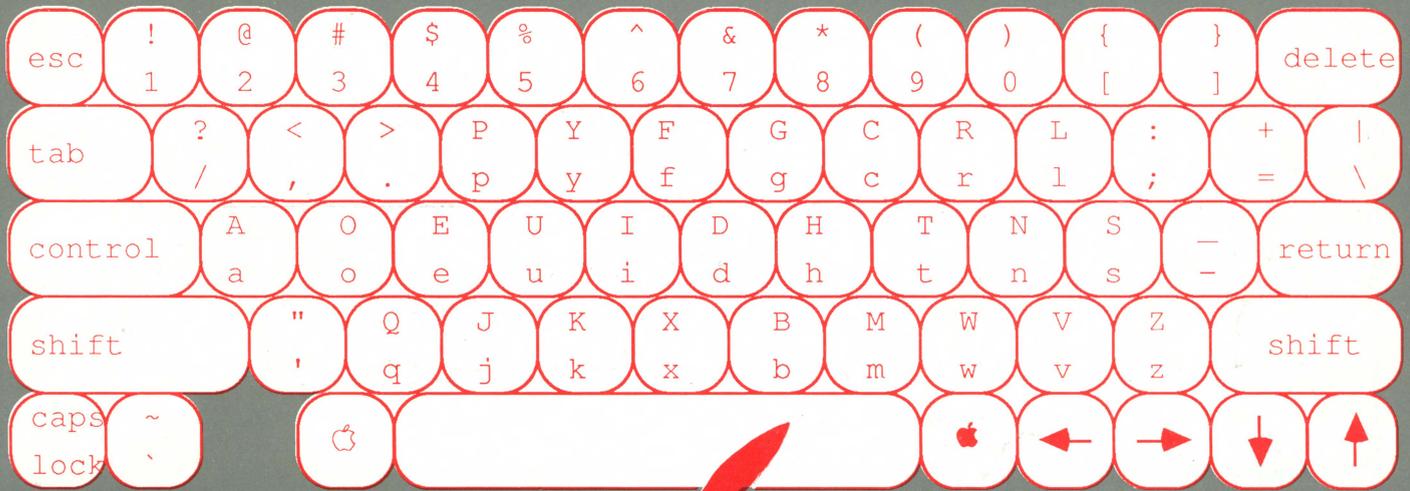


ON THREE

The Magazine For Apple III Owners and Users

Volume 4, Number 5

May 1987
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Dvorak
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May, 1987

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ON THE COVER:

This isn't the usual keyboard seen on Apple III computers but it is an option for those who are interested in "taking a bite" out of the Dvorak keyboard. See page 15 for all of the details.

ON THREE Presents . . .

ASCII Chart

Ascii Conversion Table																				
Dec	Hex	Cr	Dec	Hex	Cr	Dec	Hex	Cr	Dec	Hex	Cr	Dec	Hex	Cr						
0	00	NUL	19	13	DC3	38	26	&	57	39	9	76	4C	L	95	5F	-	114	72	r
1	01	SOH	20	14	DC4	39	27	'	58	3A	:	77	4D	M	96	60	`	115	73	s
2	02	STX	21	15	NAK	40	28	(	59	3B	:	78	4E	N	97	61	a	116	74	t
3	03	ETX	22	16	SYN	41	29	)	60	3C	<	79	4F	O	98	62	b	117	75	u
4	04	EOT	23	17	ETB	42	2A	*	61	3D	=	80	50	P	99	63	c	118	76	v
5	05	ENQ	24	18	CAN	43	2B	+	62	3E	>	81	51	Q	100	64	d	119	77	w
6	06	ACK	25	19	EM	44	2C	,	63	3F	?	82	52	R	101	65	e	120	78	x
7	07	BEL	26	1A	SUB	45	2D	-	64	40	@	83	53	S	102	66	f	121	79	y
8	08	BS	27	1B	ESC	46	2E	.	65	41	A	84	54	T	103	67	g	122	7A	z
9	09	HT	28	1C	FS	47	2F	/	66	42	B	85	55	U	104	68	h	123	7B	{
10	0A	LF	29	1D	GS	48	30	0	67	43	C	86	56	V	105	69	i	124	7C	|
11	0B	VT	30	1E	RS	49	31	1	68	44	D	87	57	W	106	6A	j	125	7D	}
12	0C	FF	31	1F	US	50	32	2	69	45	E	88	58	X	107	6B	k	126	7E	~
13	0D	CR	32	20	SP	51	33	3	70	46	F	89	59	Y	108	6C	l	127	7F	DEL
14	0E	SO	33	21	!	52	34	4	71	47	G	90	5A	Z	109	6D	m			
15	0F	SI	34	22	"	53	35	5	72	48	H	91	5B	[	110	6E	n			
16	10	DLE	35	23	#	54	36	6	73	49	I	92	5C	\	111	6F	o			
17	11	DC1	36	24	\$	55	37	7	74	4A	J	93	5D	]	112	70	p			
18	12	DC2	37	25	%	56	38	8	75	4B	K	94	5E	^	113	71	q			

This Desktop Manager module lists the decimal, hexadecimal and corresponding character values of all ASCII keyboard characters. A second screen shows the decimal and hexadecimal equivalents of keypresses which include the control key. This keypress table can be invaluable when you need to know printer commands to enable different printer modes. The ASCII table is a necessary tool for programmers of all skill levels. Why not have them both at your fingertips? Only \$9.95 plus \$3 s/h.

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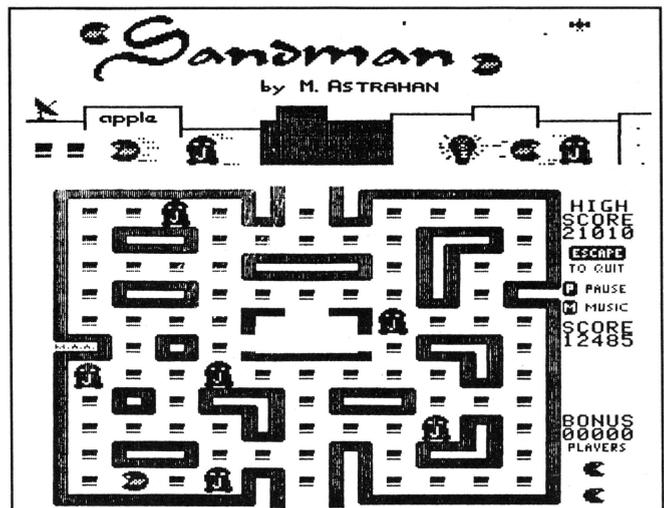
a new multi-level arcade game by Mel Astrahan

- Use with joystick, keyboard or mouse
- Can be run as a Desktop Manager background module

The objective of SANDMAN is to score as many points as possible. Salvage all of the Apple /// parts discarded throughout the halls of Apple's labyrinthian research lab to receive points. WARNING! The lab is haunted by the ghosts of JOBs. . . if they catch you, you're done for!

Your only weapon against the JOBs is to find the WOZ who wanders about the lab peeking in on various projects. For a short time following a meeting of SANDMAN and WOZ the JOBs turn blue and may be exorcised if you can catch them.

"—Brilliant, colorful and fast moving, Sandman will provide hours of fun."



Apple.Sauce

Paula Sheppard

New Shoes

Quite a few of *ON THREE*'s readers will miss Lynne Denicola's writing and voice over the phone line as Lynne has parted with the magazine. I will be taking her place and hope to keep the great /// spirit moving through *ON THREE* magazine.

As Lynne mentioned last month, I have recently moved to California from Wyoming, where I worked as the assistant editor and chief reporter of a weekly newspaper. I have been writing professionally since high school and received my A.A. in Journalism from Casper College in Wyoming.

Like Lynne, I started this position completely unaware of the /// and have been able to learn quickly. That's just a little more proof of how great the /// really is! I am amazed and wonder how I missed out on using such a fantastic machine when it was first manufactured. I have used word processors in the past and there are some similarities but nothing comparable to the /// plus I am now using.

As the new editor, readers can look forward to a new column entitled, "Apple.Slices." It is specifically designed for bits of information vital to /// users. Feel free to send in any information that would enhance /// users' knowledge. Whether it is a helpful hint or a short cut for a program, pass the information on and benefit from others' advice, too.

I can assure *ON THREE* readers that the quality of the magazine will stay the same. In future articles, Richard and Lavona Rann will be offering more advice to the beginners, we will continue answering questions and hopefully, we will dive further into telecommunications. Most of all, we can look forward to using more of *ON THREE*'s products as exciting as the Desktop Manager.

Phase ///

I have entered the world of Apple /// at precisely the right time. For all /// users who have been anxiously waiting to meet at a national convention, TAU has designed a means of doing just that. Those who haven't already registered for the convention in

Chicago, there is still time. The cost for the October convention is \$275 for registration from now until July 1. After July 1, the cost is \$325 per person.

In March's issue of *ON THREE*, Lynne mentioned the Phase /// conference. Since then, I have received more information from Lavona Rann, Apple Business Users Conference (Phase ///) president.

First of all, the price includes three days of seminars and workshops, a keynote reception the first evening, a banquet on the second evening, featuring a major speaker. The banquet will also honor several of the pacesetters and pioneers of hardware and software for the Apple family.

The hotel room rates at the Hyatt Regency Woodfield Hotel in Schaumburg, Ill. are regularly \$72 per night. However, the convention rate is \$57 per night for single or double occupancy. That is quite the savings. Rann also notes that booth prices for vendors have been set at break-even prices to encourage Apple vendor attendance and sale prices to attendees.

The Saturday evening banquet will include an Apple speaker and prime rib is on the menu. If attendance is high, Rann says there will be some additional add-ons by the hotel. She says TAU would like to provide continental breakfasts on Saturday and Sunday mornings as well as a few extra small events.

Most of *ON THREE*'s staff will be attending the conference and technician, Rob Turner, who is employed by Apple, has been invited to the conference by TAU. Turner along with *ON THREE* president, Bob Consorti, designed the timesaving Desktop Manager. Turner will be joined by another /// fanatic, Taylor Pohlman, who also works for Apple.

One of the most exciting events of the Oct. 2-4 convention is the /// Forever Luncheon. The first 200 people registering for the conference will be invited to the /// Forever Luncheon. Rann says this luncheon will honor people who have made major contributions to the Apple ///.

TAU hopes to have enough registered /// owners and users to meet the hotel commitment. If a large portion

of the commitment is not covered, then TAU will open the conference to the wider Apple Business Community and set up additional seminars for their interests. Rann says this won't take away from the /// programming and the /// Forever Luncheon will be limited to /// people.

The seminars and panel sessions are being set up with a minimum of 15 sessions specifically designed for /// users and owners. Some of the topics will be: Business Basic, PASCAL, SOS, Power Keys, Desktop Manager, /// Graphics, hardware maintenance, AppleWorks, /// E-Z Pieces, the IRS and your microcomputer, hard disks and additional memory, accounting systems and microcomputers, and two special forums on the ///'s future.

According to Rann, this is being set up so that people *only* interested in the /// will have a choice between at least two sessions for each of the 15 or more seminar/panel time slots.

For further information on the conference, feel free to write Phase /// at the following address:

Phase ///,
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1511 N. Bell
Chicago, IL 60622

Also, /// people may call Lavona Rann at (312) 665-6319.



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The Beginning ///

Richard and Lavona Rann

Mister In Between

In the previous articles we discussed SOS as well as many aspects of the Apple /// itself. The machine and its operating system are vital topics necessary to learning the ///, but there are other important areas to be considered. Languages and programs are normally layered between the machine and its operating system and the end user. This month we will deal with the next step up from the operating system, languages for the Apple ///.

Even if you are not a programmer, and never intend to be one, it is still important for you to learn a little about programming languages. This is because languages and their approaches and limitations effect the way your Apple /// can be used. Some things can be done easily in one language, while in another, they can be done only with great difficulty. Knowing a little about languages will help you to understand the limitations that program developers have to face and how they affect application programs, the ones that you can buy and use. Knowing a little about programming and programming languages can also be a real confidence builder. It gives you the freedom to go beyond commercial programs and packages. With just a little knowledge you can enter programs from magazines like *ON THREE*, modify programs available in public domain libraries and on bulletin board systems, and write small customized programs of your own. Fortunately for a lot of us, knowledge of programming and languages is not a prerequisite to operating the Apple ///; it is rather, an additional skill that augments the machines value to the knowledgeable user.

As we saw in earlier topics, so many of the aspects of dealing with computers have been cloaked in mystery that it often seems that one needs some sort of priesthood to deal with them. In this series of topics, we are working at breaking those barriers and helping you to feel comfortable with all aspects of your /// and its capabilities. Programming is no different than earlier subjects; it is not a difficult concept to understand, but like any new concept, it takes a little thinking to have it come into focus. Let's step away from the mystery and return to basic concepts. First of all, programming is not a concept that started with or is

limited to computers. You can look up the term program and its derivatives in your own dictionary and find that the meaning of the terms are quite simple. In all cases, it boils down to directing the actions of a person or object. If college psychology courses are correct, we have all been programmed to some degree. Most of our parents taught us to say 'excuse me' when we inadvertently bump into someone. That is the very essence of being programmed. We have been taught to respond in a specific predetermined way when faced with a specific situation. The programmers are the teachers, and we are all programmers in that each of us at some time have tried to teach something to someone.

When we program our VCR's to record a specific show, we are doing the same type of thing. We are setting up the information required for the machines to do a specific task under specific circumstances. What is different, and sometimes intimidating, is that the VCR, or other device needing a program, does not understand human language. We have to learn what the device understands before we can give it instructions.

Programming consists of three conceptual steps: 1) deciding what we want to tell someone or something to do, 2) translating the instructions into a language that the person/object can understand, and 3) the actual *teaching*.

The first step should be fairly simple. We all know what we want, and it is quite simple to give the planning step short shrift. Actually, this is the most important step, and most of us need to take time to organize our thoughts before we jump into developing a program. There are courses which discuss ways to document thoughts, but you can do just as well with a little common sense and a determination to think things through and write them down in a detailed step by step manner.

A very useful approach is to write the whole project in a outline of short statements. The initial list should be quite short. Then you will take each of the statements and do a short outline of it as if it were a separate project. Continue in this manner until each outline has no steps that can be further broken into smaller pieces. One of the things that this does is help you to understand where there are options and plan for what

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** The regular Word Juggler program works with the 512K Memory Upgrade but does not offer additional lines for your documents. An upgraded version is available which allows twice as many lines in your documents. To obtain it, please send a disk with return postage to *ON THREE*. However, there is one known problem with the updated Word Juggler package. It does not work with the LexiCheck spell checker option. To check the spelling of a very large Word Juggler document, you must divide it into two smaller sections.

** The program Multiplan from Microsoft does not recognize the 512K Memory Upgrade.

you want done in each case. You find that in most programs, there are some tasks that can be used in different situations. Then you only have to write out the plan for that task once, and in most programming languages you can avoid having to create duplicate instructions.

While writing out the statements, think them through for completeness. You need to start thinking of things in terms of every possibility. If I ask you if you want to go somewhere, you can answer in more than a yes or no. Likewise, a yes/no question by a program needs to have more than two optional ways of handling an answer. You need to handle yes, no, and have some way of handling other responses. A common programmer reaction to this situation is to treat everything besides the expected responses as errors and have a routine which tells a person the answer is not acceptable and to *try again*. Exceptions are the bane of programmers. Good programs always have instructions to handle the unexpected.

When dealing with computers, there are levels of *understanding* that are available as many people have already written programs which provide a translation service between what you want to say and what the basic chip *understands*. These programs are generally referred to as computer languages. A user has many options in choosing a language for programming the Apple III, and we will give you a brief introduction to some of them over the next few months. In this overview of language types and languages, we will start with those most closely related to what the computer *understands* and build up to ones you would be advised to investigate - those that are more user friendly to us. This brief exposure to the various levels of languages will help you to have a better understanding of the programs you use, and any computer language you may chose to investigate.

All of the languages used have the same underpinnings, they have to translate information into the *language* of the processor chip. This *language* is the instruction set that constitutes the basic things that the processor can *understand* and do. The number of instructions is quite small, but like DNA in the human genetic structure, the instructions are the building blocks that provide for a wide variety of results. If we were to write a tongue in cheek history of computers and their languages, we could start: "In the beginning there was the on/off switch." Because, at the most basic level, the computers all recognize things on the level of yes or no, on or off. Everything that a computer does is reduced to the changing of electrical switches from positive to negative and back again.

The best human system for expressing this on/off condition is by using "base two" numbering system

commonly referred to as "binary". This system expresses all numbers using "1" and "0", which relates directly to the computers "on" and "off". You don't need to understand binary numbers to program, but a little introduction can be helpful. If you aren't interested, or already are familiar with binary, you can skip the next few paragraphs and go on to the section headed: Boole's Impact.

Binary, or base 2, notation is very useful in understanding how a computer stores information, and is critical to the programmer that programs at the most basic level of machine language. What tends to confuse people when learning about number notation systems other than our familiar base ten, is that the symbols that we have used to interpret in a specific way can have different meanings. We are used to base ten, where the number of fingers a normal human has is expressed as "10". In base 2, that same amount is expressed "1010".

The concept is more easily grasped if one remembers that the notations we use for numbers are a type of code. Different base systems allow use of a varying selection of characters (i.e. 1,2,3,4,5,6,7,8,9,0 in base ten, and 1,0 in base 2). The number "1" remains the same in binary as it is in our familiar base ten numbering system, but here is where similarity appears to end. Actually, there is a lot of similarity, but we take for granted what numbers mean, have never learned, or have forgotten the rules that makes them work. The number "1" in the first position left of a decimal point (or implied decimal point) is in the UNITS POSITION. That means that the number is its actual value. A number in the second position left of the decimal as the "1" in "10" is in the BASE POSITION. Since most of us first learned numbers in base ten, we learned that the position is the tens position. Actually, what the notation stands for is:

$$+ \begin{array}{l} \text{the units position times 1} \\ \text{the base position times the base} \end{array}$$

The examples below, use this rule to convert the value "11" from Base 10, Base 2, and Base 16 to our standard base 10. Obviously, there was no conversion necessary for base 10, but the example is there to show that the rule does apply.

Base 10 (Decimal)	Base 2 (Binary)	Base 16 (Hex)
$1 * 1 = 1$	$1 * 1 = 1$	$1 * 1 = 1$
$+ 1 * 10 = 10$	$+ 1 * 2 = 2$	$+ 1 * 16 = 16$
11	3	17

What this all boils down to is that the notation "11" can mean different things depending on what our de-

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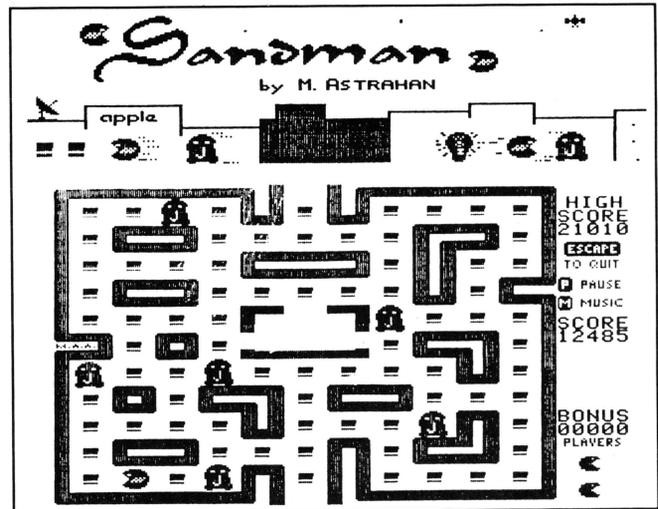
a new multi-level arcade game by Mel Astrahan

- Use with joystick, keyboard or mouse
- Can be run as a Desktop Manager background module

The objective of SANDMAN is to score as many points as possible. Salvage all of the Apple /// parts discarded throughout the halls of Apple's labyrinthian research lab to receive points. WARNING! The lab is haunted by the ghosts of JOBS. . . if they catch you, you're done for!

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Definitions are. Most people think that the reason we use base 10 is because humans have 10 fingers. If we were ever to meet a being with sixteen fingers, we could then expect them to use base 16. Since computers don't have fingers, but do have only two states, on and off, Binary is best for use with them.

To get higher numbers, the columns to the left of the BASE column are added by multiplying the value of the prior column by the base. Thus the third position to the left of the decimal is valued at the base times the base. In decimal, we get 100 by multiplying 10 by itself, and we generally call the position the hundreds position. In binary the position is the 4's (from $2 * 2$), and in hex, it is 256's ($16 * 16$).

The first four columns in the three notations are as follows:

Decimal	1000,100,10,1
Binary	8,4,2,1
Hexadecimal	4096,256,16,1

Binary is useful to us as it relates exactly to what the computer stores and *understands* at its most primitive level. Hex (short for hexadecimal) is also useful, because many programming languages use it. At its most basic and primitive levels, programming is arranging binary values to carry larger meanings and to do useful work.

Boole's Impact

In the middle 1800s an English mathematician named George Boole developed a system of proofs in which he reduced all mathematics to a series of yes/no decisions. His book "The Laws of Thought, on Which Are Founded the Mathematical Theories of Logic and Probabilities" remained an intellectual oddity until the 1930s when the first computing machines were being designed. Boole's algebra became the logic basis for all computers and binary numbers are the perfect way to express that logic.

Today, very few people program in binary, or even machine language. The primary exceptions are engineers in the process of designing new processors and operating systems. Because no translation steps are required for the machine to process the instructions, machine languages are useful when very fast processing is required. Most humans are not comfortable thinking in binary, or even of the limited instruction sets available in most machine languages. The first real step up toward programming languages better suited for humans, is the family of languages called ASSEMBLER languages. These are generally

called LOW-LEVEL LANGUAGES because what a programmer codes is very close to what the computer understands, as differentiated from HIGH-LEVEL LANGUAGES, that are closer to human languages.

The core of an assembler language consists of a coding scheme which identifies each of the binary or hex coded machine language instructions to a specific code that is easier for people to understand. On Lavona's first computer, the machine instructions 1 and 2 stood for read a card, and write a card. The assembler instructions were R and W. This type of coding is not very sophisticated, but it is much easier for most of us to remember that R stands for Read, than to remember what the number 1 stands for. The second thing an assembler language needs besides a coding scheme, is a program that takes code the programmer writes and translates it into machine language. The program is called an assembler. Traditionally assembler languages translated one coded instruction to one machine instruction. This one for one relationship does not always hold true, but the relationship between the number of instructions in the programmers coded program (the source program) and the output from the assembler (the object program) is normally very close.

The languages that most people start with are the high-level INTERPRETER languages. These are quite a long way from machine languages, and are much closer to the natural language we use every day. In these languages, the programmer can tell the computer to "ADD" without having to have any knowledge of how the machine actually adds, and certainly, no knowledge of the 28 yes/no logic steps required by a Boolean add in binary.

BASIC in any of its various forms is the most common interpreter language. Like many languages, BASIC was initially developed as a learning tool. Its code does look a lot like English. For example: the instruction "PRINT 2 + 2" will cause a "4" to be printed. The Apple /// owner can choose between a couple Apple II versions of BASIC that come on the II emulation diskette, or the more powerful Apple /// Business Basic. Next month we will give you an introduction to Business Basic that will help you get started and let you type in and run programs that you find here in the pages of *ON THREE*, and in other places.

BASIC is not the only interpreter language available on the ///. A native mode Apple /// version of FORTH has recently been made available. This language is not as well known as BASIC, and for the time being, there are more programs and books available in and about BASIC, but FORTH is a good language and one that deserves some future consideration.

Our last category of languages is the group known as COMPILER languages. We purposely delayed giving the definition of INTERPRETER languages so we could do define compiler and interpreter languages together to clarify the differences. Both types are high-level languages, i.e. the source code (what the programmer writes) is relatively readable in human terms.

The difference is a technical one that makes a huge difference to both the programmer and the user of programs written in the languages. When a programmer writes a compiler language program, the code is not ready for use until it is used as input to a special translation program known as a COMPILER. The output of the compiler is a lower level language program (object code) that may be ready for the computer to run, or may need additional steps. This process is identical to the steps outlined above when we described ASSEMBLER languages. In either case, the translation is done when a person runs the special assembler or compiler program. Hence, there are a couple steps necessary before you can actually run your program.

The translation process is done differently with INTERPRETER languages. Instead of taking a completed source program and running a special program to translate it into a complete ready to run program, interpreters are programs that run while you input the source program, and are able to translate each instruction as it is entered. This is quite nice when learning a language because a user receives immediate results. You can type in the "Print 2 + 2" statement in BASIC and have it immediately give you the result of 4, without having to run a separate program to translate the "Print 2 + 2" into a file (object program) with the equivalent machine instructions, and then running that program.

Why then, would you ever want to use anything but an interpreter language? The strongest reason is speed. If you do write an interpreter language program and save

it to run again, the interpreter will have to be running every time you want to run your program, and it will have to translate each instruction each time it uses it. This can really slow down the speed at which your computer can run your program. In the compiled or assembled languages, the translation is done once and the result stored so that the resulting program runs faster. It is only fair to let you know that this is a simplistic explanation, and there are many variations on this theme. When we do the article on Apple /// PASCAL, the most commonly used COMPILER program on the ///, we will explain a compromise that has been done for good reason. The bottom line is that interpreter languages, such as BASIC and FORTH, are easiest for a beginning programmer, and compiler or assembler languages are generally used when programs get larger and need to be concerned with speed.

COBOL and PASCAL are the most commonly used COMPILER languages for the Apple ///. Both of these are written to computer industry standards that bring some advantages to those that program on other computers, or want to transport programs from other computers, or possibly move /// programs to other types of computers. The greatest single advantage of a programming language that meets an industry standard is that the source code can usually be compiled on other machines with very few changes to the code written by the original programmer.

It seems that the fast moving software industry is doing all it can to make it confusing for people trying to learn the basics. Just so you won't be taken off guard, we must mention that some of the more common languages (such as BASIC and PASCAL) have attracted enough attention that people are now marketing compilers for BASIC code and interpreters for PASCAL code. These are not now available for the ///, but they do muddy the water. Just remember that a language is really the instructions and syntax that you have available to write your programs. There are many tools that come along when you buy the software to use a language. Selecting a language is like deciding between buying a car and a bicycle. Selecting which version of the language is a lot like selecting a specific model and brand of car. On the ///, we don't have a hard task once we make the first decision, because there is not a wide variety of model and brand choices.

Since Business Basic is the interpreter language that most /// owners have, or can easily get, and the startup effort is quite simple, we will spend some time getting you going in BASIC in our next column. If you don't have a copy of Business Basic, we strongly suggest that you get one. Talk to your favorite /// vendor or user group to find out about the best deals available.



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Copyright Protection

David Cortopassi

Computers are a kind of idiot savant - memory without thought. They overshadow all areas of productivity, as the computer is the tool of the world now, and knows no allegiance or distinction between video games or medical science; business applications or flight simulation. This is both an asset with respect to human interface and a curse to the control of political-economic principles.

Predictions are made of monumental revolutions to come, with total disregard for the counter-revolution of maintaining authoritative, governmental validity. Convenience has blinded us to this integral part of electronic reformation. As a result, our pace is paramount, while comprehension grows increasingly shallow.

Weakness in the legal structure is the consequence when doctrines fail to keep abreast of technology. It would be shortsighted to endorse current legislative procedure as adequate. For just as we have advanced with great strides in a multitude of vocations, so have we drifted from the realm of functional precedents.

In this world, copyright is nothing new. Copyright legislation began in the United States in 1790. Granted, things have changed. Scores of judicial amendments have served to consolidate the original copyright act to keep up with new situations. Still, archaic laws have become obsolete in this "age of anxiety", and along with antiquated legal machinery has come a new unfamiliarity with newfangled devices called *central processors* and *personal computers*.

There has been much speculation and confusion in the area of copyright protection. Major corporations are finding themselves involved in litigation over computer crime at an alarming rate of increase. This concerns not only the computer industry, but all areas of business.

There are several approaches by which successful corporations restrict the misuse of software. Probably the most infuriating but effective method is to provide insufficient documentation, or omit pertinent data at lower levels of structured social sectors.

I remember talking with an instructor at an installation on the subject of Systems Management while working

as a documentation specialist for a major corporation. The instructor admitted there was much more possible with the particular mainframe in question than represented within the given manuals. The exact words: "They don't want you to know."

Corporate mistakes?

Don't kid yourself! Corporate mistakes are called *job security* by the employee, and it extends up through management to the chief executive.

The correct terminology for this brand of secrecy is *obfuscation*. It is used widely where software can be made so confusing or mysterious that any attempt at stealing it would prove ridiculous.

Still, there are a lot of cagey people out there who can decipher your cryptic code. Plagiarism happens to the best of us.

As with all viable products in any marketplace, society will produce its share of thieves. I am not one to be pessimistic, but to a further degree, few will dispute that our *due process of law* sometimes proves to be an obstacle in the way of justice. Inequity often is the by-product of bureaucracy.

Today, computer technology is the impetus, with the world as the critical path of distribution. Piracy on the high seas has given way to *software smuggling* in the CPU.

What then, given this unrelenting force, are a set of defense mechanisms?

There are several, but they must be distinguished from one another. Some people confuse trademark, trade-secrets, patents, and copyrights. Although there may be some resemblance in the rights granted under these various kinds of intangible property, they are completely different and serve different purposes.

Trademark

A trademark is a brand name used on goods moving in the channels of trade to distinguish one merchant's

goods from those manufactured or sold by a competitor.

Trademarks also serve to indicate to purchasers that the quality of the goods bearing the mark remains constant. Marks usually are the focal point in advertising to create and maintain demand for a product.

Trade Secret

Trade secret agreements give contractual obligations conditioned on a pending outcome of events, and to a major degree, they depend on the sincerity of an influential source who has interest in your product.

You can view this condition from two diverse points: "The larger the company, the less likely it is to hazard bad publicity as a result of software theft and large companies have large bankbooks to fund extensive court proceedings with much credibility."

Once a secret is disclosed or becomes generally known in the trade, all rights are lost. A breach of confidentiality or espionage can turn your fortune over to public domain. The owner has no rights against the use of a trade secret by someone who acquired the knowledge or discovered it in a proper manner.

At best, protection in this area is weak. Even with sound judgment in character, you might find yourself dealing with personnel turnover. More often than not, you'd be better off going it alone than to use this methodology.

Patent

There is little chance in obtaining a patent for software. Patent law is a specialty within the entire legal field, and for the most part requires an attorney. All litigation is expensive, but patent litigation is particularly so due to complex technical questions that address both general counsel and patent trial counsel.

The rulings on patents encompassing software (*Diamond vs. Bradley* and *Diamond vs. Diehr*) merely states that "an industrial process may be patented *even though* a computer program is used in the procedure". This is a far cry from saying a computer program is patentable.

Patents are about as complicated as they are expensive, and the word *invention* is hard-pressed to connote *software*. But for those who wish to pursue this format, a little-known "document disclosure program" was passed in 1968. It provides an unusual form of pseudo-protection for potential inventor's ideas from indiscriminate disclosure. Though it does not constitute an application for patent, it does offer two years reg-

istration at a nominal price, time enough to solicit, survey or change designs.

Copyright

On the other hand, copyright is a form of protection provided by law to the authors of "original works of authorship". It gives the owner exclusive legal right to reproduce, publish and sell the matter and form of his or her created work.

Registration is not a condition of copyright protection, but it is a prerequisite to an infringement suit. This is also true of international copyright protection. Although registering a claim is optional, it does have several advantages:

- * The copyright owner will receive a copyright certificate (necessary for suing in the United States).
- * Registration will provide a permanent, public record that may make business transactions in the United States easier.
- * Facts of registration will be printed in the official "Catalog of Copyright Entries" and given wide distribution.
- * Registration for the original term simplifies renewal of the copyright for the second term, for which registration still is necessary.
- * Subject to certain exceptions, the remedies of statutory damages and attorney's fees are not available for infringements occurring before registration.
- * Recording and depositing copies of the work does not require copious legal skills and is easily accomplished with minimal expense.

There is a three-year statute of limitation. If a copyright is violated, the following remedies can be obtained: 1) an injunction restraining the infringement, 2) damages and profits, 3) impounding of infringing articles during the action, 4) destruction of copies, 5) penalties for fraudulent notice of copyright, and 6) full costs including reasonable attorney fees.

In short, one must weigh the high cost of acquiring a patent, if applicable, and the potential risk of trade secret protection against copyright in making a decision.

The sharp decrease in hardware cost, together with the growing complexity of applications, has resulted in greater shares of cost associated with computer systems going to new or existing program development. Expenditure of funds and project labors must be adequately protected if a software property is to be deemed valuable in either the short or the long run. Management must realize the importance of software copyright in order to reap the benefits of merchandising, and it is

management's responsibility to see that orthodox means are implemented to this end. Certainly, the immediate creation of well-founded legal rights offered through copyright at such minimal expense would recommend its use.

In the past, neither copyrights nor patents have had measurable influence upon computer development because of a lack of firm guidelines and a substantial amount of uncertainty as to possible legal ramifications. There still is cause for lengthy debate in all spectrums of data processing.

With continual review and appropriate revision of standards we will ultimately come to grips with the nature of the beast. But until professionals have a firmer grasp on the application of law to software, they must judge for themselves. For the time being, this means utilizing the existing operational framework. And at present, copyright is the foundation of contest.

In selecting protection, determine the type which is best adapted to your particular situation. Although one software article rarely qualifies under both copyright and patent, products often qualify for two or three other types of protection. So consider all those mutually compatible, such as

their scope, duration, comparative costs, limitations and recourse.

Most authorities say copyright will persevere as the culmination of system software through the 1980s. Until such event coordinates the law with the speed of technology, this concept will most likely hold true.

If you support the opinion that your product is of a unique quality with definitive value, and you distinguish your development as a worthwhile application or system design, do not overlook any form of security. To advocate any safeguard as foolproof would be naive. Copyright should be thought of as one other objective in contingency planning, a *just in case* type of precautionary attitude as one might apply toward providing a recovery system from mass.

More than a means to establishing legal rights, copyright serves to its best interest as a deterrent. It is a *proclamation of conviction*, and it professes the willingness to put up a good fight.

The effect is similar to that of the *beware of dog* or *no trespassing* sign: Those inclined to ignore private property must be reminded of self-esteem and integrity.



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Dvorak Keyboard

Kevin Fitzmaurice

The unfortunate tale of the QWERTY keyboard layout has been the subject of many articles in the past. For those unfamiliar with the story, here are the highlights.

Once upon a time, a company created an invention which promised to improve the readability of documents and speed their preparation. However, the maker had trouble getting people to use this new machine. The reason? When people typed on the machine they typed too fast for it and the keys jammed. To solve this dilemma, the manufacturer developed a key arrangement which made it as difficult as possible to type. That key layout was called "QWERTY," named for the first five letters on the keyboard. The design separated the most frequently used letters so their type bars wouldn't hit each other as they swung up to strike the ribbon. With this alteration, people could not type faster than the machine could physically handle and the machines sold well.

Shortly thereafter the mechanical problems which spawned the awkward keyboard setup were solved, but by then the QWERTY arrangement had already become the norm. Even so, some people are never satisfied with convention and try to improve upon it. Such a person was Dr. August Dvorak. In his statistical study of the QWERTY arrangement, he found that the manufacturers had designed the intentionally difficult keyboard layout so well that even a random arrangement of the keys was more efficient. Professor Dvorak devoted much time developing an optimum keyboard layout and originally proposed it in 1943.

Unfortunately, his arrangement did not concern manufacturers any more than changing from our odd English spellings to a logical phonetic standard concerns linguists. His layout is known variously as the Dvorak arrangement, the Dvorak Simplified Keyboard (DSK) and the American Simplified Keyboard (ASK). Within the last few years, a standard version of the Dvorak keyboard arrangement was approved by the American Standards Committee.

One of the fastest typists in the world, Barbara Blackburn, uses the DSK and never mastered the QWERTY arrangement because it was so illogical. Today, more and more people are learning to type and

many, out of frustration with the inane QWERTY layout, have turned to computers which can be modified to use the Dvorak keyboard.

Many do not realize how technologically advanced the *///* is over other computers. It is the first software-definable machine. Any part of the system, from its keyboard to its operating system, can be changed via diskette. Redefining the keyboard is easy because Apple provided the necessary software on the Utilities Data diskette which came with every *///*. By following the step-by-step instructions below, you will only have to pop the key caps and move them around to their new positions to use a Dvorak keyboard on your *///* or *///* plus. Then, the keyboard will look like the one on the cover. It does not conform to the new standard, but is off by a few minor points.

Making the Change

In order to change the keyboard layout, first boot the System Utilities program in the built-in drive. From the main menu, choose Option S, "System Configuration Program" (SCP) by either typing S or moving the cursor to Option S with the arrow keys and pressing RETURN or ENTER. From the SCP menu first choose Option R, "Read a Driver File." Put the diskette containing the program you want to use the Dvorak keyboard with into the internal drive so System Utilities will load (read) its SOS.DRIVER file.

Since I use one set of drivers for all of my software, I arbitrarily choose a disk and put it into the built-in drive. Then I accept SOS's suggestion of ".D1/SOS.DRIVER" as the correct pathname by hitting the RETURN key. Once the drivers are read into memory and are displayed, go back to the SCP menu by pressing ESCAPE.

Now your second choice from the SCP menu will be C, "Change System Parameters." This puts you in the Current System Parameters menu. Choose Option 4, "Keyboard Layout." Now it prompts you for the pathname of the keyboard layout you want. Apple included a file on the System Utilities Data diskette called `KEYBOARD.LAYOUT/DVORAK`, so remove the program disk and put the System Utilities Data

disk into the built-in disk drive. Now type the following: ".D1/KEYBOARD.LAYOUT/DVORAK".

Once DVORAK is displayed on the screen, remove the data disk and return the System Utilities disk to the built-in drive. Now push ESCAPE once to return to the Current System menu and once again to return to the SCP menu. In the SCP menu choose Option G, "Generate System." The message "System Validation in Progress" should appear on the screen. Next, if you did everything correctly, you will see the message "--System Validation Completed--." SCP then asks for the name of a file to store the new system, suggesting .D1/SOS.DRIVER.

Now remove the System Utilities disk from the built-in drive and, for example, put the Apple Writer /// disk in.

Press RETURN. SCP will ask if you want to write over the SOS.DRIVER file which is already on the disk. Respond with a Y to put a new system on the disk. Now, remove the Apple Writer /// disk and put in Business BASIC disk, or any other program disk with which you want to use the Dvorak keyboard. Press RETURN, answer Y and it too will be configured for Dvorak.

A user simply loads a disk with the proper keyboard layout to use either the Dvorak or the QWERTY. For example, if you like the Dvorak but someone else wants to use the QWERTY on your computer, just make and keep a copy of the QWERTY SOS.DRIVER for the other party. It is also easy to move the key caps around because they just press in place.



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Ranntings

Richard and Lavona Rann

Apple's Jolly Good Fellows

Over the past few months, we have spent so much time talking about our Apple /// community that it would have been easy to lose sight of the fact that we are all part of a larger world of Apple users. There are benefits to membership in both groups. One of these is that a number of our /// developers have gained greater financial stability through converting /// products to the wider Apple II market. Beyond the step to a new market, Apple is looking further down the road in an attempt to create products to meet our needs in that far future when even the most devoted of us will have to admit that our ///s, Macs and IIs are antiques to be loved more for their place in history than their relative current value. It is comforting to know that the people that brought us SOS and the world's first true business micro are developing ideas for the future. Generating those ideas is the purpose of the Apple Fellow program.

For the past several years Apple has quietly maintained a program supporting the independent research activities of five of the most creative and imaginative people in the computer industry. These five are collectively known as the Apple Fellows. The Fellow program is designed to support research that is of a long term nature. It may be five, 10 or more years before some of the work being done reaches even prototype stage, but all of it is intended to ensure Apple a place as a leading microcomputer innovator and manufacturer on into the 21st century.

A second, related goal of the Fellow program is to overcome a problem that has plagued the entire American business community, that of having research be too closely linked to short-term, immediate product goals and profit requirements. One of the things that made Apple Computer possible was luxury to look at what should or could be without Woz having to justify his initial research with a business plan that guaranteed a quick financial return. Many larger corporations have found that being a large, corporate entity often serves to kill the ability of its staff to come up with radical new ideas. Apple is using the Fellow program to ensure that its size and success does not kill the very possibility of gleaning and exploiting really new ideas. The five Apple Fellows have the luxury of looking into

the future without having to show a short term profit.

Some of the names of the Apple Fellows are familiar to most users of Apple computers, while others will only be recognized by people who have been following the micro-computer industry. The two most recognizable names are Steven Wozniak and Rod Holt. Everyone recognizes WOZ as the developer of the first Apple and Apple employee number 1, but fewer people will recognize Rod's name as an early Apple employee, and the company's first chief engineer. Together they worked on the Apple II and II+. Rod was instrumental in developing the II's power supply as well as the automatic clamping and ejecting disk drives. Everyone has heard of Woz's work on the latest Apple II family project. He was instrumental in designing the Apple II GS that eventually resulted in a limited "Woz" signature edition.

While Rod is reported to be recharging his batteries by sailing from Australia to Japan, Woz is devoting much of his energy to his own company CL9. Cloud 9 as it is known, will soon release its first consumer product, CORE (Control Of Remote Electronics). CORE is a smart remote control for television and stereos. What his current and future projects as part of the Apple Fellow program are, is a closely guarded secret.

The next three names are not as recognizable, but all three have had considerable impact on the industry. Each is involved with his own project that promises potential breakthroughs. Al Alcorn was a co-founder of Atari in 1972, along with Nolan Bushnell. While at Atari, Nolan and Al hired young computer and game designer, Steve Wozniak. Al claims that it is Apple's willingness to take risks coupled with enthusiasm and drive that makes exciting new products happen. He will say little about his current project other than it has to do with, "increasing the market potential of the Macintosh user interface."

Bill Atkinson is the author of MacPaint as well as a number of QuickDraw routines for the Mac. His project also is cloaked in secrecy and to the public, remains mostly rumor. He is said to be building a visual database that allows the user to move elements by mouse with the program restructuring the logic to support the visual structures and connections. It is

rumored to be able to have data appear in levels, like ThinkTank, that can be *exploded* when needed. The ability to *explode* and *implode* data to look at summary levels or any detail level would be a very useful function for a business data base application. In addition, it is rumored that the database would function in a CD-ROM environment. Of the five, Bill's projects are the most likely to reach market quickly. It could even be involved with one of the many new products to be announced this year.

Former Atari Scientist

The fifth Apple fellow, Alan Kay, is involved in the project that looks farthest into the future, and may be the longest time being made into a product or products. Alan is not a newcomer to research. He detoured from a life as a jazz musician when he earned B.A. degrees in mathematics and in molecular biology. He went on to do doctoral work at the University of Utah, and from there he joined Xerox Corporation when it set up the Palo Alto Research Center (Parc). At the center he contributed to the development of a prototype of the first personal computer. While there, he was instrumental in developing the foundations of what are now known as the *windows* concept and the *mouse* interface. It took many years before the research he

did at Parc was developed and grew into the Apple Macintosh interface. In 1981 Alan joined Atari where he was chief scientist until May of 1984 when he became an Apple Fellow.

Alan's project for Apple is Vivarium. In this project, he continues his interest in studying how humans and computers interact by studying children. In a speech last year, he noted that in children, there is no preconceived notion of what a computer is or what it should be. The child just reacts. For Vivarium Apple developed special Macintosh computers with 3-dimensional color graphics. These special machines are designed for children to create and run simulated environments or ecologies. By studying the way the children use the machines and interact with them, he hopes to determine what is the most natural way for a person to interface with a computer. In the future, some new Macintosh may drop the mouse and windows for some new, and yet unthought of, method of interface.

With Apple, rightly, being unwilling to publish its research where its competitors can take unfair advantage of it, we have to go to other sources to get an indication of the strength of Apple's commitment to the future of Microcomputers. In the case of Alan Kay it is relatively easy. He is doing the same kind of thing now, for Apple, that he was doing years ago for Xerox and MIT. In the September 1984 edition of *Scientific American*, which was devoted entirely to the subject of computer software, he wrote the lead article entitled, "Computer Software." In it, he likened software to what Leonardo da Vinci said of music: the shaping of the invisible. With this analogy he challenges the normally-used definitions of computers and software. He insists that we need more than a "drivers ed approach to computer literacy."

At the heart of the problem is the way we view the computer. In one instance it is a tool to be used. In the next it is a language to be shaped and exploited. "It is a medium that can dynamically simulate the details of any other medium, including media that cannot exist physically.... It is the first metamedium, and as such it has degrees of freedom for representation and expression never before encountered and as yet barely investigated."

The five Apple Fellows are stirring the future in their cauldrons; just what they are brewing no one can say. If Alan Kay is any example, what they do will change the way we think about computers as much as it changes the computers themselves. If out of the Vivarium project a new environment is created which changes how we live with our computers, what is created is something that would probably take the free and open mind of a five year old to be imagined. 

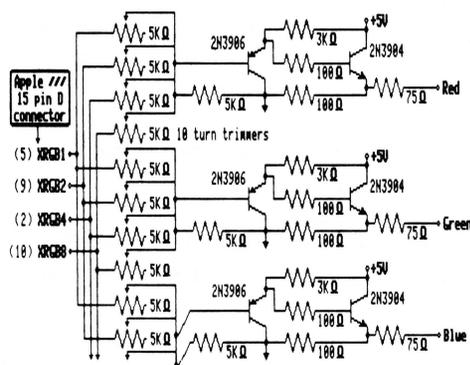
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Data Capture ///

Edward N. Gooding, Sr.

I have been using Data Capture /// for the last several months as my terminal program. This program allows one to use a modem connected to an Apple /// to dial up and communicate with other computers equipped with modems. A modem is a piece of computer hardware that is connected to a /// with an RS232 cable, just like you do a serial printer.

The word *modem* comes from an abbreviation of the modem's function, which is MODulate-DEModulate. This is what the modem does to allow you to "talk" to another computer. What is entered from a keyboard, or sent directly from a prepared word processing or spreadsheet file is accepted by the modem as digital information. It promptly modulates, or converts the digitized data into voice data, which is transmitted over phone lines to the modem at the remote computer. The modem at the remote computer thereupon receives the modulated data, and demodulates it, which of course converts it back to the digitized format that your word processing or spread sheet program can understand.

The modem is connected to the built-in serial port (Port-C), or to a serial interface card in one of the ///'s peripheral slots. From there, connect the modem to your closest telephone outlet with a standard phone cable with modular jacks at both ends. Most of the newer modems have a second modular outlet that can be connected to your telephone to use the line for both voice and data communications. The modem will also require a power connection, as it does not draw power from the ///. To use it after installing it, add the .RS232 driver (latest version is 1.3) to your SOS.DRIVER file on the boot disk(s). Obtain a copy of the .RS232 driver from the System Utilities Data disk, the SOS 1.3 Revision Utility disk (this has the 1.3 version), or the SOS.DRIVER file on the Data Capture /// boot disk. The last item needed in order to start telecomputing is a terminal program, and that's where Data Capture /// enters the scene.

According to the authors, Data Capture /// is intended to be an easy to use program. I have had a modem on my /// for four years now, and though I have not used every terminal program available for the ///, I have used several, as well as terminal programs on the Apple II, and terminal programs on other manufacturer's micro and mini-computers. I would have to agree that Data Capture /// is one of the easiest to use terminal

programs that I have seen to date. If I had to recommend a terminal program to a novice modem user, I would probably choose Data Capture ///. It is powerful enough for experienced modem users, as well. In fact, the program has what I think all serious programs should have, which is separate user interfaces for both novice and *power* users.

Experienced users can bypass the use of the program's menus by using *fast access* keys to directly invoke needed functions. This feature allows the user to grow with the program. As the user gains familiarity with the program, he or she can start speeding up movements through the various functions by using the fast-access keys instead of having to invoke menus and then choose the functions. Subsequently, if you bring new people into the office to use this program, the menus are still available to save orientation and training time.

The program is sold by Southeastern Software, 7743 Briarwood Drive, New Orleans, LA 70128, (504) 246-8438, or (504) 246-7937 for \$90. I don't know of any dealers who handle this particular program, so at this time call Southeastern to order it.

System Requirements and Installation

For this program, a 256K Apple ///, with either a Hayes Smartmodem, or a Hayes command-compatible modem like the U.S. Robotics 212A or the Multitech Systems MT212AH is needed. A printer is optional, but is necessary for using all of the program's features. If you already have a serial printer, then buy a Serial Card /// to install in one of the peripheral slots, or an A-B-C serial switch box to connect both the printer and modem. If you go the switch box route, be aware that you can only use one device at a time, which requires adjusting the switch back and forth to use the devices.

Data Capture /// is written in Business Basic and uses a 6502 Assembler Language invocable module to speed up the heavy work. I was slightly dismayed when I first catalogued the disk and saw that the root program was written in Basic, but in actual use I never found myself *waiting* for something to finish. The program executes quickly and efficiently. The user manual does warn that certain editing functions, such as deleting lines from the Capture Buffer, can take a noticeably

long time, however. I did not bother to personally verify this as I found myself bypassing the use of the Capture Buffer during actual, daily use of the program. I did confer with an acquaintance of mine, Bill Roady, who is a long-time user of Data Capture, to ask about using the Capture Buffer. He disputed the warning in the users manual, and stated that he did not find the time to delete lines to be unacceptable. As an example, he cited the instance where I dialed up his Apple /// in Oregon from here in Virginia and transmitted a draft of this article for him to review. He stated that this article occupied 593 lines in his Capture Buffer, and that he deleted the first two lines in the buffer, which was my greeting to him before I actually started transmitting the review file. The deletion step took nine seconds, which is not too bad considering that the program's line editor must renumber all lines in the buffer that follow the deleted lines. Obviously, this time would be less if the file were smaller, or the deleted lines occurred further down in the file.

The diskette included with the user manual is bootable. To put it in the internal drive, press CONTROL-RESET, and start using it immediately. It contains version 1.2 of Business Basic, and a SOS.DRIVER file that contains drivers for the Console, the modem (RS232), and the Silentype printer. If you have other devices, use the System Utilities to modify the SOS.DRIVER file accordingly. I substituted version 1.23Ax of Business Basic with no ill effects.

The disk is not copy protected, and the manual urges to first make a copy of the Master diskette before proceeding. The manual also gives instructions on how to store the program on a hard disk, execute it directly from Business Basic, and it refers you to the appropriate place in the Catalyst users manual if you want to install the program under Catalyst. I installed Data Capture /// under my Catalyst system with the Desktop Manager on my 512K ///, and I had no problems with the various programs coexisting. According to Tim Harrington of *ON THREE*, the version of Data Capture that they initially received was not compatible with Selector ///. Tim talked to a technician at Southeastern who was very familiar with the ///. Several days later, a new version of Data Capture /// showed up in their mailbox and worked perfectly with Selector ///. Support like that for the /// is pretty scarce these days.

Surprisingly, the manual even tells you what line in the Business Basic part of the program to change to alter the size of the Capture Buffer, and details how to modify the program to work with baud rates higher than 1200 bps. The other nice thing about the Business Basic part of the program is it can be customized to suit your needs or tastes. Screen displays can be

changed and prompts can be modified to suit whatever you are comfortable with. However, if you elect to make substantial changes to the program and it subsequently refuses to work properly, you are on your own. Do not expect either your dealer or Southeastern to be responsible for your programming gaffes. If you want to explore and enhance, use a copy of the original program, so that you will have something to rely on in case you end up in La-La Land and can't get back.

Documentation

The documentation included in the purchase of Data Capture /// is typeset quality print on 3-hole punched, loose leaf, 8 1/2 x 11" paper, bound in a 3-ring vinyl binder. The cover of the manual indicates that the documentation is for "an all new modem program for the Apple /// computer." This cover statement is somewhat misleading, as the contents of the binder actually consist of over 70 pages of documentation that is directly oriented to using Data Capture on the Apple //e computer, not the Apple ///. At the front of the manual is a three page addendum that describes the differences between the //e version and the /// version of the program. The differences are not overwhelming, in fact several of them are enhancements to the program that utilize the additional power of the ///. However, Apple /// users who have no prior experience with the Apple][will occasionally find themselves perplexed by phrases in the users manual such as "using the COPYA program from your DOS 3.3 diskette", and "Move DOS to Bank-switched RAM." Fortunately, the program is so friendly and easy to use that most users will seldom go back to the manual, which is probably what the folks at Southeastern were banking on when they adopted this low cost approach to documenting the /// version of this program.

It is not necessary to read the entire manual in order to use the program. In fact, page 1 of the users manual encourages impatient users to jump ahead to Part Two (the reference section) of the manual, but also cautions "When all else fails, consult the manual." Actually, impatient ///ers should jump to Chapter Three of Part One to learn how to use Data Capture both online and offline. Once again, you will probably not refer back to the manual very often, only when using a feature for the first time. Since the manual contains a very detailed table of contents and an index, the documentation serves very well as a reference manual. The table of contents is organized well enough and written in enough detail that you almost do not even need the index. There are two appendices that discuss compatible modems and I/O cards (not relevant to the ///), and a two-page troubleshooting guide that deals with the most common type of problems and includes

suggestions to solve them. There is also an Ascii text file on the disk named HELP that has instructions on how to convert Business Basic programs to Ascii files for transmission, and then convert them back to Basic "tokenized" programs again. There are also detailed instructions on how to modify the Business Basic portion of Data Capture to utilize transmission speeds higher than 1200 baud. The Help file definitely comes off as an afterthought. There is almost as much text imploring users to respect Southeastern's copyrights as there is text helping users with questions about using Data Capture ///.

Features

Data Capture /// is intended to be used as an Ascii terminal program, and to transmit and receive Ascii text files. It cannot transmit or receive binary program files, foto files, driver files, etc. Ascii text files are created with word processors like Applewriter /// and Word Juggler. The program will not handle Pascal Text files. A user must first convert them to Pascal Ascii files before transmitting. The program is perfect for accessing online services like CompuServe or Dow Jones, or for dialing bulletin boards like my own ///'s Company and downloading useful articles and programs in Ascii form. This is really what the program is designed to do, and does it very well.

The program includes a built-in text editor to create a file for transmission, dial a BBS and upload the created file, download some information, hang up and edit the downloaded data in the Capture Buffer, dial another BBS or online service, and upload the previously downloaded and edited file. A person can do all of this without leaving the confines of the Data Capture /// program! It performs these tasks quickly, efficiently, and without a lot of struggle and anxiety on the part of the user.

The following is a more detailed description of Data Capture's features:

When first starting the program, you are presented with a title screen that indicates the program is loading. You are then sent immediately into "terminal mode", where you are ready to send data to, or receive data from your modem. This is the primary mode of operation of the program, and it is where you will always find yourself except when performing some of the peripheral functions which are described later in this article. The Enter/Receive screen looks similar to the display in Figure 1.

Note the three lines of status information at the top of the screen display. These will be displayed when you are in ENTER/RECEIVE mode, and they point out important things about the program options that you are using at any point in time. It makes it easy to

Figure 1

```
Capture Buffer Lines=0      Echowait OFF  Baudrate 1200
Prefix /PRO2/DATA.CAPTURE/  FillLine ON   Duplex FULL
Capture OFF                Linefeed OFF  Transmit ON
^^SOUTHEASTERN SOFTWARE^^DATA CAPTURE ///^^
  You are now in the ENTER/RECEIVE mode
  Press the key marked ESCAPE for the Main Menu
```

simply look up to see what baud rate and duplex you are using, whether the Capture Buffer is activated or not, and what the default prefix is.

If you heed the prompt, and press Escape to display the Main Menu, a display like that in Figure 2 will be seen.

Figure 2

```
Capture Buffer Lines=0      Echowait OFF  Baudrate 1200
Prefix /PRO2/DATA.CAPTURE/  FillLine ON   Duplex FULL
Capture OFF                Linefeed OFF  Transmit ON
^^SOUTHEASTERN SOFTWARE^^DATA CAPTURE ///^^
  A)wait Phone Call
  D)ial Phone Number
  E)dit Capture Buffer
  H)angup Phone
  I)nsert Lines Into Capture Buffer
  L)ist Capture Buffer
  P)rint Capture Buffer
  R)emove Lines From Capture Buffer
  S)end Capture Buffer
  Q)uit

  F)iles Menu
  O)ptions Menu
  T)oggle Menu
```

Press the key marked RETURN to Exit

Which Selection >

Select the desired option by keying the first letter of the applicable line, similar to how the selection in System Utilities works. The selections are pretty self-explanatory. This is why the user manual is not that necessary for this particular program.

A)wait Phone Call - sends a command to the modem to put it in auto-answer mode, then returns the user to Enter/Receive mode. After a call is terminated, the modem will remain in auto-answer mode until you key the "ATH" command to instruct it to hang-up or select the H)angup Phone option from the menu.

D)ial Phone Number - displays the default phone number from the currently loaded Options File (discussed later in this review). To use the default phone number, simply press Return and the program will instruct the modem to dial the displayed number.

You can key a different phone number before pressing Return if the default isn't what you want to use.

E)dit Capture Buffer - is a line editor that allows you to have the basic features of a text editor to view to edit the pathname prefix as well as the One Key Command strings and the Phone Number. It is intended as a convenience for typing short messages while online or making last minute corrections in text without having to leave the program. The Editor consists of functions which are invoked by holding down the CONTROL key, and pressing another key. The commands will be somewhat familiar to Applewriter users, as you press:

Co the beginning of a line,
:ONTROL-B-to jump to the beginning of a line,
more than I did. It will save you from booting another floppy to edit the downloaded text, then having to boot Data Capture back up to dial another online service or bbs. Since I'm a Catalyst user, I found myself ignoring this feature of the program. I prefer to capture data to my RAM-disk, then use Applewriter as a full-screen editor to view and edit the captured data.

H)angup Phone - instructs the modem to hangup and returns you to Enter/ Receive mode. You can elect to just key "ATH" directly in Enter/Receive mode to accomplish the same thing.

I)nsert Lines into Capture Buffer - allows you to key up to a maximum of 10 lines of text into the Capture Buffer at any point.

L)ist Capture Buffer - allows you to display the contents of the Capture Buffer on your monitor. You can start at any point that you like, and can elect to have line numbers either displayed or suppressed. Pressing the Space Bar will toggle screen-pause on and off. Pressing the "S" key will abort the List function and return to Enter/Receive mode.

P)rint Capture Buffer - allows you to print all, or portions of the Capture Buffer to the printer.

R)emove Lines from Capture Buffer - allows you to remove a range of lines from the Capture Buffer. The users manual warns this can be a time-consuming process, since this part of the program is in Business Basic. It also reminds you to write the Capture Buffer to disk before you start deleting anything, which is good advice.

S)end Capture Buffer - allows you to send all, or just a portion of the Capture Buffer to a remote computer system through the modem.

Quit Program - is self-explanatory. This part of

the program is very forgiving. After selecting this option, the program verifies your request, and then leaves you sitting at the Business Basic prompt, but it tells how to restart the program with everything intact if you have made a mistake. This is a plus for having the root program written in Business Basic. In fact, I made a slight modification to this part of the program. It instructs you to key "GOTO 10" to restart where you left off, and it actually displays the "GOTO 10" statement, but the cursor ends up below that line when you are returned to the ")" Business Basic prompt. I simply inserted a ":VPOS=23" in front of the ":END" in line 3670. Now, the cursor appears at the beginning of the "GOTO 10" line when I have returned to Business Basic, and if I want to restart the program, I move the cursor to the end of the line and press Return, otherwise I key "BYE" to return to the Catalyst menu.

Figure 3 File Menu

From this MENU you can:

C)atalog the Disk
D)delete a File
L)ist a File to Screen
M)erge a File into Capture Buffer
P)rint a File
S)end a File
W)rite Capture Buffer to Disk
or
B)egin Capture to File
E)nd Capture to File

Press the key marked RETURN to Exit
Which Selection >

Speaking of pluses, the authors have done what is known in the programming trade as "having built a hook into the software." They have included another feature on the Main Menu that is not displayed on the screen. If you key "Z" at the Main Menu prompt, or press OPEN APPLE-U while in Enter/Receive mode, the program will "GOTO 40000." As received from the publisher, line 40000 of the main program simply displays a message which states: "User Menu is not yet implemented." If you know how to program in Business Basic, then add your own custom code to the Data Capture /// program. The usefulness of this program is only limited to your imagination, the amount of memory that your /// has, and the laws of Mother SOS. For instance, two useful functions that I immediately thought about adding were a Make-a-Subdirectory function and a Format-a-Disk function. You might also want to add other utility-type functions like Copy, Unlock, and Rename files. Another good choice for this "hook" would be online help screens that could be invoked from anywhere via the OPEN APPLE-U keypress.
DATA CAPTURE /// continued on page 31.

DMP-Imagewriter

Bob Consorti

The Apple DMP-ImageWriter and the Epson Graphics Printing Utility will provide you with the ability to print Apple /// black and white graphic images on either the Apple DMP-ImageWriter or the Epson series of printers.

These utilities can be used from Basic, Pascal or your own assembly language programs. Before using them in your Basic or Pascal programs you need to assemble them with the Apple /// Pascal assembler. With a Basic program, you would then need to INVOKE it into your Basic program. In a Pascal program, you will need to LINK it into your Pascal program.

If you use it with a Basic program, be sure to INVOKE the BGRAF.INV file at the same time you INVOKE the graphics dump file. This is because you need to have them both in memory at the same time.

To call these routines so they will print out your graphics image a few things must be done first. These utilities can print your image left justified or centered on an 8 & 1/2 inch wide page of paper. You call these routines with various paramaters that effect the way the print out looks.

To call the routine that prints to the Apple DMP or ImageWriter the following command sequence is used from Basic:

```
PERFORM PRINTDMP (%command%,%justify%)
```

where `command%` and `justify%` are integer variables. The variable `'command%'` tells the printing routine which kind of printout you want (normal, rotated, inversed, large, small, etc.). The variable `'justify%'` tells the printing routine where to tab over before starting to print your image.

A table of possible values for `'command%'` and `'justify%'` are listed below.

Graphics Mode	Rotated	Non-Rotated Medium	Non-Rotated Large
0,1	154,1	18,2	50,3
2	185,4	147,5	51,3

The above values will produce a center justified image when used to call the printing routine. For example, to print a graphics mode 2 (560x192) black and white non-rotated large image that is centered on the page, I would call the routine like this:

```
command%=51  
justify%=3  
PERFORM PRINTDMP (%command%,%justify%)
```

In your program, you would need to add these statements or similar ones. If you wanted to have the image printed along the left edge of the paper or left-justified, use a value of 0 for the `'justify%'` variable.

The above examples and sample values assume that you have loaded a graphics image using the BGRAF.INV 'GLOAD' statement and the image is in the 1st screen buffer. To print the image in the second screen, add 4 to the `'command%'` variable. You can also print the inverse of the image. To do so, add 64 to the `'command%'` variable.

In Pascal, setup an external procedure called PRINTDMP with `command` and `justify` as two passed integer parameters. After compiling your Pascal program you must run the LINKer before you can use the program. LINK in the file you assembled and then you can execute the program.

If you are using the Epson version of the program, the routine you call in both Basic and Pascal is called PRINTEPS. The paramaters for both the DMP-ImageWriter and Epson routines are exactly the same, the only difference is in the calling name.

The Apple DMP-ImageWriter routine takes up 1,362 bytes of memory and the Epson routine takes 1,186 bytes. You can even insert these routines into your own assembly language programs. The routines will automatically print to the device named `'.PRINTER'`. You can change this in the source pro-gram to whatever you have named your printer driver. If you change the name be sure to also change the byte before the name which indicates the length of the name.

You can interrupt the graphics printing by pressing the

ALPHA-LOCK key once. Before it begins printing, the utility checks if the ALPHA-LOCK key is up or down. At the end of each line it sees if the ALPHA-LOCK has changed position, if so it exists. This month, you can use the DMP programs and next month, look for the EPS program.

```

;| APPLE DMP - IMAGEWRITER SCREEN PRINT
;|
;|   Written 1/3/83 BY B.C.           Modified 1 Nov 84
;|                                     thru 25 Aug 86 by B.C.
;|
;|   PROGRAM MODULE
;| Contains the programs to do screen dumps in:
;|   Graphics Mode - Normal
;|   Graphics Mode - Rotated
;|
;| Apple DMP-ImageWriter Graphics Screen Dump Utility
;| Written By : Bob Consorti (c) 1987 by ON THREE, Inc.
;|
;| This file, in source or code form, may not be sold for profit in any
;| way, shape or form. It may be distributed freely at no charge or at a
;| minimal charge for the cost of the diskette and shipping. This title
;| block must not be deleted or modified when copying or distributing. The
;| above cost is not to exceed $5. I want this to be free so please don't
;| sell it.
;
; --- ZERO PAGE EQUATES ---
ZEROPAGE      .EQU 00      ; Start of Zero Page
ROWCOUNT     .EQU 00      ; Vertical Location
BYTECOUNT    .EQU 01      ; Horizontal Byte Location * 2
COUNTER       .EQU 02      ; General purpose counter
CONVY         .EQU 03      ; Y Input to CONVERT
CONVADS       .EQU 04      ; Output Address from CONVERT
BYTE          .EQU 06      ; Eight Byte Workspace
SHIFTCOUNT   .EQU 0E      ; General Counter
COMMAND       .EQU 0F      ; Inputted control variable
GENERAL       .EQU 10      ; Used for anything
REVBUFFER     .EQU 14      ; Temporary storage for bit
reverse
REVX          .EQU 15      ; Someplace to put X during
reverse
TAB_STOP      .EQU 16      ; Inputted tab stop variable
;
; --- COMMAND EQUATES ---
;
COLUMNS      .EQU 01      ;
CLIP          .EQU 02      ;
PAGE         .EQU 04      ;
ROTATION      .EQU 08      ; PSCREEN commands
MODE         .EQU 10      ;
SIZE         .EQU 20      ; As described in the Silentyte
INVERSE      .EQU 40      ; manual.
DENSITY      .EQU 80      ;
;
; --- GENERAL EQUATES ---
;
ESCAPE        .EQU 1B
LINEFEED     .EQU 0A
TAB          .EQU 09
LEFTTORIGHT  .EQU 3E
BIDIRECTIONAL .EQU 3C
;
HEIGHT       .EQU 192     ; Height of Screen
OPEN         .EQU 0C8
WRITE        .EQU 0CB
CLOSE        .EQU 0CC
;
D_CONTROL    .EQU 83
GET_DEV_NUM  .EQU 84
;
; --- SPECIAL EQUATES ---
;
KBDFLAG      .EQU 0C008
ENVRMT       .EQU 0FFDF
NEW_ENVRMT   .EQU 73
;
; --- MACROS ---
;
.MACRO SOS
BRK
.BYTE %1
.WORD %2
.ENDM
;
-----
;| Start of Code
-----
;
; .PROC PRINT_DMP,2
page JSR MOVEZ      ; Save the first 20H bytes in Z
;
PLA          ; Get the return address
TAY         ; Hold in Y & X
PLA
PLA
TAX
PLA
PLA          ; Pull the tab stop info, store
STA TAB_STOP ; it and remove the high byte.
PLA

```

```

PLA
STA COMMAND ; Pull the one byte command
PLA          ; and dump the high order byte
TXA         ; Restore the return address so we
;
can PHA      ; exit without killing ourselves
TYA
PHA
;
exit TSX     STACKLOC ; Save the location of the stack
STX       ; in case we have to do a quick
;
interrupts SEI ; Save status, then disables
;
LDA ENVRMT
STA ENV_TEMP
LDA #NEW ENVRMT
STA ENVRMT
LDA #00 ; Get the state of the ALPHA-LOCK
STA FLAGVAL1 ; key and store it.
LDA #08
BIT KBDFLAG
BNE $090
LDA #01
STA FLAGVAL1
LDA ENV_TEMP ; Restore status (including
$090 interrupts)
PLP
;
LDA #MODE
BIT COMMAND
BNE GRAPHICS ; Will we be printing graphics ?
JSR MOVEZ
RTS
;
GRAPHICS LDA #20 ; Initialize for the right page o
pages STA PAGEPRE
STA PAGEPRI ; On exit, PAGEON will contain a
;
FF if LDA #COLUMNS ; only one page is in use (280
mode), BIT COMMAND ; and a 00 if two pages are in
use. BNE $010 ; PAGEPRI contains the primary
LDA #0FF ; prefix.
page STA PAGEON
LDA #PAGE ; PAGEALT contains the alternate
BIT COMMAND ; page
; BEQ $020 ; prefix, for 560 mode.
LDA #40
STA PAGEPRE
BNE $020
LDA #00
STA PAGEON
LDA #40
STA PAGEALT
LDA #PAGE
BIT COMMAND
BEQ $020
LDA #60
STA PAGEPRI
LDA #80
STA PAGEALT
$020 JSR INIT ; Get printer ready
;
LDA #ROTATION
BIT COMMAND
BEQ RIGHTWAYS ; Is this printed normally ?
JMP SIDEWAYS ; or sideways ?
;
; --- Print the graphics screen, straight up and down ---
;
RIGHTWAYS LDA #70
STA WIDTH
LDA #CLIP
BIT COMMAND
BNE $020
LDA #COLUMNS
BIT COMMAND
BNE $010 ; Width will be set when through
LDA #SIZE ; If we are in 560 mode or
; then the high ten bytes must be
doubled BIT COMMAND ; clipped
BNE $010
;
$020 LDA #80.
STA WIDTH
;
$010 LDA #0
STA ROWCOUNT ; Which row we are on (0 - 191)
;
NEXTROW LDA #0
STA BYTECOUNT ; Which horizontal byte we are on
;
***** Bug Fix - 12/28/82 *****
;
BIT PAGEON ; Used to return pointer to page
1 BMI $010 ; in 560 mode, in case clipping
LDA #00 ; has screwed it up
STA PAGEON
;
; *****

```

```

$010      JSR      GRAFIXON      ; Get ready to send a string of
bytes

NEXTBYTE  BIT      PAGEON
          BMI      $010          ; Find out which page we are on
and
          LDX      PAGEON
          LDA      PAGEPRI,X     ; prepare to gather bytes from it
          STA      PAGEPRE
          LDA      #01           ; If in 560 mode, toggle PAGEON
to
          EOR      PAGEON       ; point to the opposite page for
the
          STA      PAGEON       ; next pass
          CLC
          BCC      $020

$010      INC      BYTECOUNT    ; In 280 mode we will
incrementing
          ; twice because we are not
          ; pages
alternating

$020      LDA      BYTECOUNT
          CLC                    ; The high order 7 bits of
BYTECOUNT
          ROR      A             ; actually specify the byte
          ; The low order bit specifies the
page
          ; when in 560 mode (thus the
extra
          ; increment in 280 mode)

          TAY
          LDA      ROWCOUNT
          STA      CONVY        ; Convert the row we are on
from
          LDA      #7           ; Collect eight vertical bytes
          STA      COUNTER
          JSR      CONVERT      ; the screen
          ; and store them at BYTE to
$030
BYTE+8.
          LDA      @CONVADRS,Y
          LDX      COUNTER
          STA      BYTE,X
          LDA      #SIZE        ; If double size is on, only four
          ; are taken and each is duplicated
bytes
          BIT      COMMAND
          ;
twice
          BEQ      $040
          DEC      COUNTER
          DEX
          LDA      @CONVADRS,Y
          STA      BYTE,X
          INC      CONVY
          DEC      COUNTER
          BPL      $030

          LDA      #6           ; Now, the low order 7 bits of
the
          STA      SHIFTCOUNT   ; 8 bytes must be collated, making
up
          LDX      #7           ; 7 bytes, each containing one of
SHIFTBYES
          ROR      BYTE,X       ; original 8 bytes.
          ROL      A            ; This is required because the
          ; head is vertical
print
          DEX
          BPL      $010
          BIT      COMMAND     ; If bit 6 of the command is on
          BVC      $020        ; the image must be inverted
          EOR      #0FF
          TAX                  ; save the image in case we need
$020
it
          JSR      REVOUTPUT    ; send out the byte
          LDA      #COLUMNS
          BIT      COMMAND     ; If in 560 mode, only vertical
          ;
          BNE      $030        ; doubled
          LDA      #SIZE
          BIT      COMMAND     ; If the image is doubled . . .
          BEQ      $030
          TXA
          JSR      REVOUTPUT    ; recover the byte
          ; and send it out again
$030
          DEC      SHIFTCOUNT   ; Collate for 7 bits
          BPL      SHIFTBYES    ; The 8th bit (shift bit) is
garbage

          INC      BYTECOUNT
          LDA      BYTECOUNT
          CMP      WIDTH       ; If we aren't at the end of the
line
          BCS      $040
          JMP      NEXTBYTE     ; do it for the next set of bytes

$040      JSR      PAPERFEED    ; Move the paper down
          LDA      CONVY        ; When finished, CONVY will have
          ; incremented to the next line
          STA      ROWCOUNT
          ;
          CMP      #HEIGHT     ; If we aren't at the bottom . .
          ;
          BCS      ALLDONE
          JMP      NEXTROW      ; Do it for the next row

ALLDONE   JSR      CLOSE_IT     ; Close it up
          JSR      MOVEZ        ; Restore the Zero page
          RTS                  ; Thats All ! !

;
;
; --- Print the graphics screen rotated 90 degrees ---
;
;
SIDEWAYS  LDA      #80.         ; Sideways, there is no clipping

```

DATA CAPTURE ///

for the

APPLE ///

Capture Buffer - Text typed on the Apple /// keyboard or received from another computer can be directed to memory in the Capture Buffer. You can List, Save, Print or Transmit all or part of the Capture Buffer. The most flexible use of captured data of any modem program.

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	STA	WIDTH			ROL	A	
	STA	BYTECOUNT	; Start at the bottom and move up		ROL	A	
	DEC	BYTECOUNT	; row by row		ROL	A	
	LDA	#0			ROL	BYTE	; putting the 3 bit in once
	STA	COUNTER	; This time, COUNTER will be used		SEC		; and all the others in twice
	LDA	#SIZE	; to hold the SIZE	\$030	BCS	\$040	
	BIT	COMMAND			LDA	@CONVADRS,Y	; Shift out the first half
	BNE	SNEXTBYTE	; FF if normal	\$040	ROL	A	; by dumping the high bit
	LDA	#OFF	; 00 if double	\$050	LDX	#03	; doubling the next 3 bits
	STA	COUNTER			ROL	A	
SNEXTBYTE	LDA	BYTECOUNT	; Again, only the top 7 bits hold		ROL	BYTE	
the	LSR	A	; actual byte count		PLP		
	TAY		; the low bit contains the page		ROL	BYTE	
	LDA	PAGEON	; if only one page is in use, we		DEX		
	BMI	\$010	must ; inc twice to divide by 2	once	BNE	\$050	
	EOR	#01	; since we are scanning right to		BIT	COUNTER	; and putting the last bit in
left	STA	PAGEON	; we must start with PAGEALT	\$060	BVS	\$060	; if we are working on the second
	TAX			garbage	ROL	A	; half, then this does not apply
	LDA	PAGEPRI,X	; If in 560 mode, PAGEON contains		ROL	BYTE	
	STA	PAGEPRE	; 00 if first half byte to be		LDA	BYTE	; The high order bit is always
	SEC		used ; 40 if second half byte to be	\$070	ASL	A	
used	BCS	SBIG		shifted)	BIT	COMMAND	; Invert it if COMMAND says to
	DEC	BYTECOUNT	; Only one page in use, so inc	SBIGOUTPUT	BVC	SBIGOUTPUT	; (remember, the char. was
\$010	LDA	#0	; Row scanning is always top -	twice	EOR	#0FE	
SBIG	STA	CONVY		down	TAX		; Save the character, we will need
	JSR	GRAFIXON	; Get ready		JSR	REVOUPTUT	; and send it out
SNEXTROW	JSR	CONVERT			TXA	REVOUPTUT	; Get the character back
be	BIT	COUNTER	; If the image is doubled, it must		JSR	REVOUPTUT	
	BPL	\$010	; handled specially		TXA		
character	LDA	@CONVADRS,Y	; Otherwise, just load the		SEC		
	ASL	A	; Dump the high order bit		BCS	SSEND	; and send it out again
	JMP	SOUTPUT	; and send it out	twice	BIT	COMMAND	
\$010	LDA	#COLUMNS			BVC	SSEND	
	BIT	COMMAND			EOR	#0FE	
	BEQ	\$020			PHA		
vertically	LDA	@CONVADRS,Y	; If 560 mode, just double		JSR	REVOUPTUT	; Character must be sent out
	ASL	A	; so dump the high order bit		JSR	REVOUPTUT	; for proper aspect ratio
	JMP	\$070	; and send it out (twice).		INC	CONVY	; Move to the next position down
\$020	BIT	COUNTER	; Each half of the byte must be		LDA	CONVY	
duplic.					CMP	#HEIGHTROW	; If we are not down, keep going
					BCC	SNEXTROW	
					JSR	PAPERFEED	; move the paper up
					LDA	#COLUMNS	
					BIT	COMMAND	

Fly high with . . .

Super Desktop!

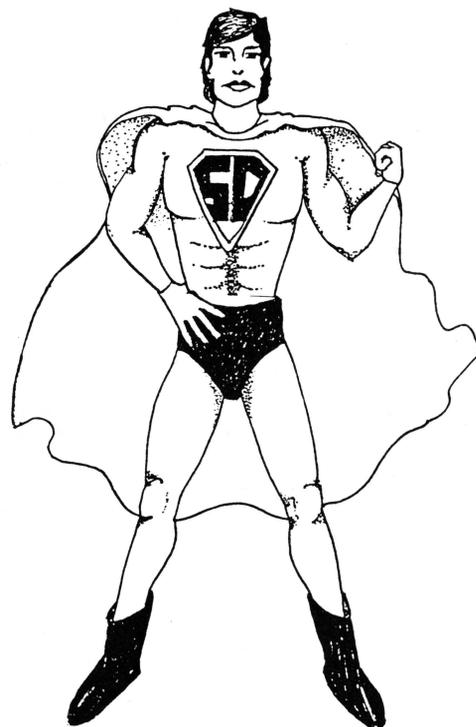
That's right! ON THREE's new Super Desktop Manager™ Accessories Disk No. 1 is worth jumping off skyscrapers for. But don't go that far, just call ON THREE's order line today!

The Accessories Disk contains:

- *Printer Setup - Allows you to send complex control codes to your printer via easy to use menus.
- *TypeWriter - Turns your Apple III into an intelligent typewriter.
- *Labeler - Prints labels you define, one at a time or even multiple copies.
- *New Desktop Setup - Allows better control over the ClipBoard.
- *Make Subdirectory - The one we forgot in the Disk Manager.
- *Screen Dump - Prints a copy of your current text screen at any time.
- *Menu Manager - gives the Desktop Manager's main menu submenus, so you can have an infinite number of accessories on your trusty old Apple III.

There are so many accessories on this disk, we think there's something for everyone! If you have the Desktop Manager now, you need this disk!

Priced separately, they would cost over \$250. On this special disk, though, you can indeed FLY HIGH with a \$39.95 price tag plus \$2.00 shipping and handling.



```

BNE $010
BIT COUNTER
LDA $010
LDA #040 ; If horizontal must be doubled, FULLSPACE LDA #31 ; and 16/144ths for normal
then EOR COUNTER ; change go back and print the pictures JSR OUTPUT
second STA COUNTER ; half LDA #36
BEQ $010 JSR OUTPUT
JMP SBIG HALFSpace LDA #DENSITY ; If density bit (bit 7) is set
$010 next DEC BYTECOUNT ; Now we are ready to go to the changed BIT COMMAND ; horizontal spacing is not
BMI $020 ; column back BEQ $010
JMP SNEXTBYTE LDA #ESCAPE ; Otherwise, it is set to 15 CPI
$020 JMP ALLDONE ; And thats it !!! JSR OUTPUT
JSR OUTPUT ; (ESC q)
;
; --- BASECALC conversion program for graphics screen --- $010
; a LDA COMMAND ; If the command is to print out
CONVERT LDA CONVY ; I'm not even going to CMP #51. ; regular 560x192 normal or
bother AND #07 BEQ $040 ; inverted picture, then set the
ASL A CMP #115. ; right CPI (10).
ASL A CMP $040
CLC A CMP $050
ADC PAGEPRE BEQ $040
STA CONVADRS+1 BNE $020 ; ...otherwise just return
LDA CONVY $040 LDA #ESCAPE
AND #38 JSR OUTPUT
STA CONVADRS LDA #4E ; (ESC N)
ROR A JSR OUTPUT
ROR A $020 LDA #ESCAPE ; set up the tab stop spacing
ROR A JSR OUTPUT
AND #0F LDA #28
CLC JSR OUTPUT
ADC CONVADRS+1 LDA #30
STA CONVADRS+1 JSR OUTPUT
LDA CONVADRS LDA TAB_STOP
ASL A CMP #00
ASL A BNE $050 ; If 0, left justify
ASL A LDA $050
STA CONVADRS JSR OUTPUT
LDA CONVY LDA #31
ROR A JSR OUTPUT
ROR A JMP $090
ROR A CMP #01.
ROR A BNE $060
ROR A LDA #33
AND #03 JSR OUTPUT
TAX LDA #36
LDA #00 JSR OUTPUT
CLC JMP $090
CPX #03 $060 CMP #02.
BCC LP1 LDA #32
ADC #27 JSR OUTPUT
CPX #02 LDA #33
BCC LP2 JSR OUTPUT
ADC #27 JMP $090
LP2 CPX #01 $070 CMP #03.
BCC LP3 LDA #080
ADC #27 LDA #30
LP3 CLC JSR OUTPUT
ADC CONVADRS LDA #35
STA CONVADRS JSR OUTPUT
LDA #00 JMP $090
ADC CONVADRS+1 CMP #04
STA CONVADRS+1 BNE $085
RTS LDA #31
JSR OUTPUT
;
; --- Open printer driver file --- ;
; ; ;
INIT .EQU * $085 LDA #32
OPENNAME SOS OPEN,OPENPARMS JSR OUTPUT
BEQ $010 LDA #35
JMP ERROR JSR OUTPUT
$010 LDA OPENREF $090 LDA #2E ; and now..terminate
WRITE STA WRITEREF ; Transfer Reference number for JSR OUTPUT ; the TAB stop codes
STA CLOSEREF ; and CLOSE $099 RTS
SOS GET_DEV_NUM,gd_list ;
LDA gd_ref ; The following code sets up the ; --- ERROR handling routine (just closes files and returns) ---
the STA cc_ref ; DATA printer driver to work in ;
SOS D_CONTROL,cc_list ; BLIND OUTPUT mode. ERROR LDX STACKLOC
; ***** Bug Fix - 11/01/84 ***** ;
LDA #ESCAPE ; Force unidirection printing ;
JSR OUTPUT ; only. This improves the ;
LDA #LEFTTORIGHT ; quality of the image. ;
JSR OUTPUT ;
; *****
LDA #ESCAPE ; Set line feed distance ;
JSR OUTPUT followed JSR OUTPUT
LDA #54 ; Command to set line feed the LDA #53 ; by four digits that represent
distance JSR OUTPUT ; on DMP is ESCAPE-T (54) JSR OUTPUT
LDA #ROTATION BIT COMMAND ; length of the output string
BEQ FULLSPACE (30H) LDA #30 ; The first digit is always 0
pictures LDA #31 ; Set to 14/144ths for rotated JSR OUTPUT
LDA #ROTATION
LDA #34 BIT
JSR OUTPUT BEQ REGULAR
LDA #SIZE

```

```

SMALGRAF      BIT      COMMAND
              BNE      BIGGRAF
              LDA      #33          ; 384 Bits
              JSR      OUTPUT
              LDA      #38
              JSR      OUTPUT
              LDA      #34
              JSR      OUTPUT
              JMP      GRAFISON
BIGGRAF      LDA      #37          ; 768 Bits
              JSR      OUTPUT
              LDA      #36
              JSR      OUTPUT
              LDA      #38
              JSR      OUTPUT
              JMP      GRAFISON
REGULAR      LDA      #COLUMNS
              BIT      COMMAND
              BNE      DENSE
              LDA      #SIZE
              BIT      COMMAND
              BNE      DENSE
              LDA      #70.
              CMP      WIDTH
              BEQ      SHORT1
              LDA      #34.
              CMP      WIDTH
              BEQ      SHORTT1
              LDA      #32          ; 280 Bits
              JSR      OUTPUT
              LDA      #38
              JSR      OUTPUT
              LDA      #30
              JSR      OUTPUT
              JMP      GRAFISON
SHORT1      LDA      #34          ; 490 Bits
              JSR      OUTPUT
              LDA      #39
              JSR      OUTPUT
              LDA      #30
              JSR      OUTPUT
              JMP      GRAFISON
SHORTT1      LDA      #34          ; 476 Bits
              JSR      OUTPUT
              LDA      #37
              JSR      OUTPUT
              LDA      #36
              JSR      OUTPUT
              JMP      GRAFISON
DENSE      LDA      #70.
              CMP      WIDTH
              BEQ      SHORT2
              LDA      #34.
              CMP      WIDTH
              BEQ      SHORTT2
              LDA      #35          ; 560 Bits
              JSR      OUTPUT
              LDA      #36
              JSR      OUTPUT
              LDA      #30
              JSR      OUTPUT
              JMP      GRAFISON
SHORT2      LDA      #34          ; 490 Bits
              JSR      OUTPUT
              LDA      #39
              JSR      OUTPUT
              LDA      #30
              JSR      OUTPUT
              JMP      GRAFISON
SHORTT2      LDA      #34          ; 476 Bits
              JSR      OUTPUT
              LDA      #37
              JSR      OUTPUT
              LDA      #36
              JSR      OUTPUT
GRAFISON      RTS

;
; --- Subroutine to reverse bits and output character in A ---
;
REVOUTPUT      STA      REVBUFFER
              STX      REVX
              LDX      #07
              ROR      REVBUFFER
              ROL      A
              DEX
              BPL      $010
              LDX      REVX
$010
;
; --- Subroutine to output character in A ---
;
OUTPUT      STA      OUTBUFFER
              SOS      WRITE,WRITEPARMS
              BEQ      AROUND2
              JMP      ERROR
AROUND2      RTS

;
; --- Skip to beginning of next printed line ---
;
PAPERFEED      LDA      #LINEFEED
              JSR      OUTPUT
              JSR      FLAGTEST          ; BREAK check is done at line's
end
              LDA      FLAGVAL1
              CMP      FLAGVAL2          ; if ALPHA-LOCK KEY changes
positions
              BEQ      OK
              JMP      ERROR
              RTS
OK

```

```

FLAGTEST      PHP
              nterrupts
              SEI
              LDA      ENVRMT
              STA      ENV_TEMP
              LDA      #NEW ENVRMT
              STA      ENVRMT
              LDA      #00
              STA      FLAGVAL2
              LDA      #08
              BIT      KBDFLAG
              BNE      $010
              LDA      #01
              STA      FLAGVAL2
              LDA      ENV_TEMP          ; Restore status (including
nterrupts)
              STA      ENVRMT
              PLP
              RTS

;
; --- Close printer driver file ---
;
CLOSE_IT      LDA      #ESCAPE          ; Reset the printer to
idirectional  JSR      OUTPUT          ; printing. This will speed up
all           LDA      #BIDIRECTIONAL ; other printing operations that
do           JSR      OUTPUT          ; not require the accuracy of
raphics.

              LDA      #DENSITY          ; If density bit (bit 7) is set
              BIT      COMMAND          ; horizontal spacing does not
eed         BNE      JUSTCLOSE        ; to be re-set
              LDA      #ESCAPE          ; Otherwise, set it back to 10 CPI
              JSR      OUTPUT          ; (ESC N)
              LDA      #4E
              JSR      OUTPUT

JUSTCLOSE     LDA      #ESCAPE          ; Reset vertical spacing
              JSR      OUTPUT          ; to 1/8 inch (ESC-B)
              LDA      #42

; ***** Bug Fix - 11/01/84 *****
; This line was left out of the
original     JSR      OUTPUT          ; code. Sometimes the vertical
spacing     ; would not be reset correctly.
; *****

              LDA      #ESCAPE          ; Clear all TAB stops
              JSR      OUTPUT
              LDA      #30
              JSR      OUTPUT
              ;Restore the output mode for Sun
Data        SOS      D_CONTROL,cc_list ;printer drivers
              SOS      CLOSE,CLOSEPARMS
              RTS

;
; --- SOS CALL PARAMETERS ---
;
OPENPARMS     .BYTE 04
              .WORD PATHNAME
OPENREF       .BYTE 0
              .WORD 0
              .BYTE 0

PATHNAME      .BYTE 08
              .ASCII ".PRINTER"

WRITEPARMS    .BYTE 03
WRITEREF      .BYTE 0
              .WORD OUTBUFFER
              .WORD 0001          ;How pitiful, write 1 char at a
time

OUTBUFFER     .BYTE 0

CLOSEPARMS    .BYTE 1
CLOSEREF      .BYTE 0

gd_list       .BYTE 02
              .WORD PATHNAME
gd_ref        .BYTE 00

cc_list       .BYTE 03          ;Setup blind output mode for the
Sun
cc_ref        .BYTE 00          ;Data priter drivers
              .BYTE 03
              .WORD cc_num

cc_num        .BYTE 00

;
; Routine to preserve and restore Z Page and set up X page
;
MOVEZ        LDX      #01F          ;Save off 20 bytes on z_page
MOVELOOP      LDA      ZEROPAGE,X
              LDY      ZEROBUFFER,X
              STY      ZEROPAGE,X
              STA      ZEROBUFFER,X
              LDA      ZEROPAGE+1600,X

```

DMP-IMAGewriter continued on page 31.

One, Two, /// Forum

Graphics Manager/Laser 128

Thanks for sending your literature about the Graphics Manager. It's very interesting.

My wife and I are previous owners of an Apple IIe system, with an ImageWriter printer. For various reasons, about two years ago we sold all our Apple hardware, but with an eye toward the future, kept all of our software, and Koala pad.

Last year, we purchased some new hardware, which I do not see listed in your ad.

Central Point Software distributes an Apple clone. The machine is a Laser 128. It has the following features: 128K RAM, numeric keypad, one built-in disk drive, parallel and serial printer outputs, serial modem outputs, serial modem output, RGB and composite video output, joystick, mouse, and Koala pad port.

Our system is known as the Laser 128, second laser drive, Taxan Amber monitor, star Nx10 printer.

Of course, software compatibility is always the question for owners of a "compatible." I did note that the Graphics Manager is not listed in the "list of programs" that came with the Laser. Although, this doesn't mean that the software not listed will not run on the Laser. Will the Graphics Manager run on a Laser 128?

Richard Yenicek,
Fenton, MO

You have asked a question that several people have asked recently. I'm happy to report that the Graphics Manager will run on a Laser 128. However, when it comes to printing, there can be a few problems, which a person can easily work around. The Graphics Manager's interface card sends 8 bits of information at a time, compared to the Laser parallel port which is patterned after the archaic Epson APL board which only sends 7 bits of information at a time. Therefore, a slot expansion box is needed for a parallel port. This expansion box will give you a few Apple slots to use an interface card, which will make the printer work.

The Graphics Manager is designed to send 8 bits of information at a time for high resolution.

If a person is using a serial printer, such as a DMP-ImageWriter, there should not be any problems with the printing.

Either way, with or without simple changes, the Graphics Manager is worth investing in.

De-Classifieds change

I have the following system which is beyond my present needs and I would like to know if all or part of this system is salable or can be advertised by you.

The system is: 256K Apple ///, monitor, external disk drive, 20 MB Corvus hard disk system with mirror, CPM softcard, AppleWriter, D Base II, Visicalc, PFS, PFS Reports, external DS DD, 360K disk drive and complete Great Plains accounting module.

Any information on the possible sale would be appreciated.

Carol L. Bringham
Mission Viejo, CA

I have just the answer for you! You may wish to run an advertisement for this system in our De Classifieds section. Under our new policy, items valued over \$100 may be sold in this section.

Our rates are quite inexpensive and are as follows: \$1 per word, \$25 minimum or 50 cents per word for subscribers with \$12.50 as the minimum. Copy and payment must arrive 60 prior to the cover date, e.g. March 6 for the May issue.

Graphics Manager printing

I have an 512K Apple /// and 10Mb ProFile with Selector /// and the Desktop Manager (including the Disk, Graphics and Macro Manager). I have a few questions to ask about my setup.

Is there a program available that is similar to the Font Works program used with AppleWorks that I can use with /// E-Z Pieces? I am especially interested in being able to print the spreadsheets sideways on my ImageWriter printer. Can this be done with the Graphics Manager?

Also, I can't get the Graphics Manager to print anything. When I select the print option, a "No gr<open apple characters repeated several times>" error code is displayed. I can't find any information about it in the instruction manual. What does this mean?

Mary Jo Tinsley
Norman, OK

Unfortunately, there is not a program similar to FontWorks available for /// E-Z Pieces. The Graphics Manager will not allow you to print spreadsheets sideways.

I can imagine the frustration of not knowing what the error code for your Graphics Manager means. It means that there has not been a Grafix driver installed. You must install a driver before it will print.

Draw On ///

We recently purchased your software programs called Draw On // and Graphics Manager.

We are now trying to locate some of the Fotofiles for these programs. In the directions, it lists that pictures from a program called "Print Shop" for the Apple II can be used. Does ON THREE have access to such picture files?

Beverly Oscar
Flemington, N.J.

Fotofiles for the Draw On /// and Graphics Manager can be picked up at most any computer store. The Fotofiles you can purchase include Business Graphics, Graph'N Calc graphs, Print Shop, MousePaint and Dazzle Draw Pics, Beagle Brothers Graphics and any other Fotofiles which are DOS and ProDOS compatible. There is quite a variety to choose from. Have fun and enjoy your Graphics Manager and Draw On /// programs!

Form letters

I have been reading your magazine for the last year and I think that it is fantastic.

However, I have a problem with the Desktop Manager. I have a I have two disk drive system and almost every module, including the latest one, the Graphics

Manager. I find it incredibly tedious to use this with my one drive and I find that I must switch disks often. Due to help from your technician, I was able to find out how to use it this way. I must say that I like the program but find it hard to use in this capacity. Do you have any suggestions?

I'm also writing to find out if there is anyway to merge my PFS File files into a form letter format to send letters to my customers. If there is, is there anyway to modify this to use first names in the greetings or modify those first names for a more personal approach?

Tom Pulinski
Idaho Falls, ID

I'm glad you enjoy the magazine and the support we give /// users!

To answer your questions, with a two disk system you must put the main modules and options on the main Desktop disk and put that in drive 2 at the boot. You also must put the options that you want on separate disks (i.e. the notepad, Disk Manager, Macro Manager and Graphics Manager). With their support, when you want an option, put that disk in drive 2 and hit your SOLID-APPLE ESCAPE. From there, you can select the option. This is the way my computer is setup and it works quite well. The objective of the whole process is to have something for the Desktop Manager to identify with at boot time and then have working files on separate disks for more room at worktime.

Concerning personalizing letters, there are a number of ways to do this. We like to use the print option and define a print specification containing the data we need. We can then use the print option to print the necessary information in an ASCII file of our choice. We can take the ASCII file in AppleWriter and perform the changes we need on it, including adding the "personal" touch and then we can use thge WPL form letter program to print the form letters. However, there are a few pitfalls:

1) PFS does not place spaces where there is not information so everything will be together requiring you to place it in the spaces yourself.

2) You must select the "N" for the "Print item name" Option and put down the amount of spaces you will need to contain all of your information without cutting any of it out. You must put the name of the ASCII file in the "Print to" option.

3) Lastly, you must put the information in the same format as the "addresses" file in the AppleWriter. This way it will work with the form letter.

More can be learned about form letters in the AppleWriter manuals.

DATA CAPTURE ///

(continued from page 22)

If you selected the F)iles Menu, then the display in Figure 3 would appear. Once again, the choices are pretty self-explanatory due to the way the options are worded.

C)atalog the Disk - will display a directory listing of the default prefix displayed in the status line on the screen. To catalog a different directory, you must first change the prefix in the T)oggle Menu.

D)elete a File - is self-explanatory.

L)ist File to Screen - first displays a catalog listing of the default prefix which contains the text files in the subdirectory. An attempt to list a non-Ascii file, will lead you to Enter/Receive mode. Use the Space Bar to pause and resume the screen scroll, and use the "S" key to stop the listing and return to Enter/Receive mode.

M)erge a File into Capture Buffer - actually appends, rather than merges data from a text file on disk into the Capture Buffer. If you do not want to append the entire file, terminate the process by pressing the "S" key.

P)rint File - prints the contents of an Ascii file stored on disk. Use the Space Bar to pause, and the "S" key to terminate this function.

S)end a File to Remote System - sends the contents of an Ascii file stored on disk to a remote computer system. The data being transmitted will be displayed on the screen during the transfer. The transfer can be terminated by pressing the "S" key.

W)rite Capture Buffer to Disk - copies the contents of the Capture Buffer to a disk file. To save a portion of the Capture Buffer, enter the beginning and ending line numbers of the portion you want to save to disk. The program asks for the pathname of the file.

B)egin Capture to File - prompts you for a pathname, and then opens that file. After that, any data received by the modem, or keyed on the system will be written to the specified file.

E)nd Capture to File - closes the Capture File opened in the above option. If you forget to invoke this option, Data Capture /// will take care of it for you when you Q)uit the program.

In next month's review, I will discuss the Options Menu and give you an overall opinion of the program.



DMP-IMAGewriter

(continued from page 28)

```
STA    EXTBUFFER,X
LDA    #08F          ;Point to graphics bank 0
STA    ZEROPAGE+1600,X
DEX
BPL    MOVELOOP
RTS
```

```
:
:   --- General Storage Allocation   ---
:
WIDTH      .BYTE    80      ; Width of Screen * 2
PAGEPRE    .BYTE    20      ; Page prefix used by CONVERTS
PAGEPRI    .BYTE    20      ; Graphics primary page (for 560)
PAGEALT    .BYTE    40      ; Alternating page (for 560
mode)
PAGEON     .BYTE    01      ; Current page (for 560 mode)
STACKLOC   .BYTE    00      ; Temporary storage for stack
posn.
FLAGVAL1   .BYTE    00      ; Storage for BREAK function
FLAGVAL2   .BYTE    00      ; Storage for BREAK function
TEMP       .BYTE    00      ; Temporary for anything
ENV_TEMP   .BYTE    00      ; Temporary used in the ALPHA LOCK
check

:
ZEROBUFFER .BLOCK    20      ; Temporary buffer for Z page
swap
EXTBUFFER  .BLOCK    20,08F  ; Temporary buffer for X page
swap

.END
```



\$135 plus \$3.50 s/h

/// E-Z Pieces

This program is the Apple /// version of the Apple][hit known as AppleWorks. It combines a word processor, data base and spread sheet in one integrated program. All sections use similar commands and easy-to-follow pop-up menus.

The spread sheet, while not as powerful as Advanced Visicalc, is much faster. For example, loading and saving files is 20 to 30 times faster. Even recalculation times are much quicker. And you can access your existing VisiCalc or DIF files, eliminating the need to re-type. Up to 999 rows and 127 columns are available.

The data base section is just like the popular QuickFile ///, but better. /// E-Z Pieces' Data Base can handle as many as 3,000 records per file and double the number of fields per record. Sophisticated record selection, sorting and printing combined with lightning fast sorts and searches make this portion of /// E-Z Pieces valuable.

The word processor rivals programs like Apple Writer and Word Juggler in speed and ease of use. Advanced options such as the ability to cut and paste information between your data base, spread sheet and word processor make the program a must for all /// owners.

Call Three: Hot Line/Apple /// User Groups

If you want to meet other Apple /// owners and exchange ideas, contact one of the user groups listed below. If you recently formed a group, know of one not listed here or have updated information about a group already listed, please contact *ON THREE* and we will include your information in this section, no charge.

- California**
Sacramento Apple /// User Group
143 Elsdon Circle
Carmichael, CA 95608
(916) 482-6660
- Orange County Apple ///
User Group
22501 Eloise Avenue
El Toro, CA 92630
- L.A.-So. Bay Apple /// Users Group
P.O. Box 432
Redondo Beach, CA 90277
(213) 316-7738
- Apple /// Users of Northern CA
220 Redwood Highway #184
Mill Valley, CA 94941
- International Apple Core
Apple /// S.I.G.
908 George Street
Santa Clara, CA 95054
(408) 727-7652
- Canada**
Apples British Columbia
Computer Society Apple /// S.I.G.
P.O. Box 80569, Burnaby, BC
Canada V5H 3K9
(416) 839-7779
- The Astronic Club
1453 Highbush Trail
Pickering, Ontario
Canada L1V 1N6
(416) 839-7779
- Colorado**
Colorado Apple Three User Group
P.O. Box 3155, Englewood, CO 80112
- Connecticut**
Apple /// Society of So. Connecticut
34 Burr School Road
Westport, CT 06880
(203) 226-4198
- Florida**
Sarasota Apple /// User Group
c/o Computer Center
909 S. Tamiami Trail
Nokomis, FL 33555
(813) 484-0421
- Georgia**
Atlanta /// Society
385 Saddle Lake Drive
Roswell, GA 30076
(404) 992-3130
- Illinois**
TAU c/o Lavona Rann
1113 Wheaton Oaks Drive
Wheaton, IL 60187
(312) 663-6319
- Kansas**
Kansas City Apple /// Users Group
5533 Granada
Roeland Park, KS 66205
(913) 262-3355
- Maine**
So. Maine Apple Users Group
Casco St., Freeport, ME 04033
(207) 865-4761, ext. 2249
- Maryland**
Apple /// S.I.G. Chairman
Washington Apple Pt.
8227 Woodmont Ave. #201
Bethesda, MD 20814
(301) 654-8060
- Minnesota**
Minnesota Apple Corps User Group
P.O. Box 796
Hopkins, MN 55343
- New Jersey**
North Jersey Apple /// Users Group
c/o Roger T. Richardson
P.O. Box 251
Allamuchy, NJ 07820
(201) 852-7710
- North Carolina**
North Carolina Apple /// User Group
2609 North Duke St. #103
Durham, NC 27704
- Ohio**
Cincinnati Apple /// User Group
5242 Horizonvue Drive
Cincinnati, OH 45239
(513) 542-7146
- Apple Dayton - Apple /// S.I.G.
P.O. Box 1666
Fairborn, OH 45324-7666
(513) 879-5895
- Oregon**
Oregon Apple /// Users Group
1001 S.W. 5th Ave. #2000
Portland, OR 97204
(503) 645-6789
- Overseas**
Apple /// Users Belgium/Netherlands
c/o H. Van der Straeten, Vestinglaan 49
2580 Sint-Katelijne-Waver
Belgium
(015) 205328
- Overseas (cont.)**
Apple User Group Europe e.V.
Box 11 01 69 D-4200
Oberhausen 11
West Germany
0049-6195-7 3917
- Apple /// User Group Belgium/
Netherlands
c/o J. Woretshofer
Ganzerikweerd 22
NL-6229 TG Maastricht
The Netherlands
(043) 611704
- British Apple Systems User Group
(BASUG) Apple /// S.I.G.
P.O. Box 174
Watford Herts, England WD2 6NF
0727 7339072728
- Le Club Apple
43 Avenue de la Grande-Armee
75116 Paris, France
- Apple /// User Group
c/o Canberra Accounting Services
P.O. Box 42
Duffy A.C.T. 2611
Australia
- Texas**
Apple Corps of Dallas
Apple /// S.I.G.
P.O. Box 5537
Richardson, TX 75080
- River City Apple Corps /// S.I.G.
Box 13349
Austin, TX 78711
(512) 454-9962
- Texas (cont.)**
Houston Area Apple Users Group
(Apple /// Division)
P.O. Box 610150
Houston, TX 77063
(713) 480-5690 or 974-5153
- Virginia**
Charlottesville Apple /// User Group
216 Turkey Ridge Road
Charlottesville, VA 22901
(804) 642-5655
- Greater Tidewater Apple ///
User Group
Route 2, Box 216
Hayes, VA 23072
(804) 642-5655
or 898-3500, ext. 2671
- Apple THREE Group International
c/o H. Joseph Dobrowolski
P.O. Box 913
Langley AFB, VA 23665
(804) 865-7520

The *Call Three: Hot Line* is a service whereby Apple /// users with questions can call an area number for answers. The individuals answering your calls are fellow Apple /// users who volunteered to help those in need over some of the rough spots. They are not compensated for this service, so we owe them a resounding "three cheers" for their kindness and generosity.

If you are willing and able to aid others by answering questions, please write to *ON THREE* and provide the necessary information. If you have questions, feel free to call our consultants listed below. Please observe the calling hours shown and, before placing a call, double-check the time zone so you don't inadvertently awaken someone! No other restrictions apply to this service.

For your reference, the accompanying table lists subjects and abbreviations used in the "Subjects" column of the consultant listing.

Subject	Code	Subject	Code
Accounting	AC	Graphics	GR
Agriculture	AG	Micro-Sci	MI
Assembly Lang.	AL	Modems	MD
Business Basic	BB	Modula-2	MU
Catalyst	CT	Pascal	PA
Cobol	CO	ProFile	PR
CP/M	CP	Quark	QU
Data Base	DB	SOS	SO
Education	ED	Spreadsheets	SS
Emulation	AE	Telecom	TC
Financial	FI	/// E-Z Pieces	EP
Fortran	FO	Word Proc.	WP
General	GE	On Three prod.	OT

Name	Area	Telephone	Days	Hours	Zone	Subjects
Coville Woodburn	NH	(603) 863-5590	M,Tu,Th,F	7-8pm	Eastern	BB,CT,GE,GR,MI,QU,WP
Ken Johnson	MA	(413) 536-7502	Su-Sa	6-9pm	Eastern	BB,PA,MD,WP,MI
Don Loosli	MI	(313) 626-3848	M-F	9am-5pm	Eastern	GE,WP,SS,DB
Harry T. Hanson	NJ	(201) 467-0712	M-F	6-9pm	Eastern	GE,PA,BB,CT
Edward N. Gooding, Sr.	VA	(804) 747-8751	Su-Sa	6-9pm	Eastern	CO,SS,PR,MD,CT
Jeff Fritz	WV	(606) 353-9493	M-Sa	8-11pm	Eastern	BB,DB,GE,MI,SS,TC,EP
Al Johnston	FL	(904) 739-1600	M-F	9am-6pm	Eastern	GE
Paul Sanchez	FL	(305) 266-5965	Su-Sa	10am-4pm	Eastern	SS,PR,CT
R.B. Thompson	NC	(919) 787-1703	Su-Sa	10am-10pm	Eastern	BB,DB,GE,SS,WP
J. Donald Glenn	NE	(402) 291-9177	Su-Th	7-10pm	Central	GE
Scott Weddel	NE	(402) 572-7543	Su-Sa	4-10pm	Central	GE,TC
Jim Ferencak	IL	(312) 599-7505	M-F	10am-5pm	Central	GE,EP,DB
Paul Thomas	MS	(601) 494-8736	Su-Sa	6-10pm	Central	GE,AC,BB,CP,DB,FI,MI,MD,PA,PR,SO,SS,TC,EP,WP
Earl T. Brelje	MN	(612) 455-6405	M-F	4-9pm	Central	CT,DB,WP,GE, Quick File, Omnis 3
Ron Maupin	TX	(512) 280-0144	Su-Sa	8am-10pm	Central	AL,CO,CT,EP,MD,PA,QU,SS,TC,WP
Rodney Hendricks	TX	(214) 581-0524	Su-Sa	6-9pm	Central	DB,EP,GE,MD,QU,SO,SS,TC,WP
Terri Wiles	CO	(303) 850-7472	Su-Sa	10am-6pm	Mountain	PA
William Prince	OR	(503) 254-6465	M-F	9am-4pm	Pacific	GR,TC, Corvus
Karl La Rue	WA	(509) 582-6459	F-Su	6-10pm	Pacific	MD,GE,EP,WP,TC,SS,CP
Pat Holwagner	CA	(415) 433-2323	M-F	10am-6pm	Pacific	GE,SS,WP,CT,DB,SU,AE,EP
Vincent F. Latona	CA	(818) 703-0330	M-F	9am-5pm	Pacific	GE,WP,BB,SS,AE
Dennis R. Cohen	CA	(818) 956-8559	Su	10am-10pm	Pacific	GE,PA,MU,WP,DB,SO
			M-F	7-9pm		
			Sa	12n-6pm		
Kelly C. McGrew	WA	(206) 943-8533	Su-M,Th-Sa	7-9pm	Pacific	DB,GR,SS,PR,MD,CT
Larry E. Kalland	AK	(907) 272-4968	Su-Sa	12n-11pm	Alaska	AC,CT,GE,SS,EP,WP
H. Van der Straeten	Belgium	(015) 205328	Su-Sa	7-10pm	Europe	BB,CT,DB,GE,PA,PR,SS
Arnaud Trache	France	21 03 04 21	Sa-Su	10am-7pm	Europe	AC,BB,DB,AE,FI,GR,MD,PR,SS,TC,EP,OT
J. Woretshofer	Netherlands	043-611704	Su-Sa	9-12am	Europe	CT,FO,GE,PA,QU,SO,WP,AE,EP
Salvador Garcia	Spain	(91) 234-5068	Su-Sa	7-10pm	Europe	BB,GE,PA,MD,CT

Get off and running with the ON THREE O'Clock!

Let the ON THREE O'Clock be your stop watch today!

Believe it or not, a lot of folks have plain forgotten (or never knew) that the Apple /// was designed to operate with a built-in clock and that, with a clock chip installed, SOS will automatically time stamp and date all file saves.

When the Apple /// was first released, the supplier of Apple's clock chips could not supply a working clock. As a result, the /// was supplied without a clock of any kind. Now maybe you are wondering when you list a disk directory, how the time and date magically appears.

Not too long ago ON THREE developed a clock for the Apple /// which plugs in right where the never-released Apple clock was supposed to go, and for just \$49.95 plus \$3.00 shipping and handling, this easy to install, SOS-compatible clock can be yours. It comes with comprehensive instructions and ON THREE's limited six-month warranty and does not use any of your precious slots.

With an ON THREE O'Clock installed, whenever you save or modify any type of file, the current time and date will be added to the directory listing so you can always tell at a glance which file you last worked on, and when. But that's not all. Business Basic has two reserved variables, DATE\$ and TIME\$, which return, respectively, the current date and time to your BASIC program. These reserved variables can then be used whenever you want to print the date and/or time in a BASIC program.

Special Combination Offer

There's a great deal more you can do with ON THREE's ON THREE O'Clock if you also have our Desktop Manager. Whenever you want, you can display the current date and time on the screen with one keypress. Since this is a background function, you can be word processing with AppleWriter or entering data into VisiCalc, and with one keystroke you can obtain updated time information. In addition, you can use the Desktop Manager's Appointment Calendar to enter items you want to be reminded of and, like magic, when the time comes, no matter what you are doing, a message will appear on your screen to gently chide you via the Desktop Manager to make that phone call now, etc.

Now The Appointment Calendar is not the only feature of the Desktop Manager, you can read about the Calculator, the Notepad, and the others elsewhere, but since the Desktop Manager requires a clock, we want to offer you a money-saving deal. Purchased together, you can get the ON THREE O'Clock and the Desktop Manager for only \$173.95 plus \$8.00 shipping and handling. Now is the time to take advantage of this special offer.



\$49.95
plus \$3.00
shipping and
handling

Desktop Manager/ON THREE O'Clock Combo

\$165.95 plus \$8.00 shipping and handling

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Ventura, CA**

ON THREE Presents . . .

The Desktop Manager™ plus \$6.00 s/h

\$129.95

This is the most complete and sophisticated desk accessory program ever written! Finally you can unclutter your desk the Desktop Manager way. The Desktop Manager places all of the desk accessory utilities you need -- appointment calendar, note pad and calculator -- within every program you own, so you can use them as if they were a part of your original programs. While you are using your program, you cannot see the Desktop Manager. However, by pressing only two keys the Desktop Manager menu appears, ready for your use from within *any* application!

While word processing, have you ever needed to multiply two numbers? Or have you suddenly remembered while in the middle of a spreadsheet the name of that stock your broker suggested, but have no pen or paper nearby to jot it down? Perhaps you've forgotten your spouse's birthday again, although you did write the date on a piece of paper you keep in your desk. Why not increase your productivity and efficiency while you clear your work area of that old-fashioned calculator, pens and paper scraps, and unnoticeable appointment calendar? With the help of *ON THREE's* Desktop Manager, you can do all this and more.

From within any program, two keypresses override and freeze your current application and display a window containing the Desktop Manager's main menu. Now you have the power of all of the Desktop Manager's options at your command. Simply select one of the following standard Desktop Manager features:

Note Pad - This handy tool has multiple pages per note, word wrap, automatic repagination, pick up and paste, and many other features usually found only in a word processing program. On-line help screens (a standard Desktop Manager feature) make using the Note Pad effortless as well as convenient.

HELP MENU

General Commands:

<div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Note Pad</div> Alabama..... Alaska..... Arizona..... Arkansas..... California..... Colorado..... Connecticut..... Delaware.....	CA =>Add Another Note CB =>Backs Up to Previous Note CN =>Moves to the Next Note CS =>Shows Note Selection Menu (Help Provided in Menu) CR =>Allow Renaming Active Note CF =>Find Text Within Note CM =>Moves the Note Pad Window (Pressing Escape Will Restore Window Contents)
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

ESCAPE TO EXIT.

Appointment Calendar

17 Mar 87 6:13:01 PM

You have 2 appointments
scheduled for today.

8:00 AM 9:04 PM

SUN	MON	TUE	WED	THU	FRI	SAT
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

MARCH 1987

Open Apple ? Key For Help.

Appointment Calendar - Set multiple appointments daily through December 31, 1999. As your appointment is due, a reminder appears on your screen regardless of what application you're using. The daily and weekly appointments are shown at a glance and, as with all Desktop Manager options, help screens are only two keystrokes away.

Calculator - A powerful electronic workhorse, the Calculator has full 16-digit accuracy and advanced functions such as SIN, COS, TAN, LOG's, x to a power, square root pi, memory and base conversions in addition to the basic add, subtract, multiply and divide functions. Also, you can invoke a simulated paper tape for printing later or pasting into another document.

Calculator

0

[Hlp][Prt][Tap][CE][CLR]
[Sin][Cos][Tan][Pi][.]
[Log][Ln][x^y][Sqt][Bin]
[D][E][F][Deg][Dec]
[A][B][C][Rad][Hex]
[7][8][9][/][/][+]
[4][5][6][*][-]
[1][2][3][-][RM]
[0][+/-][.][+][=]

25	Sqt
5	
5	*
5	+
79.95	-
32.01	/
65.02	-
2	Sin
0.0348994967025	Deg
.0348994967025	*
587	+
100	-
0.09	+
183.88168537718894	=
367.76337075437788	Sum
0	CLR
55.95	/
12	*
0.06	=
0.27975	Sum
0	CLR