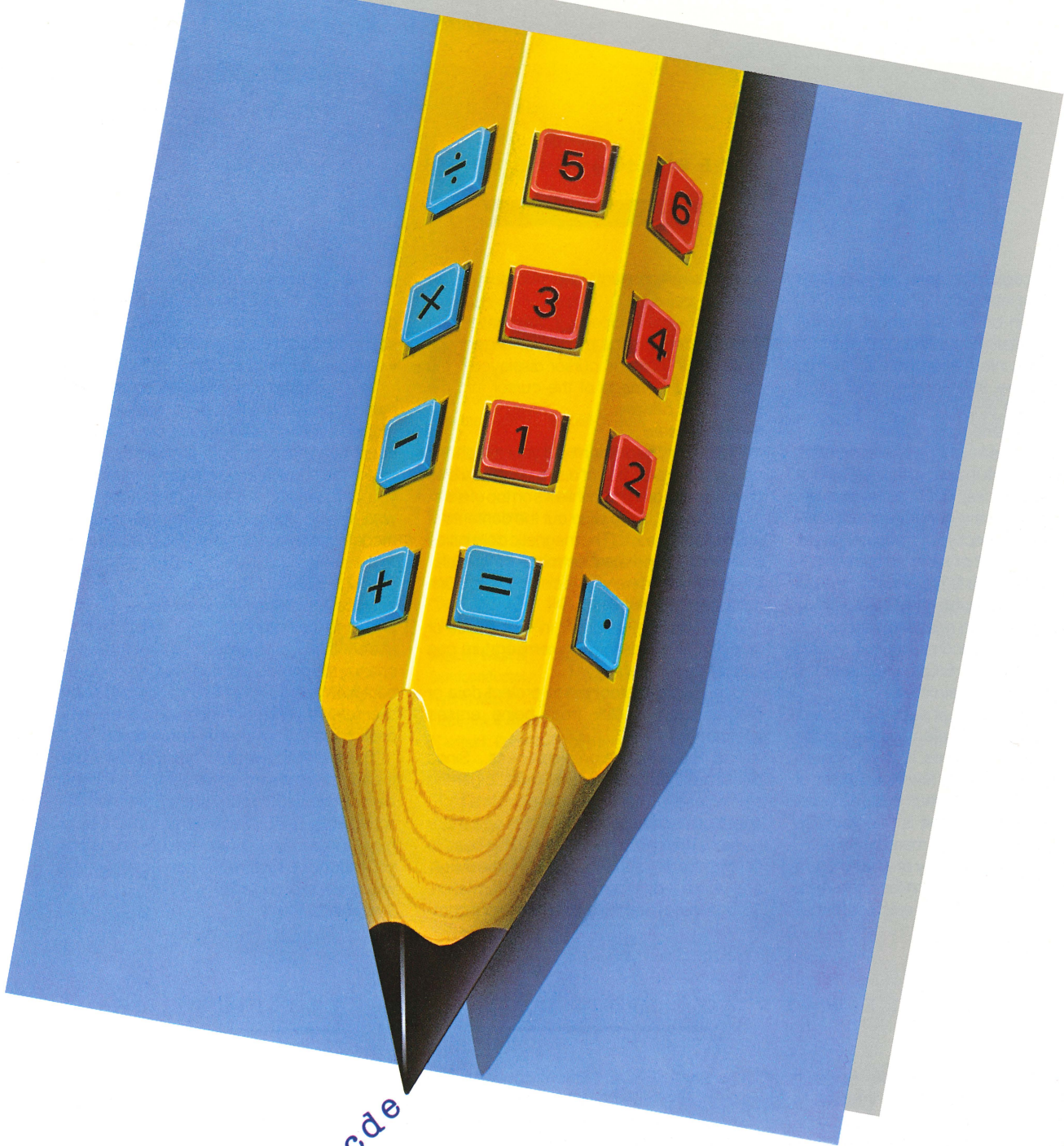
One more note: to walk through these instructions on your Apple III, you'll need the following:

- *Apple Writer III* Program Disk
- *VisiCalc III* Program Disk
- *VisiCalc* Sampler (included with *VisiCalc III*)
- A blank SOS-formatted disk (which we'll refer to as the "work disk").

We're also assuming that you are comfortable with operating *VisiCalc* and *Apple Writer*, and that you have an external disk drive (Drive 2) with your Apple III system. If you don't have the second drive, you can obtain the same results, but you'll have to pay close attention to which disk is in the built-in drive (Drive 1) at each step.

VisiCalc into Apple Writer- In this example, we'll be moving a short *VisiCalc* file into a very short *Apple Writer* letter. However, the letter could just as easily be a complex report; and the *VisiCalc* file could be much more extensive (with a few cautions we'll present later). Here goes:

- 1 Boot the *VisiCalc* Program Disk on your Apple III's built-in disk drive.
- 2 If the *VisiCalc* screen has any data on it, clear it.
- 3 Insert the *VisiCalc* Sampler into Drive 2. Enter /S, then L, to tell the computer you want to load a file from the Sampler.
- 4 Load the file "Sample.Budget" from the Sampler Disk. Don't forget to preface the file name with ".D2".
- 5 When the file is loaded, delete some unnecessary information from the sample by erasing the following cells: A4, B4, K5, E6, F6, G6, B10, and C10.
- 6 Move the cursor to cells F6 and G6 and enter the date "JULY 1, 1981".
- 7 Enter some reasonable numbers into cells between E14 and J14, and E15 and J15, and E16 and J16. The totals will automatically recalculate as you progress.
- 8 Remove the Sampler Disk, and insert the work disk.
- 9 Place the cursor in cell A1. This will be the upper-left corner of your printout.
- 10 Give *VisiCalc* the "Print" command (/P). In response to the prompt, "File, Printer," type "F". When prompted for a file name, type ".D2/VCTEST". (This is, of course, a totally arbitrary name, but we need consistency within this demonstration.)
- 11 Set cell K20 as the lower right-hand corner of the "printout".
- 12 Since you commanded ".D2" as the print destination, the *VisiCalc* file will now be "printed" to the work disk.
- 13 Remove the *VisiCalc* Program disk, and boot *Apple Writer* (using Drive 1). Leave the work disk in Drive 2.
- 14 Write a short letter or report



ijklmnopqrstuvw123456789abcde

segment that might *Apple Writer* cursor information to appear. file “.D2/VCTEST”. The your letter/report, if it *VisiCalc/Apple Writer* remember to assign it width to 80 characters off the page.(Note: problems rather and never set beyond that

logically include the *VisiCalc* file you have just transferred. 15 Move the to the location within the letter/report where you want the *VisiCalc* Then simply give *Apple Writer* the “Load” command, and load the *VisiCalc* test file will be inserted into your letter or report. 16 Finish isn’t already complete. Congratulations! You have completed a document. You may save it on your work disk, if you wish, but a new file name. If you want to print it out, be sure to set the page so that the *VisiCalc* portion will print properly without disappearing On large *VisiCalc* files, it’s the width of the file that’s apt to cause problems rather than the length. Be aware of how many columns your printer can handle, the lower right limit of your *VisiCalc* file (see step #11 above) to a cell number of columns or the 80-character limit. ■

BYTES AND NIBBLES



Want to join, or start, an Apple users' group in your area? The International Apple Core (IAC) has information on existing groups, as well as complete details about setting up your own group. For more information, write to: International Apple Core, 908 George Street, Santa Clara, CA 95050, or call (408) 727-7652.

■ On vacuum cleaners and Apples

Like other geniuses, an Apple personal computer needs to work in peace and quiet. Major electrical appliances, such as a vacuum cleaner or power saw, generate static interference that can affect your computer just as it affects your TV set or radio. To avoid problems, your best bet is to have these types of major appliances off while the Apple is on.

Your computer also needs to stay cool in order to operate; if it becomes too hot, system malfunction is possible. So, be sure to keep the ventilation outlets unobstructed.

Because it operates at such high speed, your Apple cannot tolerate variations in the electrical power it receives. If power is interrupted for more than just a few thousandths of a second, the Apple will black out. The worst part about a power outage is that you lose whatever you've loaded into memory. Remember to make a back up copy of what you are doing—every ten minutes isn't too often. Also, it's best to plug it into its own electrical circuit

so that it is independent of any other peripherals you may be using.

Guess what happens if you leave your Apple's video screen turned on for long periods of time with only the cursor displayed? You may burn the image of the cursor into the screen...so beware.

■ For the record

Whatever you do, don't put your telephone on top of a disk, a box of disks, or even a disk drive. If the phone rings while it's on top of a disk or disk drive, it could wipe out the contents of any disks beneath it. (The magnetic coils inside telephones generate electromagnetic radiation, which interfere with recorded data such as that stored on a disk.)

Store your disks upright in their boxes or holders. Variations in room temperature can cause them to warp.

Use a write-protect tab to protect data or programs on a disk from being erased accidentally.

And now a lecture on cleanliness... Since disks are highly sensitive, dust, cigarette smoke, or even specks of paper from a high-speed printer can deposit particles on a disk's surface. This can cause the disk drive head to scratch the disk surface, damaging the disk—and worse—destroying all your information. So, be sure to keep the area around your com-

puter as clean as possible.

Finally, don't turn off your Apple while the disk drive is in use. Wait until it finishes using the disk, so you don't damage any of the disk's contents.

■ Overseas communication

Your Apple and a telephone "modem" communications device are all you need to communicate with a fellow Apple user in another country. As long as both modems operate under the same standards and frequencies, you can send and receive messages anywhere in the world... For more information on modems, check with your local authorized Apple dealer.

■ How to trick your Apple III

Since Apple Writer III is set up to use a Qume printer as the output device, it is frustrating to use another output device because you have to change the print destination every time you reboot the system. Right? Wrong. There is a way to enter your printer configuration to the output destination of your choice, permanently.

This is all you have to do: Type Control Q and then 4. Enter the name of the output device you have connected to your system. Save this configuration to .D1 / SYS while your Apple Writer III master is in Drive 1. From now on, every time you reboot the system, the new configuration will come up automatically. ■

— by Linda Merrill

THREE WAYS TO LIVE UP YOUR APPLE II

3 accessories for the Apple II which might be of interest to you are the *Numeric Keypad II*, the *Hand Controllers II*, and the new *Joystick II*. The first is a totally serious product which helps to make your work easier, giving you more time to enjoy the other two, which are purely for fun.

The Numeric Keypad II

If you've ever wanted a calculator specifically designed for your Apple II, the *Numeric Keyboard II* should be of interest. It's a standard 10-key pad, with a full range of arithmetic function keys for addition, subtraction, multiplication, division, and parentheses.

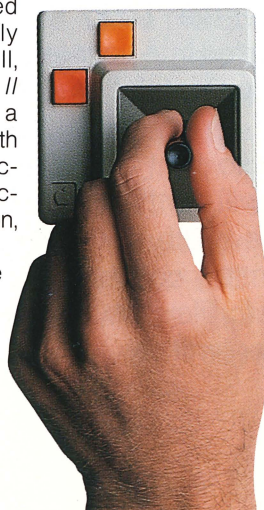
For *VisiCalc*® users there are special function keys, including ESC (to delete entries), left and right ar-

rows, and SPACE (which converts the arrow keys to up and down movement).

Whether you're juggling the household finances at home or hammering out a *VisiCalc* model at the office, the *Numeric Keypad II* could speed up your task to allow more time for...some of the finer things in life, like games.

The Hand Controllers II

The Hand Controllers II are game paddles that fit snugly in your hand so you can move the cursor at the same time that you're depressing the firing switch—an indispensable feature when speeding through the stratosphere with angry aliens in pursuit. The central control knob has two diameters for variable (rapid and/or fine) control. In addition, it gives you complete proportional control (the movement of the cursor precisely matches that of the dial).



The Hand Controllers II are built to withstand a lot of entertainment. Sturdy connecting cables are included for those moments when you (or someone else) gets a little too rambunctious, and all but pulls your computer to the floor. The control knob has been tested for 1 million error-free cycles, and the firing-switch for 3 million cycles.

The Joystick II

Yet another accessory for enjoying the lighter side of your computer is the new *Joystick II*. It gives you full 360-degree control and complete proportional control, with two firing switches—ideal for two-fingered staccato bursts. Automatic centering, which can be disabled for a lighter touch, coupled with the built-in trim tabs gives superb precision and control.

The *Joystick II* plugs directly into the game control on your Apple II, and has been designed for both table-top and hand-held use. ■

E V E N T S



Here are some dates for your diary—trade shows, conferences and expos from February to April.

<u>EVENT</u>	<u>DATE</u>	<u>LOCATION</u>
Rocky Mountain Regional Computer Show and Software Expo	Feb 3-6	Denver, CO Denver Merchandise Mart
*Contact: Northeast Expositions, 824 Boylson St., Chestnut Hill, MA 02167 (617) 739-2000		
Computer Science Conference	Feb 14-19	Orlando, FL
*Contact: Dr. Seymour Wolfson, Wayne State University, Detroit, MI 48202 (617) 739-2000		
San Diego Expo	Feb 18-21	San Diego, CA San Diego Performing Arts Center
*Contact: Judco Computer Expos, Inc. (602) 990-1715		
Conference: Desktop Computers for Public-Sector Professionals	Feb 20-22	Fort Worth, TX Fort Worth Hilton

*Contact: Dinah Judah, Municipal Finance Officers Association, 180 North Michigan Avenue, Chicago, IL (302) 977-9700

Office Automation Conference
Feb 21-23 Philadelphia, PA
Civic Center

*Contact: AFIPS (703) 558-3615

American Association of School Administrators Conference
Feb 25-28 Atlantic City, NJ

(The program features a number of sessions on the computer for administrative and institutional use.)
*Contact: AASA, 1801 North Moore St., Arlington, VA (703) 528-0700

Nepcon West & Semiconductor/Hybrid Micro Electronic Exhibit
Mar 1-3 Anaheim, CA
Anaheim Convention Center

*Contact: Conners Exposition Group, (312) 299-9311

National Office Show
Mar 14-16 Toronto, Canada

West Coast Computer Faire
Mar 18-20 San Fran., CA
Civic Auditorium
Brooks Hall

*Contact: Computer Faire (415) 851-7077

Alaska Association for Computers in Education
April 7-9 Anchorage, AK
Captain Cook Hotel

*Contact: Sue Henry, Department of Education, Pouch F, Juneau, AK 99811 (907) 465-4685

Second Annual New York Computer Show and Software Exposition
April 14-17 New York
Long Island's Nassau Coliseum

*Contact: Northeast Expositions, 822 Boylston St., Chestnut Hill, MA 02167 (617) 739-2000

Third Annual Southwest Computer Show and Software Exposition
April 28-May 1 Dallas, TX
Dallas Market Hall

*Contact: Northeast Expositions, 822 Boylston St., Chestnut Hill, MA 02167 (617) 739-2000

T H E P U Z Z L E R

Is there anything wrong with this Apple II system? You bet there is, and the first six people to send in a postcard with a list of all that's amiss can expect a prize.

"But what's the prize?" you ask. Good question. It's a piece of software from a list of Apple software packages and an Apple T-Shirt with "I solved the puzzler" silk-screened on the front.

The winners of the last puzzler are: Dennis Dodge, Lee Quintana, RPh, Michael Christensen, Jim Kresl, Frank Tracey, Jr., and S.L. (a contestant who dared us to guess what the initials "S.L." stands for—Sleeping Loo-Loo? SNOBOL.? Silicon Lad?...) Congratulations!

Send your answers to:
The Puzzler
c/o Apple On Apples
20525 Mariani Ave., 9L
Cupertino, CA 95014





20525 Mariani Avenue
Cupertino, California 95014

(408) 996-1010
TLX 171-576