Your Second Manual

to the Atari ST

by Andreas Ramos

Indigo 2

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Your Second Manual is available in English, Danish, and Swedish.
German, Spanish, and Dutch translations are underway. The Your
Second Manual, UK version, is published in coordination with The ST
Club, the original publishers of the Your Second Manual in the UK.

HiSoft
High Quality Software

Every effort was made to check and test every statement in this manual.
We would appreciate hearing about errors or updates to information.
Spelling errors are deliberately there to test your eyesight. Neither the
author nor the publisher are responsible for any mistakes. If your ST
blows up, I just stepped out of the office and won't be back for hours
and hours.

The Your Second Manual (Y2M) was written on Wordplus and Le
Redactuer. It has 115,117 words with 571,824 letters. Editing was done
with Harlekin. Layout was done on two 4 Megabyte ST systems with
Calamus and large screens. Setting was done with a Linotronic
photosetter using a Mega 2 ST and Calamus.

The Y2M

By Andreas Ramos

You've just bought your ST, you flip through
the manual, you start it up and nothing hap-
pens. Your salesman handed you the system
disk with the same seriousness that your father
once gave you the keys to the family car. You
spend a week working at it; the disk is in worse
shape than the Ford. Your salesman can't help
you; he's been transferred to the catfood de-
partment; the new one doesn't even know how
to turn the machine on. But he tries to sell you
a program that costs your next holiday and
you've heard that you can get free programs
somewhere, but nobody knows just where...

It takes you hours to print out a single page,
while your neighbour's kid can program a
flight to Jupiter on his toy computer. The whole
thing looked so easy in the store; computers
can't really be that hard; your cousin uses one
and everyone knows how stupid he is.

You're the Boss!

This is the Hitchhiker's Guide to the ST. Not to the BIOS, not to Betelgeuse 5. This manual will not help you to get into the ST; this manual will help you to get around the ST. If the first one, the Atari Corporation's ST Owner's Manual, tells you how to turn on the machine, this one tells you how to use it. It is your second (and better) Owner's Manual to the ST.

This is not a technical manual to the ST; my experience is that most users don't need technical material, they need help. Of the 150 or so members in our user group, only 10% can be said to be programmers. The rest are users. A source code is meaning-less; a discussion about compiling in assembler is uninteresting. Any technical information here is given only in the amount needed to understand a process. Users need a general introduction to the many different areas of computers; users need a list of ready to run programs which can solve problems; users need addresses to find further products, both hardware and software, and information.

The Your Second Manual (the Y2M) is not "just for beginners". It is for beginners, experienced users, and programmers; beginners will learn an enormous amount about the computer; experienced users will learn many things which they didn't know. My experience is that programmers need this most of all; they can program, but they rarely know much about the computer.

This manual was written and rewritten with the help, reviews, comments, and discussions of many people, both new users and professionals. The following persons especially helped me: Karen Nordentoft, Heine Svendsen, Lisbeth Rune Schultz, Claus Grotrian, Peter Mikkelsen, Klaus Henning Sørensen, Claus

Brod, Olafur Bragason, Søren Michelsen, Terkel Skårup, Herbert Krawczyk, Bo Jørgensen and Bente Jongberg. I also thank many others from our User Group, the 68000 UG in Aarhus, Denmark, from the ST BBS users in Denmark, the ST Club in England, the Floppy Shop, the dozens of persons from Finland to New Zealand to Italy to the UK who have written with questions, ideas, suggestions, reactions, and tips. Paul Glover, of the ST Club Newsletter, encouraged me to have it published. Nicky Wilson proofread the manuscript.

Where I have written a price, or assumed a price, it is only so that you can get an idea. Prices change constantly. Check before you buy.

Before I start, just one last thing. Don't be afraid of your ST. You're the boss. When I was a little kid, I went every summer to Summer Camp in the mountains in Tennessee. There we learned to shoot bow and arrow, swim over waterfalls, mountain climb, canoe in white water, catch poisonous snakes barehanded; all the fun stuff. And we learned to ride horses: feed them, rope them, saddle them. We had this mountain man who taught us, a crazy mean old man who drank Jack Daniels from a fruit jar. My first day, we line up in the dust, us little kids, in front of these big southern horses. This old man, spitting tobacco, says to us "Don't ever be afraid of a horse. If the horse tries to test you, show him who's boss." With that, he goes right up to the first horse and with a terrific swing, punches the horse in the face; it fell down. He was right; I was never ever scared of horses from then on. But I was terrified of him.

An Introduction to Computers

This chapter is for absolute beginners: anyone who hasn't had training in computers. Don't panic. The beauty of the ST is that you don't need to know much about computers, just a few principles, in order to work at a very high level with them; it is certain that very quickly, you'll be able to do just about anything with your computer. In comparison, most PC users can only work with one or two programs, and then not very well.

A Computer System

A "computer" is a word which means many things and includes many parts. There is first of all the Central Processing Unit (CPU), a chip. This is the chip which does the "processing" of the information: the actual work. It performs "operations" or changes upon information. That information (also called "data", "programs", "files", "documents", etc.) is present in the form of bits, bytes and kilobytes. This information must go through several steps. First, it must be sent to the CPU; that requires an input system. then it must be sent from the CPU out again; an output system is needed. And information has to be stored in some fashion: a storage system. All computers, from calculators to mainframes, have these elements.

The input system is anything that allows information to be converted into a form which the CPU can understand. This can be electronic sensors, radar, a keyboard, a cursor arrow pad, a numeric keypad, a mouse, a joystick, etc. Movements are converted into electrical signals which are sent to the CPU.

Information which has been processed is then sent back out. This can be either an image or sound; the computer can display information on to a screen, a printer, or through a loudspeaker. This can also be mechanical; the computer can move a robot arm, switch a railway track, or fire a rocket. Desktop computers usually have screens and printers. Screens are also called "monitors"; they allow you to monitor, or watch whatever is going on inside the computer. Another way for a computer to display information is on to a printer; the computer sends the data to a printer.

While the computer is working, it needs to move information around; only a small part of the data is being processed at one time. To hold data which isn't being used, there are storage systems. These can be either volatile; which means they exist only as long as the computer is turned on; or they can be permanent; which means that the information is placed into a medium which is physical. The volatile information is kept on RAM chips; you move the information on to those chips and then erase the chips after you are finished. The permanent information is kept on a variety of mediums. First, it can also be on chips. ROM chips do not lose information, even if the power supply is cut off. Secondly, it can also be on physical surfaces, such as disks.

A pocket calculator has a combination of RAM and ROM; one small chip has the mathematical functions: add and subtract (multiplication is just fast addition); the other chips hold the numbers while you work with them. If the calculator is turned off, everything disappears. A simple calculator's RAM is large enough to

hold a few eight figure numbers. A large (mainframe) computer has "infinite" RAM; the concept doesn't apply to it. They move data at very high speeds from the CPU on to hard disks back and forth; if the job requires it, the computer uses the entire hard disk system for momentary holding of data.

Information can be put on to a physical medium; this is another way of holding the data. Bits are converted into a magnetic field which then magnetizes an area on a disk or a tape. The disk becomes an "image" of the bits. Bits can also be converted into a laser light, which heats a magnetic surface, which is then magnetized. The magnetic head of the drive can also "read" that image, so that the magnetic fields are converted into bits again; a copy is sent to the RAM for you to use.

Practically all computers have these elements:

Processing systems (e.g. the Central Processing Unit, or the CPU chip),

Input systems (the keyboard, mouse, joystick, sensoring equipment, etc.)

Output systems for display (screens, printers, series of lights, etc.)

Storage systems (ROM, RAM, disks, hard disks, tapes, cards, etc.)

The pocket calculator has the keyboard (numeric pad), RAM, ROM, and a small numeric display screen. Expensive calculators may even have a printer and the ability to send data to a larger computer for storage.

Processing System

The ST's processing unit is the Motorola 68000 series chip. There are two major CPU's for desktop computers: the Intel chips, which are used in IBM PC's and the Motorol chips, which are used in Macintoshes, Amigas, Sinclair QL's and ST's. You can substitute a faster CPU (a 68010, 68020 or a 68030 chip) and the ST will run faster.

Input

The ST keyboard and computer casing are the same (although in the Mega ST's, these are separated). The chips are placed on a motherboard under the 520's or 1040's keyboard. The mouse is a standard for the ST (IBM's PC's, for example, do not need a mouse). Joysticks, etc., can also be used.

Output

Your ST has a cathode ray tube (CRT) (a TV) for a monitor; this allows the computer to

present complex pictures, such as the GEM desktop. This image can be in colour or monochrome (black and white). Printers can be either daisy wheel (typewriters), thermal printers, matrix printers (nine pin, twenty four pin, or forty eight pin), or laser printers (a sort of photocopy machine with a computer attached), or a plotter. And colour as well. There are even systems to send an image directly on to photographic film, create a radio signal, or create a signal to send over a telephone line (modems).

Storage

The ST's ROM chips can be changed, so that you have additional operations for the computer, or so that your ST screen can appear in your language (English, Greek or whatever). You can add RAM chips, so that the computer has more "work space". For physical storage, you have a disk drive; you can get a hard disk as well, or a tape storage system (smaller computers have cassette tape drives). Compact disks (CD's) are also a possible storage medium.

The ST can work with other kinds of data. The ST can use MIDI, which is a standard for the music industry. Sound can be sent to the ST for processing and sent back again to disks or tape for listening.

How much of this stuff, and what kind of things you need, depends on your needs and bank account. Many people get along fine without a printer. Others need a hard disk. It's all up to you.

The GEM interface

The main difference between an ST and other computers is the interface: the way you work with the computer through an image on screen.

PC's, which use a relatively old operating system, depend on "command lines"; you must write a line for every command which the computer carries out. If you want to erase a file, then you write "On drive C, in folder named "Workfldr", erase the file named Test.Doc". The computer then carries out the command and waits for the next command. This however does not happen in normal English; obscure codes and symbols and words are used. A professional secretary, with two years' experience on WordPerfect, the PC word processor, needs to constantly refer to the 600 page manual.

The Macintosh, from Apple, brought WIMPS (Windows, Icons, Mouse and Pull down menus Systems) on to the market. This is an interface system which depends on symbols in the shape of small drawings; the symbols have various rules; you move these symbols around on the

screen in order to do something. To erase a file, you "grab" the file with the mouse and "drag" it to the "rubbish bin" symbol. Show this to anyone on a screen and they immediately recognize that "putting a file into a rubbish bin" means erasing, just like in "real life'. Almost. It isn't quite obvious; "grabbing", "rubberbanding", and "dragging" have nothing to do with anything in the "real world". But people catch on to this very quickly; the rules are very simple and the actions are predictable.

The Mac is a good idea; it was the first computer which noncomputer people could actually use. The ST uses a WIMP system called GEM (Graphic Environmental Management). The new IBM PS series and practically every new computer use a form of GEM.

When you start up the computer with a disk in the drive, an image comes on to the screen which shows two little filing cabinet drawers, identified as A and B, an arrow, a rubbish bin, and some words across the top of the screen. This screen is your DESKTOP. Every session starts from here; this is the basic level of the ST. From the Desktop we can go to other, further, screens which are usually from within a program. The arrow is the cursor; this is moved around with the mouse. These little images are called "icons". If you point at the words at the top, a list of options pops up. This is called a "drop down menu"; although it actually pops out instead of dropping. The menu presents you with a list of options; by clicking on these, you can do various things. You can also point the mouse at the filing cabinet icons; these represent the disk drives. You "open" a file cabinet, or disk, by either clicking on it once and then going to the "OPEN" option from the FILE menu or you can double click quickly on the cabinet image. This produces a "window" which shows you what is "in the disk". You can open up to four windows at one time. In that window are more icons; in a later chapter, we'll go over these. For now, let's look at the mouse. By clicking once on an image, it turns black; this "inverts" or reverses its colour from white to black. This means that the icon is "selected", it is active and waiting for a further operation. if you click on it a second time (very quickly), then, if it is a folder or a disk icon, it opens, or if it is a program icon, it starts. (Again, you can use the OPEN option from the FILE menu). A second thing to do with the mouse is to "grab" an icon; point at the icon, press the left button, hold it down, and move the mouse. A ghost image of the icon moves along. If you release the button, the icon moves to the new position. This is called "dragging". You can use this to move a file icon from one window to another or to move an icon from a window to the rubbish bin. If you want to select more than one file, point the mouse a little bit above and to

the left of an icon; press the left button, hold it down, and move the mouse downwards to the right; a ghost box appears; this is a "rubber band". When you release the mouse button, every icon inside the rubber band is selected. This lets you move or delete (erase) a whole group of icons at once.

Most programs for the ST are GEM based; they use a desktop, mouse and menus to some degree. The mouse acts pretty much the same in all programs. The menus have the same general layout in all programs; the leftmost menu is the accessories menu; there you select and use accessories; these are small programs (more on this in chapter seven). The next menu from the left usually opens, closes, saves and deletes files. Similar options are usually grouped in the same menus. As you work with many different programs, you will find that most options are similar. In fact, you will often be able to start up, understand, and use a totally new program, even in a foreign language, simply by being familiar with the GEM design. The perfect GEM program doesn't need a manual.

Programs and Files

The computers we use nowadays divide information into "programs" and "files". This is very confusing; some people use the word "files" to refer to everything, both programs and files. There is no real standard; documents means files with words; pictures have various names; database files and spreadsheet files are just called files.

A program is a group of operation commands. Just as with the PC's, in which you write one command at a time to do something, a program is a group of commands which do various things. When you use a word processing program, then you are able to organize and move words around on the screen. These words make up your message; this is what we call a "document". The computer, to keep track of the various messages, keeps them organized as documents.

The Post Office

We can think of this whole system as a small town post office. The mailman is the Central Processing Unit, the CPU, the one who does all the work. He gets mail in the form of small units: documents. You just don't send words to a mailman; that would create a mess. So letters are put into envelopes and addressed; each envelope has its own name, just as documents have names as well. There are two main things for a mailman to do: receive mail (input), sort it out (processing), and send it to its destination (output). Each morning, mailman Bob opens

the mail sack and dumps all the mail on to his desk. His desk is 10 feet by 3 feet; it gives him enough room to handle 100 envelopes. Last year it was only 3 feet by 2 feet; he couldn't deal with all of the mail at once. So he "upgraded" his system by getting more workspace. Over in Metropolis, the work desk is 900 feet long; it can hold tens of thousands of envelopes. There are also 50 mailmen working all at the same time; this is parallel processing. But Bob just works alone: one envelope at a time.

On the wall in front of him, there is a system of cubbyholes; each street in Smallville has a cubbyhole; each envelope goes into the cubbyhole. Now, postmen as a whole are very clever people, but Bob is a bit stupid; he does things only according to instructions: one step at a time. Luckily for him, his wife Sally wrote an instruction sheet which has the steps for his work. In the morning, Bob takes out his instruction sheet:

Step 1) Look at the address on the envelope

Step 2) Place it in the cubbyhole with the same name

Step 3) Is there another envelope?

      If yes, repeat step one

      If no, go to lunch.

Last year, the cubbyholes were organized alphabetically; Apple Alley was at the top, followed by Bluebird Boulevard, and so on. But this year, Sally realised that most of the mail went to Bluebird Boulevard, so... new instructions:

Step 1) Look at the envelope

Step 2) Is it Bluebird Boulevard?

      If yes, place in Boulevard cubbyhole

      If no, go to step 3

Step 3) Place in the cubbyhole with the same name

Step 4) Is there another envelope?

      If yes, repeat step one

      If no, go to lunch

Since Bluebird blvd. makes up 80% of his mail, this new method lets him work faster even though it contains more steps. Whichever method he uses is just that: a method, a way of organizing his envelopes. He can change the method; it has no effect on the mail itself. A more clever system takes advantage of the particular nature of the envelopes (documents),

his sorting table/cubbyholes (hardware), and his town (five streets) to speed up the process. Sally can even write more steps which help Bob to deliver the mail during the afternoon so that he ends up at their cottage; this saves useless walking around. If Sally reads in "Mail Today: the Magazine for the Active Post Office" about a new method (Turbomail! Fold the envelopes into paper aeroplanes and sail them across town), then she can switch out Bob's method for another one. This is what you do when you change programs; you change the computer's operating instructions. Bob, who only thinks of his coffee break, doesn't notice that Sally comes in, takes the instruction sheet out of his hand, and puts in a new one. She then bonks him on the head; Bob just starts working according to the new instructions. Bob's method works fine for envelopes, but it would not do at all with his neighbour's sausage shop. Butch R. Metzger processes meat by grinding it down, adding spices, and then reforming it. Once, an envelope flew into the butcher's shop; not even the cat would touch the result. And Bob would not know what to do if a sausage showed up on his table; he would sit there staring at it, trying to find an address, until Sally comes in, takes it away from him, and bonks him once again.

Bob doesn't just shuffle mail; he also has to take care of customers. You enter the post office, he stands there at the window and says "Howdy!" The transaction between you and Bob is very clear; you hand him the envelope, he weighs it, and states the price, you shove the money across, and he returns the change. Goodbye. If you ask for a T-Bone steak, medium, with potatoes, no salad, and two martinis, Bob is going to get a glazed look in his eyes. You can only ask for certain things; stamps, directions to Our Glass Lake, and the time of day. The "interface" between you and each shop on Bluebird Blvd. is going to depend on the situation. The blacksmith and the potter will make anything you like, but you must know exactly what you want. Other shops let you pick what you need from the racks; just pick and pay. And others pay special attention to dealing with customers; finding out what you need and then finding or creating a suitable item.

That's the computer and the desktop interface. You send information to the computer through the keyboard and the mouse; the computer processes it with a group of commands from a program; the result appears on screen or on to the printer; you move the information from the computer on to a disk for storage. Let's look closer now at the ST's desktop menus and options.

Chapter One:

# Things Your Salesman Definitely Didn't Tell You.

Much of the computer is so interconnected that it is difficult to talk of "parts". That makes it hard to understand. You can't really talk just about the screen without discussing the keyboard; the disk is not separated from the windows. Much of the information is thus "general" in a sense, though you will later understand what is going on.

The Desktop Menus

Above is the DESKTOP with the MENUS illustration. (Owners of Mega ST's will have several additional options.) You must understand these desktop options. This is the basic structure of your computer. Without these

options, you can't go further into the ST. It is here that you will create boot disks (with AUTO folders), add new ACCESSORIES, create new disk icons for RAM disks (and remove the silly second drive icon if you only have a one drive system), change icon names, file names, change files to READ ONLY, set up your printer to print full screen pictures, make standard format disks, set your screen to show files by size, set up your files to load automatically just by double clicking on them, save your desktop, and make printouts of your screen.

Much of what follows will use these options to change your system. The Owner's Manual only describes how to plug together your system and
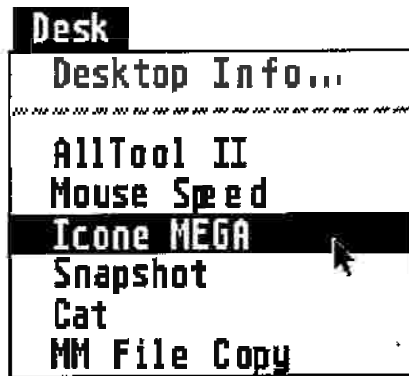
THE STANDARD GEM WINDOW

9
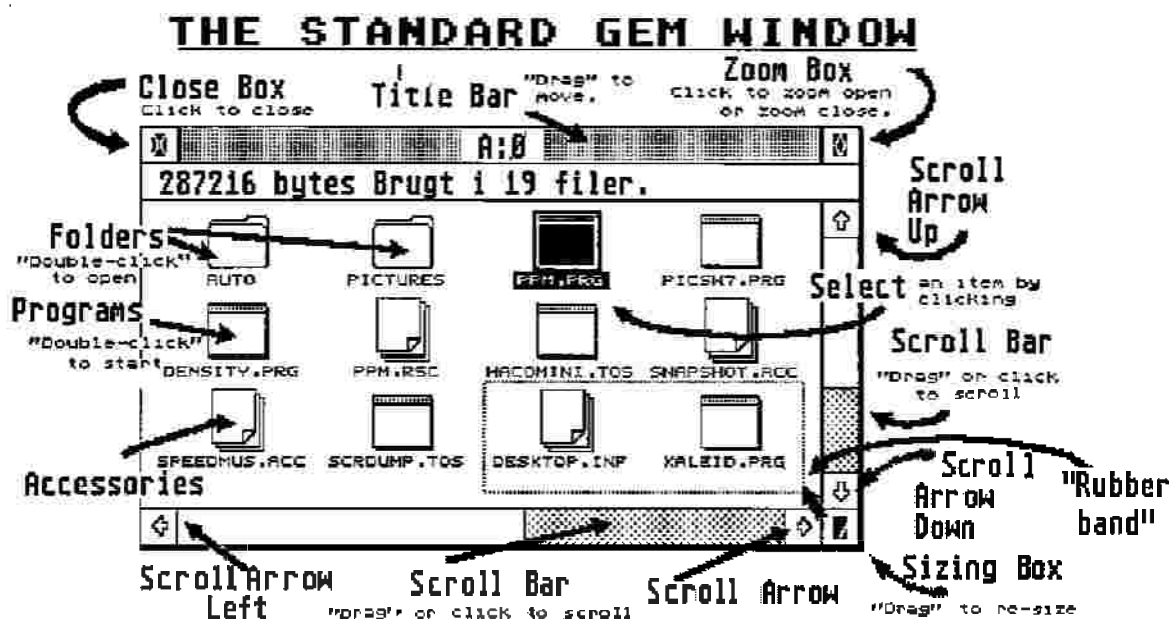
gives a general introduction to the options; it doesn't begin to explain that all of this can be changed, added, moved, and improved. You can modify and adapt your system to suit your hardware, software, needs, and wallet.
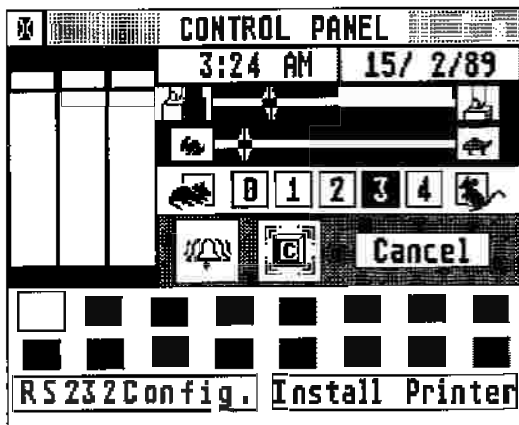
If you absolutely insist on not opening the Owner's Manual, then here we go. The Desktop. Insert a disk and turn on the ST. After a while, you will get a screen image. This is called the Desktop. It is from here that every session with the ST will start. There are two drive icons, a rubbish bin, and dropdown menus at the top (Desk or the Mt. Fuji Atari Logo, File, View, and Options). Let's go through the menus at the top. It is standard that all menus start from the left; those on the left are the most important.

The ACCESSORIES Menu /ᐱ\

The first menu at the top left is usually topped by the word Desk or an Atari Logo, the little Mt. Fuji symbol. Some day you'll learn to change it; a friend of mine has a small pair of breasts up there. When you move the mouse to the Mt. Fuji symbol, a MENU drops down;

```
┌─────────────────────────────┐
│ Desk                        │
├─────────────────────────────┤
│  Desktop Info...            │
│ ╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌ │
│  AllTool II                 │
│  Mouse Speed                │
│  Icone MEGA              ▶  │
│  Snapshot                   │
│  Cat                        │
│  MM File Copy               │
└─────────────────────────────┘
```
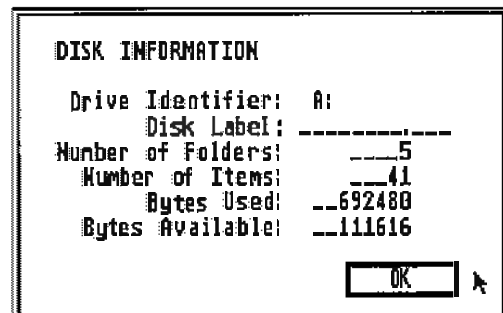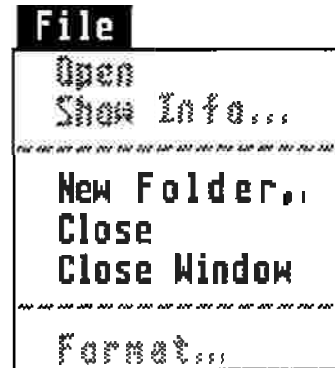
these are called dropdown menus; they present a list of options upon which you may click. The first one only shows you information about TOS; it is here that you can find out which TOS version you have. If you have further options in this menu, then those are

```
┌──────────────────────────────────────┐
│ ▓ ▒▓▓▒▓  CONTROL PANEL  ▒▓▓▒         │
│         3:24 AM │ 15/ 2/89           │
│                                       │
│                                       │
│        ▒ 0 │ 1 │ 2 │ 3 │ 4 ▒         │
│                                       │
│         ▒   ▒    Cancel               │
│  ▦ ▦ ▦ ▦ ▦ ▦ ▦                       │
│  ▦ ▦ ▦ ▦ ▦ ▦ ▦                       │
│  RS232Config. │ Install Printer       │
└──────────────────────────────────────┘
```

Accessories. Later on, there is an entire chapter about accessories; what they are, how to use them, how to set them up, and how to remove them. Your most important accessory is the CONTROL PANEL; here you can set the keyboard response, mouse clicking speed, the printer (INSTALL PRINTER), and the modem (SET RS232 CONFIGuration). If you can't double click quickly enough, then use the Control Panel to change the system to your speed. There will be more about the Control Panel in the accessory chapter.
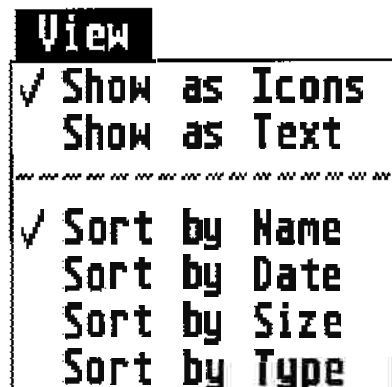
The FILE Menu

The second menu is FILE; you are able to work with disks here. You can OPEN a disk, ask for information about the disk, create FOLDERS, close windows, and FORMAT disks. The FOLDERS option is very useful; it is here that you create an AUTO folder (more on this in a bit).

```
┌─────────────────────────────┐
│ File                        │
├─────────────────────────────┤
│  Open                       │
│  Show Info...               │
│ ╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌ │
│  New Folder..               │
│  Close                      │
│  Close Window               │
│ ╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌ │
│  Format...                  │
└─────────────────────────────┘
```

```
┌──────────────────────────────────────┐
│ DISK INFORMATION                      │
│                                       │
│  Drive Identifier:  A:                │
│         Disk Label: _____.___   │
│  Number of Folders:        ____5      │
│   Number of Items:         ___41      │
│        Bytes Used:    __692480        │
│   Bytes Available:    __111616        │
│                         ┌──────┐      │
│                         │  OK  │ ▸    │
│                         └──────┘      │
└──────────────────────────────────────┘
```

The VIEW Menu

VIEW is the third menu; it lets you choose how you will see the information in the windows. When you boot with an ordinary disk, the ST will use "default settings"; certain settings will happen automatically. One of these is Show as ICONS; the files will be shown as icons. This is somewhat easier for the beginner to understand; at least easier than if files

```
┌─────────────────────────────┐
│ View                        │
├─────────────────────────────┤
│ √ Show  as  Icons           │
│   Show  as  Text            │
│ ╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌ │
│ √ Sort  by  Name            │
│   Sort  by  Date            │
│   Sort  by  Size            │
│   Sort  by  Type            │
└─────────────────────────────┘
```

are shown as TEXT. You can also decide in which order these files will appear. Play around with all of these options and find a style that fits you.
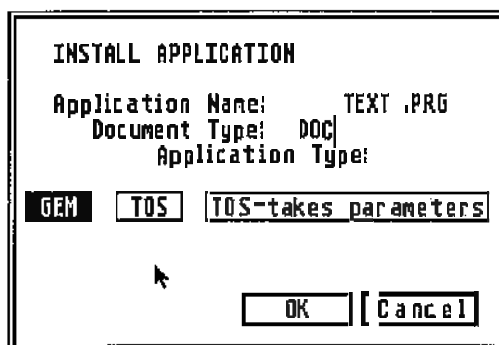
The OPTIONS Menu

The last menu is OPTIONS. The first item lets you INSTALL DISK DRIVEs; you can rename

```
┌─────────────────────────────────────┐
│ █Options█                           │
├─────────────────────────────────────┤
│ Install Disk Drive...               │
│ Install Application...              │
├─────────────────────────────────────┤
│ Set Preferences...                  │
│ █Save Desktop█              ▶       │
│ Print Screen                        │
├─────────────────────────────────────┤
│ ✓ Blitter                           │
└─────────────────────────────────────┘
```

your disk drives (this only changes the names of the little drive icons on screen; you won't lose any files). You can also remove drive icons and create new ones for further drives. Don't

```
┌─────────────────────────────────────┐
│                                     │
│  INSTALL DISK DRIVE                 │
│                                     │
│  Drive Identifier: D                │
│      Icon Label: My RAM disk! ▶    │
│      ┌─────────┐ ┌──────────┐ ┌───────┐ │
│      │ Install │ │ Remove   │ │ Cancel│ │
│      └─────────┘ └──────────┘ └───────┘ │
│                                     │
└─────────────────────────────────────┘
```
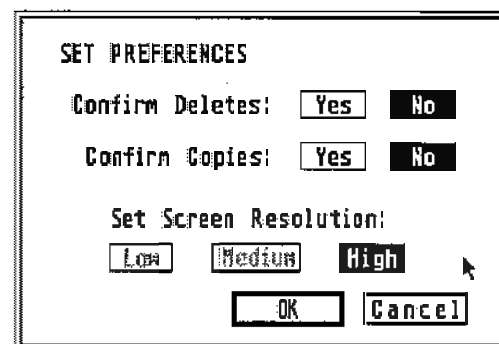
worry about removing all the icons; to get them back just put in another disk and press the reset button. The next option is INSTALL APPLICATIONS; this option is rarely used, but

```
┌─────────────────────────────────────┐
│                                     │
│  INSTALL APPLICATION                │
│                                     │
│  Application Name:      TEXT .PRG   │
│     Document Type:    DOC|          │
│        Application Type:            │
│  ┌─────┐ ┌─────┐ ┌────────────────────┐ │
│  │ GEM │ │ TOS │ │ TOS-takes parameters│ │
│  └─────┘ └─────┘ └────────────────────┘ │
│         ▶                           │
│              ┌──────┐ ┌────────┐    │
│              │  OK  │ │ Cancel │    │
│              └──────┘ └────────┘    │
└─────────────────────────────────────┘
```

very clever. For example, you have a bunch of letters to your mother as different files and you want to read one on screen. But first you have to double click on the word processor program, then wait for it to start and then select the file you want to read. So many decisions! If you use Install Applications, life is easier. First click

once on the word processing program (so that it turns black). Now go to the Install Applications option. You will find the name of your program here. Under it, on the second line, write the last three letters of your text files (if your files are called HI_MOM.DOC, then write DOC). Click on OK. This brings you back to the desktop. Now doubleclick on a text file; the word processor will start up automatically and after a moment, your file appears on screen, ready to go! SET PREFERENCES will let you decide whether MESSAGE BOXES will appear on screen whenever you copy or delete a file. If you haven't had your ST for very long, leave this alone for now. If you have a colour display and prefer to start up with a medium resolution screen instead of low, then click here.

```
┌─────────────────────────────────────┐
│                                     │
│  SET PREFERENCES                    │
│                                     │
│  Confirm Deletes:  ┌─────┐ ┌─────┐  │
│                    │ Yes │ │ No  │  │
│                    └─────┘ └─────┘  │
│  Confirm Copies:   ┌─────┐ ┌─────┐  │
│                    │ Yes │ │ No  │  │
│                    └─────┘ └─────┘  │
│         Set Screen Resolution:      │
│     ┌─────┐ ┌────────┐ ┌──────┐     │
│     │ Low │ │ Medium │ │ High │  ▶  │
│     └─────┘ └────────┘ └──────┘     │
│              ┌──────┐ ┌────────┐    │
│              │  OK  │ │ Cancel │    │
│              └──────┘ └────────┘    │
└─────────────────────────────────────┘
```

Saving your Desktop

After you have fooled around with all of the options above and have set the ST to your liking; the mouse can accept your slow double clicking, the keyboard moves at your speed, the screen is in your favourite resolution, your files show up in the style and order you like, the disk drive icons and rubbish bin are in the right place, etc., etc., etc., then click on SAVE DESKTOP under the OPTIONS menu. The entire set up which you just made will be saved onto the disk in a small file called DESKTOP.INF This little file, if it is on the disk with which you start up the machine, will remember all of the choices and set up the ST to your liking. Tomorrow morning, you don't have to repeat the process of moving and clicking.

If there are options which you decide to change, then click on the new option and use Save Desktop again. The new set up will be saved and the old one will be removed. Later, we will learn how to change DESKTOP.INF

And the last option is PRINT SCREEN. You can nearly always create a copy of your screen on paper by clicking here. You can also simply press the ALTERNATE and HELP keys at the same time. Press Alt and Help again to quit the printing.

VDOS

An alternative desktop is NEODESK 2.02. Written by an American computer science student, it is very popular in the USA. Using up to seven windows, files can be shown as text in columns, letting you see 132 files at once. Programs can be dragged from the window onto the desktop, from where you can start them at any time. You can create your own icons. There is a printer queue; multiple files can be sent to printer, which then prints them one by one. There are keyboard commands to all the options. You can do a coldboot or a warmboot by keyboard command. NEODESK 2.01, 49 US$. Gribnif Software, Box 350, Hadley, Massachusetts. 01035 USA. Tlf. 413/584-7887.

The TOS

At this point, more dark clouds gather, i.e. your introduction to TOS. I once read on a German BBS that TOS means TOtally Senseless. TOS is your operating system, a kind of program that connects the many parts of the computer together. In 1985, the TOS was only available on the ST as a file which had to be loaded from disk; this 1985 TOS on disk was over 200 KB large, which meant that it took a long time to load and took up almost half of the computer's memory. Luckily, that situation did not last very long; Atari placed the TOS onto ROM chips, which are inside the machine and don't take up any RAM space. No more booting from a System Disk. Lots of space in RAM.

But this TOS on ROM-chips was written in American English and the ST sold better in Europe. So the different countries translated the screen text into the various languages. The American keyboard, which was for programmers, was moved around; instead of programming keys, the various extra alphabetical characters were placed there. None of this was done in a coordinated way and many of the people who did this in the beginning were not especially qualified. Silly and trivial errors were made. TOS had its own problems: errors, bugs, limits.

In the Autumn of 1987, Atari Corp announced a new TOS: version 1.09. It was designed for the new Mega ST's; ST's which used a new, larger chip. Furthermore, it accepted the Blitter chip, a chip which would speed up certain screen processes; things would move very fast on screen. The blitter, which had been announced since the very beginning of the ST, was finally coming. This new TOS was placed on all the new ST's, not just the Mega ST. And I, helping a friend to install his brand new ST, found out that many of my best programs didn't work. Soon, everyone was saying the same thing; programs weren't working on the

new ST's. The 1987 TOS was not downwards compatible; perhaps 15 to 20 percent of the existing base of programs couldn't be used. Atari denied the problem. And then they said that the programs were poorly written; that the programmers had used routines and memory spaces which were reserved. Atari ignored complaints.

What can you do about it? Get a copy of the old TOS on disk; start up with that, and you now have the "Classical" ST; the TOS for which most programs were written. This works fine, at the expense of sacrificing 200 KB of RAM. Many programmers have been rewriting and updating their programs to be compatible with the 1987 TOS. However, this is a halfway process; you will find out only by experience, the hard way, whether a group of programs will function together.

TOS V1.4 (1989 version) There is yet another new TOS: version 1.4. Atari Corp has been working on this for quite some time; it was announced in a message to developers in June, 1988. In November, 1988, there were more announcements.

What's new? Not much. There are slight improvements and some bugs have been removed. The new TOS however is not very advanced; there is no fear of all of the utilities and accessories and countless other programs becoming obsolete.

For example the file selector box. The standard one is limited and the new one is not much better. The I. Sonander / C. Allen (USA) file selector (FILEFIX.ACC) or the Martin Patzel (West Germany) file selector (FSELECT.PRG) boxes do the job better. These alternative selectors let you choose the extenders; the Patzel selector even lets you edit the extenders and set paths, create/delete folders, etc.

TOS 1.4 allows you to copy or move a file. If there is a name conflict, then one can choose to skip, proceed, or abort. Folders can be renamed. The entire available memory is used for disk copying which means less disk swapping. Resets and reboots can be done from the keyboard (reset: press Control + Alternate + Delete) (reboot: press Control + Alternate + Right Shift + Delete). The FAT table access is about 50% faster and the 40-folder bug has been fixed.

There is nothing new that can't been done by a small collection of AUTO utilities and accessories, so the 1.4 TOS is a bit of a disappointment. The new TOS 1.4 is offered as a set of ROM chips. Contact Atari Corp for these. If you are thinking of upgrading your TOS, see first if it is worth the price and trouble.

Power to the ST

Here is something for the old ST's. The first 520's and 1040's had separate power supplies for the drives and computer (these were separate as well). Including a monitor and a printer, that made four components to hook together: a spaghetti of cables, plugs, and switches. Although the Owner's manual states that these must be started in a special sequence, you can do the following: buy a four-outlet extension cable; put a small ordinary on/off hand switch on it; run all the plugs to that, and leave everything switched on. Now just use the hand switch; the whole system turns off and on with one press. Put your boot disk in the drive and run the juice.

You must be careful to insert cables the right way. They have a top and a bottom. Look at the end; there is a notch, or a sort of indentation. This side must go up. In principle, it is not possible to insert a cable incorrectly. So much for principle. Since no one ever told him, a user managed to insert the monitor cable upside down; he simply pushed until it went in.

Take a Look Inside

Another thing that is recommended to everyone is to open their computer. Take a look inside. See what goes on in there. It is a simple process of removing only about 20 screws (keep track of which go where!). The machine can easily be put back together again (computers are designed to be put together in the Far East by 14 year old girls working under semi-slavery conditions). However be warned, many ST's have a sticker on the inside of the case which if torn, results in your warranty being cancelled. This is to prevent you from opening the ST. Atari does not want users to fool around inside the ST; this reduces trouble and complaints. If there is such a sticker, do not violate your warranty. Changing the machine in any way will violate your warranty. Please unplug the machine completely before opening it.

Warranties

Why are computer companies so eager to cancel warranties? Warranty responsibilities vary from time to time and country to country - but in general: you buy your ST from a dealer, who in turn buys it from Atari Corporation. If the warranty is valid for one year, then Atari forces the dealer to pay 50% of any warranty work which is done within the first three months. This repair bill can easily be larger than the profit which the dealer made on selling the machine to you. Therefore he is going to try and get out of this; one way is to find out that you opened the machine. This saves him

money. So... if you have problems with the ST, and your dealer is very helpful and friendly, wait for the three month period to go by; he'll thank you for it. At this point, however, it becomes Atari's problem; they will look for any evidence of opening the machine. So... don't do it. Experiment on a friend's older machine, or wait for the big day.

ST's are robust. They put up with a lot of punishment. After being designed, they were handed over to a department which then planned how it could be put together in the cheapest and easiest way. This means that components are simple pop-in and pop-out. Many of your problems are just loose chips. Later on in this manual, you'll learn how to fix these. After the first three months, you shouldn't have any troubles with your ST. If you are wondering how long these things will last, nobody knows. Desktop computers are only 10 years old. The first Apples were built at the beginning of the decade; PC's were made in the early 80's. Macs are from 1984; ST's started in 1986. No one knows how long the chips will last.

More About Atari

Atari Corporation used to be a games company; they built the first popular computer game: Pong, table-tennis on a screen, which was sold in arcade games. Yearly, Americans put more money into arcade games than they do into the space shuttle project. Atari also made video games for the home market; we had one when we were kids. There was a second computer company, Commodore Business Machines, (nice initials...) which started out as a professional computer company but went over to games. It was run by Jack Tramiel, who is to business what Rambo is to peace.

In the mid 80's, Tramiel and Commodore got into an argument; he wanted to employ all of his kids as heads of the various departments. Commodore, for some silly reason, said no; Tramiel and Co. walked out. With his mega-salary and gigabonuses, he bought up shares of that sleepy little company, Atari, and became the chairperson. Tramiel junked the games department, selling it off and making a huge profit. He plundered the top talent and salespeople from Commodore. All of his sons headed the different departments and a crash project was started. The computer on which Tramiel had been working at Commodore was now finished at Atari; it was now named the ST. In the beginning, everyone assumed that ST meant Sam Tramiel. Commodore has still to recover from all of this; their energy and direction are gone; Tramiel continues to hire Commodore's best.

It is this games image from the early days that keeps Atari out of the American market, where Atari means games. In Europe, where Atari was unknown, the ST managed to get a foothold. Third party companies began to produce hardware and software for the ST (a second party company is one which produces the components directly for Atari to be used with an Atari name, for example your Atari disk drives.) The absurdly high price of the Mac and the cheap power of the ST made the ST popular. It is one of the few true GEM computers on the market and it is very affordable.

In four years, Atari has built an entire distribution network out of nothing. Many mistakes were made. Established dealers were not excited about representing a new company. Furthermore, Atari would not promise that the distributor could continue. It was feared that the dealer would do the groundwork to build up a name, and Atari, when it had more money, would take away the licence, and take over. In late 1987, Atari restructured itself; Atari Corp became the umbrella; each country got its local daughter corporation: Atari USA, Atari Germany, Atari UK, Atari France, Atari Holland, Atari Scandinavia, Atari Spain, etc. And the small dealers were right; Atari took away their import licence.

Magazines have built up around the ST; many of these are spinoffs from other magazines. Many are entirely new. Small groups of enthusiasts, with only a gleam in their eye, and lack of distribution and service, started their own small businesses. Most of these businesses around the ST didn't exist four years ago. The editors and staff of magazines and the owners of ST stores are often very young.

And because of the cowboy days of Atari Corp, the lack of information, programs, contacts, magazines, many user groups started. The model of user groups comes from the USA; these have existed around the PC's, Macs, and other computers. People met in the small shops, found they had common problems, and began meeting others. I started our user group simply because Karen and I couldn't get our printer to print our texts. Living in San Francisco, I had known many of the Mac user group people. A list of eleven names from an ST store, and we started. User groups run many of the BBS systems, print magazines, newsletters, and do much of the service and support which many dealers can't provide. User groups are a strange mix of dealers, programmers, professional users and beginners who have just bought their machines. Many user groups have grown and grown, turning into companies of their own.

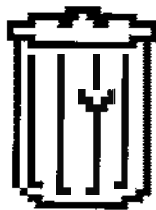This is the ST: a large informal network between Atari Corporation, all of the various national representatives, the third party developers and producers, the distributors, the magazines, both commercial and those from user groups, the BBS systems, and the user groups. Information flows very roughly back and forth; UG's and BBS's are often better informed than the distributors; one major ST magazine has only recently found out about a high level network system to which many UG's had access. A single group is often both the magazine, the producer, and the distributor. Authors both write commercial programs and review them. Contacts are often crossed and chaotic.

The purpose of this manual is to introduce you to all of this. Learn why there are difficulties in the ST, a computer designed and built in six months, learn what kinds of programs there are, and how to use many programs. And learn what information sources there are.

The whole story between Apple, Atari, IBM and Commodore is much more interesting than any Dallas TV show. At the Xerox's Palo Alto Research Center (PARC), the main parts of the mouse and windows idea were developed in the 1960's (they also developed an advanced interface system: SMALLTALK). Steve Jobs, co-founder of Apple, used to hang out there; at Apple he took those ideas and added his contribution: drop-down menus. The look of the windows was designed by Apple as well. Atari needed a desktop for their new computer; enter Digital Research (DRI). Digital still regrets that they were too stuffy to IBM's blue boys; IBM had been trying to buy an operating system from them, but Digital was too picky about the contract so IBM went down the road to a guy named Bill Gates, Bill had something he called Microsoft DOS. Opportunities of this kind only knock once and Digital certainly missed out. Anyway, Digital tried to make up for it by developing the GEM WIMPS environment. They licensed it it to Atari for use in the ST series. Digital Research wrote much of the ST's operating system on a contract for Atari Corp. GEMDOS, GEM, ST BASIC, and ST LOGO were designed by them. GEMDOS and GEM are poorly written; ST BASIC and ST LOGO are garbage. Silly and trivial errors were made in the GEM system (for example, the harddisk can't have a partition larger than 16MB, simply because of an incorrect number). Atari wrote BIOS, XBIOS, and ALINE. Atari got a pre-release version of GEM from Digital Research. Apple found out and sued, stopping further developments. Apple, being a huge company, could have kept the much smaller Digital Research out of the market for years (DRI had been losing money already). So they settled out of court and Digital possibly agreed not to sell any further developments to Atari. That's why, although better versions of GEM exist on the PC, we

don't get them for the ST. Our GEM has bugs and is slow. DRI has continued to develop a modified, limited GEM for the PC, which is available as versions 2 or 3. These versions of GEM however have only a few windows which can't be moved. And none are in ROM; PC people must start the program first. (There are rumours of a new GEM for the ST.) Apple deserves a great deal of credit for being innovative enough to bring such an advanced system to a market which was totally dominated by IBM. Bill Gates of Microsoft, which wrote MS-DOS, the operating system of every IBM PC and compatible in the world, (which has made him a personal fortune of 700 million dollars) laughed at windows and mice and said real men don't use that sort of stuff. Most PC users hate mice. IBM ignored windows. ("It has no use in the office.") DEC, which makes the best mainframes, has now agreed with Apple to use the Macintosh desktop as the interface to their mainframes. So what has happened to the other companies? Look at the new PS/2 from IBM. All windows. All mouse. Developed by Bill Gates, who now calls himself "The World's Greatest Expert On Windows And Mice". Hewlett-Packard (also known as HP, which stands for "High Prices") also copied the Windows/Mouse system. Which caused Apple to sue both IBM and Hewlett-Packard, The issue of developing a better mousetrap is Big Money. At stake is the control of the desktop office computer market for the next 10-15 years: a market which is worth at least 100 billion dollars in the USA alone. That is beyond even Alexis Carrington's dreams.

We can see that the desktop was designed for the office. The icons are similar to everyday office items, the processes as well. Open a filing cabinet, take out a folder onto the desktop, read a letter, and write an answer. Copies are made for the records. Old letters are thrown into the rubbish bin. This is fine for businesswomen and the guys in the typing pool. But this hardly fits most users; a chaotic mess of papers, notes, books, records, newspapers, spread all over the house. A better desktop, or screen image, is needed. Something that corresponds more closely to the average user's home office and his way of dealing with information.

Apple and Atari are not the only ones who play rough. IBM, which has been doing poorly lately, has begun to shake off the clones: all of those little companies which make copies of IBM computers. IBM cut the PC prices drastically. IBM began to buy DRAM chips, even though they make their own, in order to raise the market price. They have been bringing out new lines of PC products, forcing competitors to invest money in order to keep up. IBM maintains high quotas for their dealers, to force them to sell more and get rid of the lazy ones. The big boys play rough.

Many will wonder what the point is in discussing Atari Corp's and other companies marketing policies in relation to using your computer. Computering is such a young area; it shifts and changes literally within weeks. The computer manufacturers are centred on a group of idiosyncratic individuals. The start of Commodore's problems can be dated with the departure of Jack Tramiel; he bought up Atari, a sleepy little games company, and staffed it with talent from Commodore. If Tramiel drops the ST, hundreds of smaller companies drop developing products for the ST. Whether Atari markets the ST as a games machine, home office, technical/ scientific use, or business computer (or any combination of these) will affect the kinds of programs which are developed for the machine. No developer is going to invest time and money into a shaky market. Software houses are also dependent on their individual authors. Software houses sky-rocket both up and down. There are really only a handful of talented programmers and developers; if one leaves a company to go to another, the old company, unable to develop new programs, starts to lose its cash flow, and service, support, and further development of the old programs grind to a halt. A group of bright developers somewhere will come up with a novel way of doing something which not only sells very well but will also destroy other companies. The large package in which you invested becomes worthless without the continued refinements.

Atari has come under very strong criticism from developers and users. For all of their spectacular sales and profits, Atari doesn't bother much with the companies which develop hardware and software for the ST. TOS is faulty; it makes errors and is limited; it was poorly written. Atari kept coming out with new versions, endlessly changing the TOS; there are dozens of versions now. The latest is not 100% downwardly compatible.

Documentation for GDOS, a supplement to the faulty TOS, has been kept secret/unavailable for a long time, for no particular reason. User Groups, which are supported by Apple and IBM, are ignored by Atari. These criticisms from the main ST developers and programmers can be read on the major networks, often provoking responses from Atari.

This makes the ST a third party machine; practically everything to it was developed by companies independently of Atari. It is no secret that non-Atari components are usually
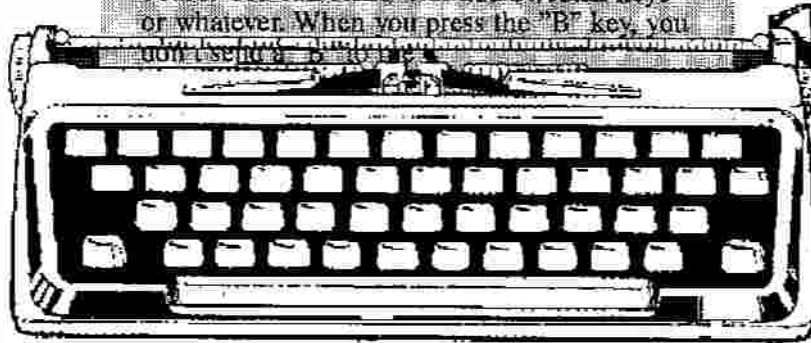
better than Atari components (especially hard-disks, drives, monitors). Practically no application software has been developed by Atari. We don't even have software guidelines for the ST; each developer must invent his own format. Hence, the ridiculous situation with graphics; it is a pain in the neck to convert pictures from one format to another. It took over two years to get a word processor which could use pictures. In contrast, all Macintosh programs are inter-compatible; just about anything can be moved from one program to another. This is unthink-able on the ST; try moving your spreadsheet into your word processor. And then into your drawing program. No way. The result means that hardware/software developers must think twice and twice again before entering the ST market. We users lose; we don't get radical, interesting programs for the ST. No one in their right mind is going to develop a totally new program on a machine which has such a difficult market.

Don't start wondering whether you should start looking for another computer. The ST is a great computer. It is extremely powerful. It works, all in all, very well. In terms of user friendliness, it is very flexible; high level programmers can work with it; kids can play games on it. It is VERY reliable. Salespersons will tell you that 30 to 40 % of a certain other computer need to be rebuilt; perhaps only two or three out of every 100 ST's have problems (and these are mostly just loose chips which are easily fixed). ST drives are very tolerant; they'll accept nearly anything (i.e. cheaper for your wallet.) There are lots of applications programs for the ST: business, writing, scientific, finance. 90% of all musicians use the ST; 70% of chess Grandmasters have ST's. And ironically, the fact is that there are more games, and more newer games, for the ST than the Amiga, that certified games machine. And last of all, price. The ST is simply cheaper. Power without the price. The price is of course customer support; you won't get any. The only alternative to the ST is the Macintosh II; and that is a large price difference. The West Germans and Dutch have really taken to the ST; it is their Mac. Lots of programs and hardware are created there. That gives us a solid base for developments, both for professional and private use. For the money, the ST is the best you can buy in Europe.

Chapter Two:

The Keyboard

You are not stuck with the layout of your keyboard. You can remove or add Swedish keys or whatever. When you press the "B" key, you don't send a "B" to the computer.

To understand how the keyboard works, we need a bit of computer theory. What is an ASCII table? An "A" is not just an "A." The way in which we count it and represent it are different. A language, such as German, is made up of 30 characters (the normal a,b,c, plus ä,ö,ü and ß). This is the "character set." Those characters can be written down in many different ways. A "font" is the collection of images which we use to write out a character set; the German character "a" is written with "A" and "a".

Computers need a method of dealing with character sets and fonts. This is done in two ways. The computer's character set is the numbering system which is used for each of the letters of the alphabet. The characters in the character set are numbered:A =1, B = 2, C = 3, etc. The computer's font, however, is the shape of those letters as they appear on screen. A matrix of dots is then assigned to each number. The dots draw the individual letters in the font's design.

These character sets are somewhat, and only somewhat, standardized. In the beginning of computers (over 10.5 million minutes ago...), every European country had its own numbering system for their local language characters. The German "ä" had a different number than the Swedish "ä." No one could agree without losing national dignity or starting a world war. So the American system, especially IBM's system, became the standard because IBM

itself is larger than most European countries. Americans don't use an "ä" so IBM numbered only the American characters. This set needed only 128 numbers (A, a, and several odd programmer's characters, such as [and]). Since computers work with binary numbers, it takes only seven bits to count 128 numbers (including zero). Because a byte is made up of eight bits, the eighth bit was left at zero. This character set is called the "small" ASCII set, the "seven bit" ASCII, or the "lower" ASCII set. "ASCII" stands for "American Standard Code for Information Interchange." After a while, the European computer companies realized that they could double the IBM ASCII set by using that left-over bit. The various European characters could be numbered. The extra characters which resulted are called the "high" ASCII or "eight bit ASCII." They start at number 128. However, again, the numbering was not very standardized, and the "Ø" has a value of 157 on the PC and 178 on the ST.

It is for this reason that PC's use odd characters for European characters. You can always tell if a PC person has tried to work with the ST, instead of using the eight bit ASCII, they substitute parentheses and slashes for characters.

Since we can number the characters of a language, we can also number the keys on a keyboard. These numbers are the keyscan code. When you press key number 37, the keyboard tells the computer that key 37 was pressed. A chip on the keyboard is called the ASCII generator; it holds the ST's table of ASCII characters. The keyscan code is coverted here into the ST's characters. The

computer looks at the ASCII table and finds out which character has been assigned to that key.

This means that the characters are not fixed to a key; they are merely programmed. You can move the characters around or that you can put new characters on a key. A keyboard editor, such as KEYEDIT, lets you change the keyboard character layout. If you write to Tokyo, but never to New York, you can change the $ into a ¥ sign. You still press the same key; the ST looks in the ASCII table and finds that a yen has been assigned to that key; a yen appears instead of a dollar sign.

Certain programs let you type ASCII values directly to the ASCII generator. For example, you need to use the yen sign. Look at an ASCII table, such as in the appendix of the Y2M. The yen's ST hexadecimal value is 9D and its decimal value is 157. The ASCII table lets you either find a character's decimal value or a decimal value's character. If you are using such a program, you can hold down the escape or alternate key and type 157 in the numerical keypad. The yen character will appear instead. Such a program is KEYMAC2; it is described in the accessories chapter.

Notational Systems Since we are talking about hex and decimals, we should look at what these mean. Numbers are numbers, but the way in which we name them depends on the notational system. It is not at all "natural" that we use the decimal numbering system; by using a binary numbering system, we could easily count to 1023 on our fingers.

Notational systems are described by the number of unique characters. A binary numbering system, also called base 2, uses two digits, namely one and zero. The decimal numbering system, called base 10, uses ten digits. The hexadecimal numbering system uses 16 digits; the first ten are our "everyday" 0,1,2, and 3 to 9. The decimal number ten is represented in the hexadecimal system with an "A"; eleven is B, twelve is C, thirteen is D, fourteen is E, fifteen is F and sixteen is 10. Computer people tend to ignore the zeros; it should be properly written as 0A, 0B, 0C, etc, but they usually write just A, B, and C.

Notational systems are not as strange as it seems. A cat is a cat, but the notational system which we use to write the word can be English, Arabic, or even invented simply for the moment; a child can represent a cat with a tin can.

Computers work with binary states: on or off. This basic notational system is called a "bit." A bit lets us describe two things because we have two information states (0,1); we can assign any meaning to them, such as on/off, yes/no, fire/safety, etc. If we cluster several bits together, then we can describe more than just two things. Two bits gives us four information

states (00,01,10,11). A computer doesn't need anything more than bits. We humans, however, would not use computers if only bits appeared on screen. We insist on alphabet characters. A combination of eight bits allows 256 information states; that is enough to describe all of the letters of the alphabet (the ASCII table) and make screens readable. This cluster of eight bits is called a "byte." Single bytes make up a letter. A group of bytes makes a word, such as "home."

If we doubled the table by using two bytes per character, then we would be able to describe 256 squared, or over 65,500 characters. There would be room for Japanese, Thai, and all of the other non-European characters.

Several accessory calculators can convert decimal, hexadecimal, and binary numbers. Try writing 157 in the calculator and convert it into Hex; it is 9D. Now convert that into binary numbers to see the byte representation of the yen character. When we write out a number as a word, that too is a notational system; "seven" is the written representation of seven. When we convert numbers from decimals to hexadecimals, we are only changing the way we write them. The value of the number itself doesn't change; ten sheep are ten sheep.

You should read this chapter several times; you will constantly meet these concepts in working with the ST. The keyboard, the TOS (chapter four), and the printer driver (chapter eight) are based on these principles. (The above was originally written for the Harlekin manual and is reprinted here by courtesy of the Mermaid Group.)

Changing the Keyboard Layout You can easily redefine your keyboard. This requires no expert knowledge; fools do it and their moms get so proud of them. Use KEYEDIT.PRG, a picture of your keyboard appears on screen; simply use the mouse to move the keys around or add new keys (for example, get rid of Swedish, and add German or French). You can easily make several keyboards, for different languages.

You can also place keys in places which are more convenient. The marks (') and (") should be together, and next to the shift key. The same for ? and !, these should be on one key. Add the French é and É to the keyboard, or whatever you need. Delete the ridiculous dollar sign; with President Wimpy on the job, it won't be worth much anyway.

You can also use these keys in the directory; instead of writing 1/2_POUND.DOC, you can just write ½_£.DOC.

You actually have not one, but five keyboards. You must think of several modes; the keys act differently depending on the board's mode. You change modes by pressing the SHIFT,

CAPS LOCK, ALTERNATE, or CONTROL keys. The first mode is the normal lower case characters. The second mode is SHIFT; small letters become UPPER CASE, with numbers remaining the same. The third mode is CAPS LOCK, the fourth is ALTERNATE, and the fifth is CONTROL; press these and then you have different keyboards. The standard keyboard setup, what you get from the factory, has the same thing on both SHIFT, CONTROL, and ALTERNATE. A keyboard editing program allows you to put different keys in the various modes; on the numerical key pad, which is rarely used in the higher modes, you can place all sorts of alphabets, such as German, French, and Spanish. The top line of numbers can also hold different symbols. Paste stickers on your keys so you know what's on them.

CONTROL

Programmers have many traditional key combinations. Pressing CONTROL and ? together often produces a few lines of HELP or other information. Control + S will often save the file. Many programs can be aborted by pressing Q, W, X, Z, or CONTROL + Q, CONTROL+ C, CONTROL+ W, CONTROL +X, CONTROL+ Z, ESCAPE, or F10.

Pressing control produces these symbols; you can rename your disk drives with very interesting names: e.g. Control + i = a little clock, a = up arrow, d = left arrow, h = tick, j = bell, k = music note, b = down arrow, c = right arrow.

How to Use...

KEYEDIT

A Keyboard Editor by Simon Poole

KEYEDIT lets you re-define your entire keyboard. You can move the keys around or place new keys on your keyboard.

Start KEYEDIT. Your current keyboard is shown at the top. The entire ST character set is shown at the bottom (see illustration). Click on a key from the keyboard; it inverts colour

(turns black); then click on the character from the set which should occupy that key.

First define the 'Normal' keyboard. Then click on Shifted. Place the capital letters here. Afterwards, be sure that a further capital character is on the same key in the CapsLock mode.

The numerical keyboard, including its Shifted

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and CapsLock mode allows a large number of extra characters to be placed. For example you would never normally use shift + 4.

An example of a redesigned keyboard:

Normal	Shifted	CapsLock
( ) / ·	[ ] \ ·	[ ] | ·
7 8 9 -	© ¶ ↑ =	ç ñ Ñ -
4 5 6 +	Ä Ö Ü □	□ § +
1 2 3 ä	ö ü ½ ¼	·
O .	O .	O .

Similarly, the row of number keys can hold extra CapsLock characters. Characters can also be placed on the shift + cursor arrow keys.

If you make too many errors, just QUIT and start again.

When you have finished editing the keyboard,

click on Create Loader. A file selector window appears. Give the file any name and give it a .PRG ending (e.g. MY_KEYS.PRG). Create a folder called AUTO on your boot disk and place MY_KEYS.PRG in it. You can of course create various such files and then place the one you need into the folder before booting up.

Make a test printout of every single letter, symbol, or character which your printer can make. Just because your character appears on screen doesn't mean that it will print, nor that it will print properly.

Keyedit is by Simon Poole, of Switzerland. It is freeware and widely available. It appears on STC_117. ASCILED, a similar keyboard editor, is on disk STC_164. There are a number of other keyboard editors. I prefer Keyedit; it does the job, is small (400 bytes), and works in any program.

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ESCape

The best trick on the keyboard is the easiest. You are working on the desktop, you have a window open, showing the disk contents. You switch disks. Do you close and reopen Drive A? Do you then click on Drive B? No! Just press the ESC key (Escape). The computer will then read the new disk. This updates the directory, checking again what's on the disk, but since you've switched disks, it reads the directory of the new disk and puts that in the window.

This works with RAM disks as well; click on the RAM disk window so that it becomes the active window and then press ESC.

(ESC) is a handy key. When changing directory lines, disk labels, whatever, punch ESC, and it clears the whole thing.

If you change disks while in an application, such as 1st Word, ESC can help. Load 1st Word (start the program by double clicking). Now, you want to change disks. Insert the new disk. Punch the cursor up arrow, this puts the cursor on the disk directory line (where it will read A: *. *). Now press ESC. that clears the whole thing. Now hit ENTER. The new disk is read as a default in A drive. If you have 1st Word in D Drive as a RAM disk, then instead of backspacing and typing some silly nonsense like A:\ *, just punch the Up arrow (the lift to the top floor) ESCape out the window and ENTER in the ground floor.

Return and Enter

Instead of pointing and clicking the OK box in the dialogue box, hit RETURN or ENTER. Both of these keys usually have the same function. You'll notice in many message boxes that one of the buttons has a darker border (such as in "New Folder" from the desktop). This is a default button; you can either click here or press Return or Enter. The programmer assumes that you will make this decision.

Holding the Mouse

Get in the habit of holding the mouse in your palm, clicking not with the tip of your finger, but with the middle of the finger. Not so tiring. And keep the mouse near the keyboard, so that you can hit ENTER with your thumb. This machine was not designed by a lefthander.

Just Type It

When renaming disk drives, or renaming file names, there is no need to backspace one letter and type in the new one; just type it. If the cursor is at the end of the line, it will automatically delete and replace the letter. Try this by clicking OPEN FILE in 1st Word and just pressing K, the .DOC will change to .DOK.

☆ ☆
How to Use..
☆ ☆

SCRDUMP.TOS

Screen Dump TOS saves the current screen on to disk. From there, you can load it into any painting program. This is useful for making illustrations of programs, etc. SCRDUMP also numbers the dumps consecutively, with the first one being 001.PIC and the second 002.PIC etc. Place SCRDUMP in an auto folder or double click on it. To make a dump, press Alternate + Help making sure that the disk from which SCRDUMP was started is in the drive. Each dump uses 2KB, so use a blank disk. Be careful! SCRDUMP doesn't recognise when the disk is full, so if you try to save on to a full disk, it will make a mess of the last picture.

Pathnames on One Key

You can also write the A:\folder*.PRG or whatever on to a keymacro program and then produce the whole line with one keystroke (thanks to HS). See the accessories chapter or a description of KEYMAC2.

Underlines

Typing an underline (_) in the top directory line will bomb many older ST's.

Printing the Screen

You can nearly always print the screen by pressing ALTERNATE + HELP. Many users hold the keys down too long; the ST begans to repeat stripes. Press the Alternate key and hold it down. Tap briefly the Help key once. To stop printing the screen, hold down the Alternate key and tap the Help key once.

When in Doubt, Punch Buttons.

Try every key on the keyboard, in combinations. You can't hurt the computer by pressing buttons. However, shooting the computer may damage it. Gunshots are not covered by warranties except in Texas.

The Early Versions of TOS are a Mess.

Each European country changed around in the TOS, mostly to put the local language and alphabet on to the keyboard. Many of these early TOS were designed poorly. This has resulted in a curious ability in many early ST's; On some foreign keyboards pressing CAPS LOCK and then ALTERNATE reverts the keyboard from the national language back into the American font; square and curly brackets, plus the backwards slash, can then be used.

Alternative Keyboards

An AT keyboard can be easily added on to a 520 or 1040 ST; AT keyboards are much better in quality. The standard ST keys are too "light" for large typing jobs. The AT keyboard connects to the ST with a two meter coiled telephone cable (similar to PC's). Your ST is simply pushed back into the corner. This requires no technical ability. (For more information: Velder XT/AT Keyboards. H. Velder, Nordbahnstr. 9, 1000 Berlin 51, Germany. Tlf. 030/431-6939. The price which was printed in several magazines was a print error; the correct price is around 250DM. Velder will ship "collect on delivery" to countries in Europe.

Erasing Keys

You will notice after a while that the letters on the keys began to disappear, especially the paper letters for the non-American keys. After a year or so of touching the keyboard, they just rub off. Clear plastic film is sold in sheets at any stationery store which can be cut to fit the tops of your keys.

I put a little red sticker on the F6 key (the Delete Line key for 1st Word). Then it's just a matter of reaching up and punching it; I don't need to look so carefully.

There's another way to deal with this problem, Atari finally found a factory in Taiwan which can make all of the various extra keys. Up to now, a special key had to be made with nearly all of the processes being done by hand; stencilling the character and then three paint jobs to get the colour right. The Taiwan keys are rather cheap. It is easy to remove and replace the keys on Mega ST's. Use a knife to gently lever the key up. It pops out.

Cursor Keys

The cursor can be moved with ALTERNATE + ARROW keys; press Alternate + Shift + Arrow for a smaller footstep. Press the keys ALTERNATE + INSERT for a mouse click; doublepress on Insert for a doubleclick. Press

Alternate, Insert, and a cursor arrow to drag an item. The only time I've found this useful is when you have to click the mouse a lot (copying disks, for example). Park the mouse over the box, and hold down the Alternate and Insert keys. Also this helps when reading long files. Park the mouse over the vertical bar on the right side of the screen, hold down ALTERNATE, and press INSERT as you read along. Careful, though, too fast and this sometimes 'freezes' the computer, nothing works any more. Panic. Try punching ENTER, or wait a bit. Waving a gun sometimes works.

Alt + Help

(Screen-dump) crashes quite a few programs, such as FCOPY2.PRG.

The Right Mouse

The right mouse button works on the desktop. When you have several windows open, point at an inactive window, hold down the right button, and point an click with the left button. The right button lets you work in nonactive windows. Nice, but useless. It's so easy to click up a window.

With new programs, alway try intuitive things. Many programmers forget to describe small things in the manuals. Always try the right mouse button. Click in odd or unexpected places; sometimes, surprises happen.

Viewing Text Files

You don't have to start up a program just to look at a text file. You can open a file directly on your desktop. Just double click on the file and choose SHOW to SCREEN from the dialogue box. Pressing ENTER scrolls one line at a time, pressing SPACE bar scrolls a whole screen. Instead of pressing ENTER and scrolling all the way to the end, press Q (quit). You're out again. ASCII files will show properly on screen; there are spaces between the words. Text files in wordprocessing format will be squeezed together or become a mess. This is one reason to use ASCII; you can make text files which can be read on screen without a word processor.

VIEW.TOS lets you read text files easily; you can page forwards and backwards. (Available from PD services. Originally appeared on the ST COMPUTER magazine disk number 118.)

An F Key Guide

Something difficult to describe, but rather handy, is an F KEY guide. If your different programs use different commands on the F Keys, this little device helps you keep track of

them. Take about fifteen or twenty sheets of paper, multicoloured if you like to party, all white if you work for the government. Bind them together with one of those plastic ring binders; go to any paper supply store; they have a hole punching machine which makes a row of rectangle holes on the side of the paper, into which a plastic ring strip holds the sheets together (it is difficult to describe, but you will know it when you see them). Use the smallest size, that is, the thinnest ones. Now use a paper cutter so that there is only a strip of paper 1.3 cm wide (as if you bound a book which is only 1.3cm wide, but normal length). Still following this? Good. Put the thing above your F keys. Trim to length. It sits there in the groove. Make a different page for each program that uses commands on the F keys (also a handy place to keep notes about other commands) Just flip the pages back and forth for each program.

A further suggestion: buy a spiral ring notebook and use a paper cutter to trim it to size. This results in many more pages and is much easier to do.

The groove makes an excellent place to park pencils, etc.

Fixing the Keys

ST's are made of cheap plastic. The keys break off very easily. There are many users with missing keys. I broke my Backspace key by dropping a 1,500 page dictionary on to it (small wonder!). Rubber cement doesn't work; it just gets loose after a while. It stayed loose for a long time, until a friend suggested model aeroplane glue; it's made for plastic (the guy at the store asked if it was for toy aeroplanes or toy soldiers. I said it was for my toy computer). It worked great. Solid connection. Be VERY careful not to glue the key to the sleeve; you'll freeze the whole thing. Use a toothpick to apply the glue. Let it dry for several hours.

Most dealers don't know about such things as keyboard editors and fixing broken keys, etc. KHS went by a Danish shop; there was a window display ST with an English keyboard; he put on a long face and said, well, without Danish keys, I just don't know ... so the price dropped £100. And the Escape key was broken ... Well... another £100 drop. A bit of glue and a keyboard editor: no problem!

Chapter Three:

The Mouse

By Theia Nordentoft

Don't Play With It

There's only one thing to say about the mouse. When waiting for a command to be carried out, or while opening a program, or while a text is being reformatted, etc, don't wiggle the mouse around. When the mouse moves, you send information to the computer; the ST slows down what it is doing and begins to pay attention to your mouse.

With a stopwatch, try loading a long program into the ST. Load the same program again and wiggle the mouse around. You can feel the difference. If you're impatient, hold the mouse up in the air.

Mouse Buttons

There are several things that the mouse does. There are right buttons and left buttons. These buttons are clicked once (clicking) or twice (doubleclicking) (pressing twice quickly). There is also dragging; press the button down, keep it held down, and move the mouse downwards to the right; this creates a "rubber band" box on the screen to select a group of objects. If the mouse is placed on an icon, the icon can be "grabbed" by holding the button down and then moving the mouse. The mouse moves vertically or horizontally.

The best way to learn how to use a mouse is with a painting program, such as Public Painter. When showing your ST to visitors, they have difficulties in coordinating the mouse movements and the arrow on screen. They tend to twist the mouse, which only makes a mess. If you start a painting program

for them, it takes them only about five seconds to learn to make lines and circles and boxes.

Hot Mice

The tip of the cursor arrow is called "the hot point." The pixel at the tip is the active part of the arrow. You must place the tip of the arrow (or tip of the finger, if it is a hand) on the button, etc.

The "Hot Point" of the mouse is located right at the arrow tip. If you click at something, select by using the tip of the arrow.

Mouse
"Hot Point"

The "Hot Point" is the active part of the mouse.
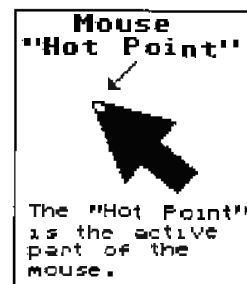
Clean Mice

Your mouse should roll smoothly. If it feels like it is rolling over rubber bands, then it needs to be cleaned. Open the mouse by sliding open its belly cover. Take out the ball. Use a cotton swab which has be moistened in alcohol (not dripping) and wipe the three rollers, turning them at the same time. This softens up the gunk. Take a clean, small, sharp knife (or whatever) and gently scrape the dirt from the rollers, turning them as you go along. As my chemistry professor used to say: Chemical Residue in Apparatus = CRAP. Don't scratch the rollers. Don't try and see how high the little ball will bounce. Put the mouse back together.

After a year or two, the mouse slowly becomes less and less responsive; you need to click several times, or press very hard. It gets worse and worse. This is a cleaning problem too. Turn the mouse on its back and remove the two screws. Gently open the case. Apparently dust gets into the microswitches; a puff of air cleans that out. While you're in there, the rollers can be cleaned very easily.

Mouse Tails

Several long time users have begun to notice that the mouse tail will start to wear out. Too much bending at one place will break the wire. This has started to happen to mice which are two years old. It is relatively simple to cut away the weak part and splice the tail together again with a solder iron and electrical tape.

Mouse Tail Surgery

If you destroy a microswitch in your mouse, by too much clicking or whatever, it may be possible to rewire the mouse and switch them around, so that you use the right mouse instead of the left mouse. The mouse is practically the only moving part in the ST; it is a good question how long it will last.

Kangaroo Mice

Some mice will go "walkies", as someone once put it. As you work on the keyboard, for no reason, the mouse arrow will fly across the screen. Notice that it only goes either straight up and down, or right and left. It starts up slowly and then speeds off. There was quite a debate in ST WORLD last year about this, with several different theories as to the reason why. There are also several different cures; many of which involve fooling around with the hardware. Try pushing the mouse plug tighter into the computer. It doesn't seem to be much of a problem; if it's not broken, don't fix it. Mine does it quite often; people are rather amazed when it goes flying off by itself.

Right Mice Buttons

Since we're on the mouse, I'll repeat an item which also fits here. The right mouse button works on the desktop. When you have several windows open, point at an inactive window, hold down the right button, and point and click with the left button. Holding down the right button lets you work in nonactive windows.

Speed Mouse

There is only one program for the mouse; it is also one of my favourite accessories. The Speed Mouse! This accessory puts chili pepper in that little kangaroo rat! Instead of a mouse which takes all day to get to the top of the screen or makes you wave your arm like a bird...the Speed Mouse moves! A simple flip of the wrist; the Speed Mouse goes from one end of the screen to the other. You don't need to move your hand so much. The Speed Mouse moves the mouse icon in a proportional distance. This is an accessory; it is available from many PD services. TO USE: Copy the speed mouse accessory onto a disk (not into a folder). Press Reset. Move the mouse and watch it fly! The default values are set to the highest degree. To slow down the mouse, click on the SPEED option; that changes the number of pixels per step. One is slow, three is fast. TRIGGER changes the mouse's take off speed. If you click on two and start the mouse slowly, the mouse will not run too fast. If you make the mouse jump, then it runs. This is useful if you work with a drawing program; you don't want the mouse to take off running when you are trying to draw. But it is nice to be able to pop up to the menus.

Florian Matthis, of West Germany, wrote the Speed Mouse program; it showed up here as a listing. Heine Svendsen typed and compiled it into a program. The default values were set too low; I set them higher and changed the message boxes. This new version has been around the world. In the beginning of July, I got a disk from Australia which had the Speed Mouse on it; I clicked it open and it started off with "Place your bets!" Home again.

Rat Traps

There is a second mouse accessory; the RAT_TRAP.ACC; this turns your drop down menus into stay up menus. They don't drop automatically when the mouse goes close to the top bar. To lower a menu, press a mouse button; the menu drops. Rat Trap does not run together with the Speed Mouse.

Mouse Pads

Oh, right, nearly forgot. Mousepads are all the rage. They really are better as a surface; the mouse runs smoother and doesn't get as dirty. Your desktop also stays presentable to decent folk. Don't spend money buying an "official" pad at a computer store; go to a scuba divers store and buy some Neoprene, the stuff that wetsuits are made of. That's what mouse pads are anyway (who ever came up with that?).

There are two kinds of neoprene: wetsuits and drysuits (A wet suit lets water in, but insulates. A drysuit keeps water out completely.) Use drysuit material. (If you use wetsuit, then it won't "hold" to your table top. Use some double sided tape to hold it down.) The stuff is expensive by the square meter, but you only need a 20X20 cm piece (mine is four mm thick)(that's 1/8 of an inch). If you use the SPEEDMOUSE.ACC, then you only need 16x16 cm. The saleswoman asked me why I wanted such a small piece of wetsuit material; I said that it was for my mouse. I almost got thrown out of the store. Don't hope for a free scrap of material; none of it is thrown away. They use the little pieces to make fingers for diving gloves.
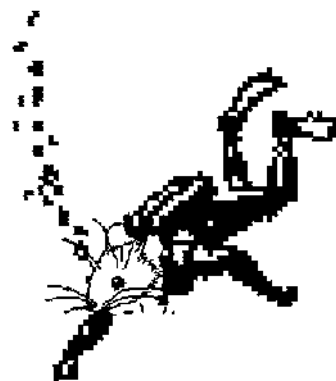
Chapter Four:

About Disks, Disk Drives, TOS, Formatting, File Storage, Deleting, Copying, and Fixing Your ST.

There are many misconceptions about formatting. These misconceptions are widespread. You will often read wrong or inaccurate information in many magazines. Many of the formatting programs available are poorly written; you risk loss of data by using them. If you do not understand what happens when disks are formatted, you will also lose files when using exotic formats.

TOS

It is very difficult to talk "just about the format", or "just about the files", as if we could ignore TOS. TOS means "The Operating System". (Carps will say it really means "Tramiel Operating System".) On other machines TOS is called the DOS, the Disk Operating System. An operating system means just that: it steers the operations that occur with file storage, whether on disks or in the memory. TOS keeps track of the files, both text and programs, which have been moving in and out of the computer. You notice TOS mostly as the File Selection Window: the box that shows up and lets you select a file.

When you insert a new disk, TOS reads the directory and the FAT (File Allocation Table) into memory. That updates the file selection window; you see which files are available. This information stays in the computer's memory until you insert a second disk. The old directory is erased from memory and a new directory is read in.

TOS is therefore an interaction between the memory, the directory window, the FAT, the drive, the drive head, the disk, the format on
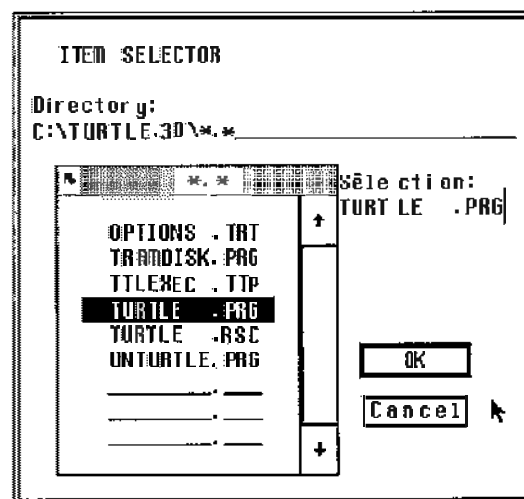
the disk, and the directory on the disk. Complicated? You bet! It is difficult to talk about any one of these in isolation; so to start, let's look at formats.

The disk stores data. That data must be placed on the disk in an organized fashion so that the drive can put it there and find it again. The FORMAT is the structure which helps the drive head know where the head is on the disk.

The spaces of the format and the information in them can be compared again to our small town post office; the postman has a wall of little boxes into which he sorts out the mail. Only one letter can go into each sorting box. If the sorting boxes were larger, then he could sort out packages as well. But then, much of the spaces in the boxes would be empty; not that many packages go to the smaller streets. Now, this postman can break up the letters so

they can fill up several boxes. But if he uses very small boxes, then he's going spend a lot of time breaking them up and putting them back together again. And the more boxes, the more work: instead of looking in 20 mailboxes, he has to look into 2000; that leaves him no time for fishing. So it is a back and forth play between finding the right size of boxes to hold the usual size of letters, and how much time he wants to spend on it. The postman can be thought of as the TOS: the one who stands outside of the boxes and moves their contents around; TOS can also decide how big the boxes, the sectors, will be.

A new disk is totally blank, just like a new post office which hasn't had any sorting boxes built yet. How that disk is formatted (structured) is entirely up to the person who writes the formatting program, considering the kind of information that will be stored, the time spent storing it, the time spent searching for it, and within the physical limits of the drive mechanism.

Assuming the Standard Format:

How Your Drive Works We will first look at a standard ST format, the kind of format which is made from the desktop's Format Disk option. Afterwards, we will look at ways of changing the format.

Your disk is divided into concentric rings, called TRACKS. On the standard ST format, track 0 is on the outside. Track 79 is near the centre. There are eighty tracks $(0,1,2,3.....77,78,79 = 80)$.

These rings, or TRACKS, are divided into SECTORS. These are numbered 1,2,3,4,5,6,7,8,9. Every sector can therefore be identified: for example, Track 54, sector 4.

On a single sided disk, the data is stored as following:

Track 0, Sector1	= Boot Sector
Track 0, Sector 1 -6	=FAT 1
Track 0, Sector 7 - Track 1, Sector 2	=FAT 2
Track 1, Sector 3-9	=Directory
Track 2 - Track79	=Files.

The first few tracks and sectors are used for storing information about the disk and files.

The Boot Sector contains information about the disk (its format, whether it is single sided or double sided, etc). There is default information for the computer; if you boot with an ordinary disk, the ST will start up with two drive icons and the windows set to display files as icons. If there are any programs which should start automatically, then they are noted here. It is here as well that many viruses are placed: they run automatically when you start up with the disk.

The File Allocation Table (FAT) keeps track of how your files are stored on the disk. For safety, TOS keeps a backup copy on disk; this is FAT1.

The Directory Sectors are just that: they keep a list of the files which are active on the disk. The directory keeps only the name of the file, the location of the first cluster for that file, the byte size of the file, and the date and time of the last change. This is the information that is shown in your window.

Starting at Track 2, sector 1, and going to the end, are the actual files.

On a double sided disk, the data is stored as follows:

Side A, Track 0, Sector 1	= Boot Sector
Side A, Track 0, Sector 2 - 6	= FAT 1
Side A, Track 0, Sector 7 - 9 plus	
Side B, Track 0, Sector 1 -2	=FAT 2
Side B, Track 0, Sector 3 -9	= Directory
Side A and B, Track 1-7 9	= Files.

Most file recovery programs are set to look automatically in a specific area for the directory sectors. We can immediately see problems. A recovery program made for single sided disks will look in track 1, sectors 3 to 9. But if we are using a double sided disk, then this single sided recovery program, set to look for directory sectors in track one, will only find files. A double sided recovery program will not be able to find the directory of a single sided disk', because it is looking for side B, which doesn't exist on single sided disks.

Each sector holds a maximum of 512 bytes, or 0.5 kilobytes (KB). Sectors are grouped in clusters: two sectors to a cluster. A cluster will hold therefore 1 KB (1024 bytes). The smallest storage unit is a cluster: only one file is stored per cluster. A file which is 11,214 bytes will be broken up and stored in 11 sectors: 100 bytes occupies a full cluster. This is effective with large files, but small files, fx degas brush pattern files, which are often fewer than 215 bytes, will be inefficiently stored; the rest is ignored; the one file per clusterrule means about 800 bytes of empty space. It is for this reason that you will often notice that a disk which holds many small files will often be full, even though the files only add up to, say, 316 KB of thedisk's 356KB formatted capacity.

Why are there two sectors to a cluster? To save memory space. There are 702 file sectors on a single sided disk: by grouping them into clusters, there are 351 clusters, which is half the number of places to look. The FAT table, which keeps track of all of these, is kept in the RAM memory; it doesn't have to be so large. On a hard disk, there are nearly 41 thousand sectors; to make that manageable, four sectors are grouped into each cluster.

The sector is made of a header, the file data, and a closing remark. As the disk head goes flying along, it meets a new sector. First it reads the information in the header which identifies the track number, the disk side information (whether side A or side B), the sector number, size of sector, and then the CRC, the Cyclic Redundancy Code (to check for possible errors). Then the head reads the data in the sector. At the end is the CRC again. This closes the sector. Now on to the next sector.

The head reads sectors 1, 2, 3, 4, etc in a row in each track. Then on to the next track. But to switch over from one track to the next leaves very little time, so to make sure that it has arrived at the correct track, it waits a whole new turn in order to read sector 1.

If the disk is newly formatted, then the drive starts at the outside and works its way inward, saving/reading data along the way. But if the disk has been repeatedly used (files deleted, saved, redeleted, etc.) then lots of spaces open up between active files. The computer will then store data not in one long sequence, but scattered, here and there, anywhere it can find space. This is effective for using the disk in the best way possible, although it will increase the time for the process.

It's a good trick (thanks to KHS), every once in a while to recopy all of your files. The files will then be placed in the most efficient way, one after the other, sector by sector, in one long line. This reduces access time terrifically. You can do this by transferring all your files into a RAM disk, deleting all the files from the disk (just throw them from the disk into the rubbish bin), and then saving again from the RAM disk to disk. This can save 30 to 40% time, especially on a boot disk. This is especially effective on a hard disk. Place the large programs first on to the disk; especially those programs which you read only and never change, such as 1st Word.

The disk drive head works in the most careful way possible; it floats over the first track and then moves inward. It starts at the outside the first time. This is not however efficient; the directory could be placed in the centre of the tracks, for example, and then the most distant file would not be more than half a disk away. TOS was written to be compatible with IBM PCs (you can find those in museums). Many ST users have noticed that they can read IBM formatted 3.5 inch disks. It seemed like a good idea. The ST and TOS were developed in only six months, and it was easier to adopt an existing standard rather than create a new one. In true Atari fashion they only got it half right—an IBM will not read an ST formatted disk!

A double sided drive works in the same way. Both heads move over the disk, but together, not separately. A single sided drive cannot read

a double sided disk because a double sided disk has track one on side A and track 2 on side B and track 3 on A side and so on; the single sided drive only finds the top side with tracks 1, 3, 5, etc.

When you format a disk, you can give it a "volume name." A possible use of this option is suggested by OB. He names the disk according to the formatting program so that he knows how it was formatted. It is rather difficult to change the disk names without a new format. VOLUME.PRG can, in certain cases, change the disk name, but only once. Again, this has to do with the nature of TOS.

Finally, there are programs to check the disk drive speed (eg SPEED.PRG). A correct value should be between 300 to 305 Rotations Per Minute. If higher or lower, it is possible that the drive head is reading/writing data incorrectly (the disk sectors will show up either too soon or too late for the disk head). You need to have your disk drive head adjusted. This can only be done by a trained service person.

TOS and COPYSTAR have a small bug; they show a wrong revolutions per minute value. You must subtract 2 or 3 from the final result; if it shows 304 RPM, then subtract 2; the true value for your drive is 302 RPM.

Non-Standard Formats

In the last few years, we have seen some very clever formats. Some of these place sectors in better patterns. Others take advantage of peculiar aspects of the disk head mechanism.

Why would anyone not use the standard ST format? Non-standard formats can do several things. You can format faster (in just 18 seconds). You can read/write much faster; often more than 50% faster. You can also put much more on a disk (up to 55KB more per single sided disk, or even 118KB more with a hyperformat). If you have 40 disks, this can be about 2000 KB more, just on single sided disks.

You must understand how a non-standard format functions. Otherwise, it is certain that you will lose data.

Back to sectors/tracks and their layout. There can well be more or less than 9 sectors. It is easy to use fewer sectors. Many special formatting programs can create up to eleven sectors. Claus Brod in Germany wrote a program which can create fourteen sectors per track. By changing the drive's hardware, he can put up to 1.2 megabytes onto a floppy disk.

Tracks There can be up to 86 tracks, for example, instead of 80 (the first track is number 0, so the 79th sector is actually 80). On the side of your disk box, the capability of the disk is stated: 135 TPI. It is a mechanical limit that keeps most drives from making

more than 82 tracks; the drive hits the end of the path. If you open the drive, you can file away the stop so that the drive head can reach further. You will also very likely knock the head out of alignment; your local repair shop can realign a drive for about £10. With 86 tracks on a disk at eleven sectors per track, that's 77 more sectors, or 35 more KB.

A formatting program also creates a sector called a BOOT SECTOR. The standard ST format always creates a boot sector; you can boot with any such disk. sectors; they are kept in the data sectors. The directory sector normally allows a maximum of only 112 files. But if you place files in a folder, then you can have an unlimited number of files.

Another trick is to make fewer directory sectors. The standard format uses 7 sectors for the directory, which allows space for 112 entries; you can keep up to 112 files on a single sided disk. This is somewhat generous; you could have for example a maximum of 64 entries. Do this by specifying only 4 directory sectors, instead of 7. That gives you three more sectors for data.

By these various methods, if you have a good disk drive and a good formatting program, you can place 11 sectors in 86 tracks, with no boot sector, and short directory sectors, all of which can give you up to 475 KB on a single sided disk or 950 KB on a double sided disk.

All of these various formats have names:

A STANDARD format has	357 KB per side
An EXTENDED format has	390 KB
A FAT DISK or FAT format has	412 KB
A HYPERFORMAT has up to	475 KB or more.

There is a way of improving the reading speed of the drive head. The sectors can be laid non-sequentially on a track. Instead of putting 1-2-3-4-5-6-7-8-9-10-11, the sectors can be 1-7-2-8-3-9-4-10-5-11-6 and on to 1 again; this cleverly gives the head a space between each sector. As it reads sector two, it finishes and is ready for sector 3. But on a standard format, 3 comes right after 2. That is too fast, and hence it must wait another turn of the disk. A non-sequential format gives the head a space between sectors to get ready for the new sector; it reads sector 2, skips sector 8, and then reads sector 3.

The ST's with the Blitter TOS automatically make spiral formats. It won't help anything to use a spiral formatting program.

It's in exploiting the mechanical characteristics of the Atari disk drive that FAST FORMATS are made. Since they give the head more time to read, by either skipping sectors or with blank final sectors, the head reads the data correctly. These "fast" formats are safe.

Using an exotic format carelessly may cause loss of data. If you have extra sectors/tracks, and use a sector copy program which does not know how to find those sectors/tracks, then the extra data will be lost.

Serial Numbers and Directory Crashes

The directory window, the TOS, the disk drive mechanism, and a misunderstanding of the disk identification procedure all come together to produce the next problem.

If you are at the file selector window in a program, you open a folder, look inside, and then close again, the ST immediately gives you the previous window again without re-reading the disk. The ST saves some of the information of the directory reading (the contents of the window) to memory. It assumes that you did not change disks; it just reads the previous directory from memory, instead of re-checking the disk.

What happens when the computer reads a new disk? The ST uses a space in the memory to hold information about the disk. First the directory sectors are read (file names, folder names, size, date, time). Then the FAT (File Allocation Table), which describes where the file is spread over the individual sectors of the disk is read into memory. The file names and folder names are sent to the file selector window.

When you enter a folder, the ST goes "down" into a second level. The ST keeps the first level in memory and reads the information for the second level from the disk. When you go into a further folder within a folder, the ST is then "down" three levels. As you move back up from the third level, it reads the second level from memory, not the disk. To go from the second level to the first, top level, it again reads from memory. At any point, whatever level you are in, you click on a file, the ST looks at the FAT in memory and knows where to start looking for the file on the disk. The entire time, the ST must be certain that you did not change disks; if you change disks, then the FAT information and the stored directories are worthless.

How can TOS check this? By issuing each disk its own identification number: the serial number. This is a random number between one and one million.

By "serial number" I don't mean the number that is printed on the back of the disk. Those are lot numbers: the production run of the disk. The serial number is kept in the boot sector.

The serial number is also exploited as a form of copy protection. When the original is made, the program will make a note of the serial

number. When you make your backup copy, your correct formatting program will give the disk a new serial number, as it should. But when you start up the copied program, it checks to see if the serial number of the disk is the same as the original, and if it is different, then it will reject the copy. In some cases, it may even reformat the disk or hard disk. Ironically, a "bad" formatting program (which does not set new serial numbers correctly) is good for making backup copies of programs which are protected in this way. Some of the newer copy programs let you choose whether to copy the serial number or create a new one.

Some copy protected programs will, at random, cause TOS to check the disk for the correct serial number. You will notice that the drive runs every once in a while. TOS is checking the serial numbers. The program will then compare that number with the number that the disk was given when it was formatted at the factory.

Try the following experiment. Start up 1st Word and create and save a small text file. Close all the windows. Take out the disk from the drive and put in another disk, which was formatted by the ST format menu and is not write protected ("write protect" is the little tab on the back corner of the disk). The drive noticed that you took out a disk by using a microswitch to check the write protect hole. (Some older ST drives used a small infrared light). The pin was moved for a moment as the disk went by, and then for a moment was free, and then moved again. Click on OPEN FILE. The drive will start up and read the directory. Click CANCEL. Open the directory again. This time, THE DRIVE DOES NOT RUN. The directory was read from memory. Click on the grey bar at the top of the file select window. The window refreshes, but the drive doesn't run. TOS knows that you haven't changed disks; the microswitch wasn't moved as if a disk had gone in and out. Hence it just uses the information from memory.

On every screen redraw, which happens about 70 times per second, TOS takes a look at the drive and checks whether the microswitch is moved.

Now take out that second disk and put in a third disk, but this time, make sure that the disk is write-protected (push the tab so that the hole is open). Open file select. The drive runs, because it knew a disk was removed. Click Cancel. Open again. The drive runs again. The microswitch pin sticks through the write tab; for all it knows, the disk has been moved. So it checks again. Click on the grey bar. The drive runs again. In the test above, the directories were read from memory. Now, TOS reads them every time from disk.

Since TOS, on each screen redraw, finds a

"hole", it can only assume that the disk has been removed.

TOS is checking serial numbers. When you format a disk, the disk gets a random number as its identification: the disk serial number. TOS checks these numbers to know whether it should make a new directory reading or whether it can just use the previous directory in memory. If TOS suspects that the disk was switched, it checks the serial number. If it is identical, then TOS assumes that it is the same disk.

This is where a great deal of problems come from. In the beginning, many people who wrote formatting programs didn't know about this. Some of the standard documentation (the books for programmers) contain an error. They don't mention that the serial number shown on the page is an example. So the programmer sets the number to zero or perhaps the same for all formats. You end up with a box of disks which are, to TOS, identical. When you start switching disks, TOS is going to start adding each new directory to memory, thinking that it is all the same disk; the serial number is identical. Imagine the problems if all women looked alike. This "false" serial numbering is the reason for most of the directory crashes, directory window problems, opening a folder but nothing happening, the screen just blinks, and "wrong" directories which most users have seen if they have used formatting programs (especially FAT formats).

For example, you're working in 1st Word; you open a directory, open a folder, and then switch disks and update the directory by clicking on the file selector's grey bar. TOS thinks that the same disk in in the drive (serial numbers are identical) and therefore will try to go "up the directory tree", that is, just return to the level above. But there it will find entirely different information. If you try to save your document at this point, say goodbye. TOS will use the disk information from the first disk (where the blank sectors are, etc) and save your document on to the second disk as if it were the first disk. Your data goes on top of other data. The ST uses the FAT from the first disk to save information on the second disk.

You'll get a totally blank directory window. Don't panic. Your computer can smell panic. Simply give the ST a disk which has been correctly formatted (that is: it has a unique serial number). The ST becomes happy, because now it KNOWS that the disk is different; it performs a new directory reading and everything is O.K. again.

It is therefore essential that you use formats which correctly give a random serial number to a disk. If you are having problems with the directory windows, now you know why. Use either the standard ST menu format, HYPER-

FOR MAT.PRG, FCOPY_2.PRG, or ALPHA-FORMAT.PRG.

Because of the whole serial number problem, I asked Soren Michelsen if he could make a quick little program which would report the disk serial number and allow a change. The program is called SERIAL.TOS. You can check if a disk has a unique serial number. You can also check if a formatting program is behaving correctly by seeing whether it is issuing unique serial numbers to copies. To do this, format two disks. Compare the serial numbers. If they are identical, delete the formatting program; it is poorly written; you will eventually confuse TOS by using disks with similar serial numbers; you will lose data, especially if you use folders. You can also check if a copy program produces correct copies; the copy should have a unique serial number (different from the original). Sometimes, however, you want to have the original number on the copy; for example, in order to make "working disks" of many copy protected disks. SERIAL.TOS lets you check it out and put in the correct number. You can also make double sided disks out of single sided copy protected program. Just copy the original with a RAM disk from the single sided to the double sided disk, and then change the double sided disk's serial number so that it is identical to the original single sided disk. All in all, a very useful little program. It's available from most PD services.

The information about the format of the disk is in the boot sector at the beginning of the disk. That is usually automatically read by a copy program when the disk drive starts up; but if the copy program is stupid (doesn't check for strange/different format structures), then it will apparently copy the entire disk, and, when you check it, everything seems to be there. But since the special format stores things in "extra" places, the copy program will not find that extra data, even with a format monitor and verification ON (telling the copy program to verify the copy). Most copy programs don't look for those extra tracks. Parts of your files will be missing. Asking the SHOW INFO doesn't help; it correctly keeps the information in the directory sector that your file is 243,678 bytes long, but that information is only stored in the directory sector; whether the actual clusters exist is another matter. The only certain way to make a backup of an extended format / fatdisk / hyperdisk is with a RAM disk or an intelligent formatting program. If you're going to make a PD disk which will be copied repeatedly by different people, then use the standard 356KB format.

The point is: use exotic formats only if:

* You know what you are doing;
* You are using a good formatting program;
* You have a backup.

The Famous 40 Folder Problem

Perhaps the most famous and most misunderstood ST problem. This is actually the 40-folder-visited problem. If you visit (look into) more than 40 folders during a single session, the ST disk will suffer a TOS crash.

Since the ST, to save your precious time, saves the directory to memory, each new folder open/close means a new directory and FAT table to memory. When you close a folder, that information is cleared away. Or should be. There is an error in the ST; it often doesn't completely clear away old directories. Bit and pieces remain there; after a while, it becomes a mess. You will notice, after a long session, that the FREE MEMORY accessory will report very little remaining free memory, even when there is nothing in the memory. Or you try to run a simple program and there is no memory left. Or you try to move a file and it only reports "illegal mouse move". Or you try to delete a file and a message box pops up "Can't find that file." All of these are a result of the 40 folder problem. Few people work so much in a session that this problem occurs. A simple, quick reset just clears the air and everything is ready to go again. If you really mess things up, only a cold boot, with a good five second pause, will help. The forty folder problem is an error in TOS and can't be changed without a major rewrite of TOS.
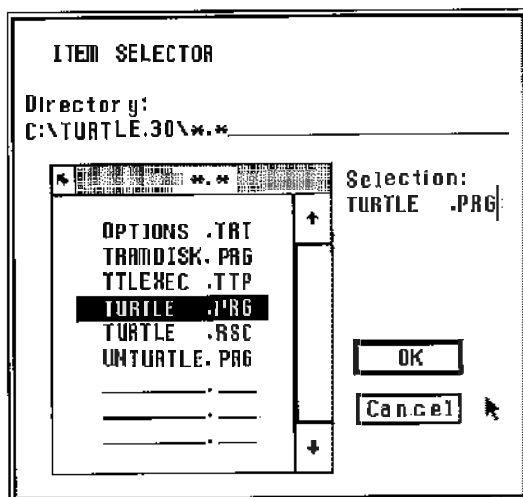
Fixing the problem:

* A simple reset every once in a while.
* Don't use so many folders.
* Don't run more than 40 disks through the drive in a single session.
* Don't copy a large number of folders without occasional resets.
* Use any of the programs called 100-FOLDERS or FOLDRXXX; these increase your folder limit by giving more space to the memory for dealing with directories (if you use such a program to allow 150 folders, for example, then you have a 150 folder limit.) FOLDRXXX was written by Atari Corporation. Of course, these work by creating a buffer, a space in RAM. That means that they take up space. A 200 folder limit requires 26KB. These programs are public domain.
* A little program from Atari Corp called DIRLEFT.PRG can tell you how near you are to the limit.
* The Blitter TOS ST's can handle 100-120 folders in a work session.

File Selector Windows

I wrote that you must click on the grey bar in the Item Selector window. Many programs fool around with this; it doesn't seem to be standardized. If you click in the slider box (the up and down space on the right side), TOS will read the directory from memory. You should use this if you haven't changed the disk (no need for a new disk read). If you have changed disks, then click on the grey bar for the first read. Thereafter, you can use the slider box. If you follow this procedure, you will never have trouble: the upper left black box to close a folder, the grey bar to read a new disk directory.

Red Light = Go!

It doesn't hurt anything if you put disks in or out of the drive while the drive's red light is on. Many users do this. Just shove one in while the red light is on, You can also take disks out of the drive while it is turning. If the drive is writing a file, however, you will lose data.

```
ITEM SELECTOR

Directory:
C:\TURTLE.30\*.*

[*]                *.*      Selection:
                            TURTLE   .PRG
  OPTIONS .TRT          [↑]
  TRAMDISK. PRG
  TTLEXEC .TTP
  TURTLE   .PRG
  TURTLE   .RSC
  UNTURTLE. PRG            [  OK  ]

  ___ · ___             [Cancel]  �陚

  ___ · ___          [↓]
```

If you accidentally delete a file, then you can instantly pop the disk out of the drive; this may save your file. It takes a brief second for the head to start deleting. (Tip to guys: hysterically leaping at your drive will not impress the Malibu surf foxes.)

About disks

Disks are made of the same stuff as cassette tapes and racing yacht sails: iron oxide on plastic. Disks last a long time; they should survive at least 35 million drive head passes. As the disk drive head passes over the disk (or rather, since the disk is spinning, as the disk passes under the drive head), a weak magnetic field is created, which magnetizes a spot on the surface of the disk. This puts the data on to the disk. To read the data, the drive head passes over the disk and detects this magnetic field.

There are two kinds of disks. Good ones and lousy ones. All disks are double sided. That's the way they are made. They are then tested. Double sided disks are tested on both sides; single sided disks are ONLY tested on the top side. That's all there is to it.

You can easily use double sided disks in a single sided drive; your single sided drive, having a disk head on only one side, simply can't use the other side (the bottom side, or "B" side).

You can use single sided disks in a double sided drive. Use a format checking program such as FCOPY2 or HYPERFORMAT and see if the double sided format is okay. It usually is. Perhaps one in several hundred won't accept double sided formats; usually, it is the whole disk which is bad.

Even if you have a single sided drive it is better sense to buy double sided disks; you will one day have a double sided drive. You'll have disks which have been tested for both sides. There is a very small price difference.

There are branded and unbranded disks. There are lots of rumours about this. The general story is that the Koreans began making cheap disks. The Japanese, the main manufacturers, let every one know that good disks had production numbers stamped on the back. The Koreans began putting numbers on all disks - the same number. The Japanese, who consider the Koreans the same way Americans think of Central Americans, began flooding the market with high quality disks as unlabelled disks at below production costs in order to destroy the Koreans' market.

There are plenty of cheap disks. Be careful. Some are cheap in quality; you can only format perhaps 60 percent of them. Have a written guarantee from a dealer you can trust that he will take back the bad disks. We have had spoken agreements which were forgotten after a week. If you are lucky and find a safe supply of unbranded disks, then you can use them.

It is often thought that Amiga drives are more quality sensitive; if an Amiga accepts a disk, then it is good; if the Amiga rejects the disk, then the disk is lousy. The Amiga drive uses more tracks. And the drive is not very good. Hence there are a lot of problems for Amiga users; disks are often rejected. Disks which are rejected by the Amiga run fine on the ST. ST users can use cheaper disks because of a better drive.

Which brand is best is a matter of discussion. Americans find Sony to be the best and BASF to be lousy. Germans put down SKC disks. As you can well think, it is never clear if loss of data is because of the drive, the disk, or the formatting program. (Consider especially the entire serial number debate above. I know quite a few programmers who still believe that all

disks have the same serial number). The program FCOPY2.PRG scans and checks each disk for bad sectors/format errors.

Deleting Files

We've talked about putting data on to disks, and moving them around, but what about getting rid of the stuff? You know by now that there is a FAT and the directory sectors, If they are blank, well, then there is nothing on disk. So... just blank them out with a disk monitor. A boot sector erasing program can do this. This is called "zeroing the medium." (Only English can make a verb out of a number.) If you want data and material on the disk to really disappear, only a new formatting will guarantee that. Otherwise, the local cop's 12 year old kid will happily tell in court how he got your files out.

PC users provide endlessly amusing stories. The White House uses IBM PC's. That's right. Ronald Reagan, Edwin Meese III, and Oliver North all had PC's, all connected in one big network in Washington. When Ollie did the silly things he did (sell weapons to the Iranian Revolutionary Guards, the guys who kidnap and kill foreigners in Beirut) in order to pay for Contra terrorists (who were partying in Panama, and occasionally selling General Noriega's cocaine in the US by flying it in on the CIA's Southern Air Transport aeroplanes and landing at Florida's Homestead US Air Force base) he did all of his work on his PC. No problem. Move money around in Swiss banks, send off sailing orders for Danish ships, order C-5A loads of Sidewinder missiles; just punch the keys. When "the shit hit the fan", as a very top White House person put it, Ollie just ran home and punched "DELETE FILES". Clever Ollie! The Congress wasted no time with his lie under sworn testimony ("No such files") and simply asked for the backups. Imagine Ollie's look when he said "Backups? What backups?" Too late: the White House didn't even know that there were backups automatically being made of all their little deals.

Okay, I can't fool you. You know by now that the magnetic field is still on the disk; only the formatting structure is gone. It is possible to re-create the format, without damaging the data, so that the disk can be read. And it is even possible to detect a "prior" magnetic field; just rewriting over the disk won't do it. This sort of recovery can only be done with sophisticated equipment. If there is information which must disappear (Hey, Ollie! Wake up!), then you must physically destroy the disk,

Disks have been subjected to all sorts of tortures so that magazines can amuse their readers. A Swedish magazine, just for fun, tested the effects of sugared coffee, finger-

prints, wine, etc on disks. If the disk is washed off in soapy water and dried, it survived. In fact, it was difficult to damage the contents of the disk. You must remove the disk from the case before cleaning it.

Copying Disks

There's a great story about an IBM user who was having problems with his programs; the distributor asked the user to send in copies of the faulty program so they could check it. And the user sent in two copies. Nice photocopies, front and back, of the disk.

Why copy? You need backups. Disks are not "stable". They can lose data easily. A wrong keypress, a bad program, a virus. Laying them on top of the TV, static electricity, losing them, or having them stolen. Backups will save you time. At some point or another you will lose a file or disk. I've lost entire disks, for no clear reason. If you can't afford to lose it, make a backup.

There is another aspect to copying: Piracy, which is the unauthorised distribution of a program.

Copyright law protects the author's right to distribute his material. You can't simply start publishing a book; you need the author's permission. This system developed over five hundred years and works very well with material which is printed in books. The production of books is a long, complex, expensive operation which has many traditions and is easy to control. In comparison, electronic information storage looks like Beirut. There are no traditions; the constant arrival of new technologies every five weeks causes everything to start all over again. Most computer program publishers have no idea of publishing. It is typical of a computer company to be staffed by people who need Mom's permission to stay up late.

Kids' willingness to share with their friends and their ignorance of the economic and legal implications of their actions have created an informal network that can distribute a program worldwide within weeks. PD's are an excellent example; a young, clever programmer writes a program and shares it with the general community of users without asking for the slightest bit of money. Recognition and acknowledgement is his biggest reward. Using networks, good PD programs are available worldwide within days of release. Commercial games are nearly always available even before they are officially released.

This is very similar to the situation in the 1600's with books and illustrations; most authors were anonymous. Any publisher, namely, anyone with a printing press, printed whatever he liked, without bothering to ask the author's permission. Cervantes fought constantly with

publishers who sold his Don Quixote. With respect to the electronic medium, however, serious problems arise. You are allowed to make one copy if it is necessary for the use of the program; this does not mean a backup copy. This means that when you start the program, it is loaded into the computer's memory. That is a copy. If you put the program into your RAM disk, that's an illegal copy. If you put the program into an EPROM chip, that's an illegal copy too. Copyright law is obviously outdated. But I am not arguing that it is okay to copy. Perhaps the law may not be well written, but fair play and a sense of respect towards a programmer's work are the main arguments against unfair distribution.

Back to copying: all computers can copy programs; it's in the nature of programs. Basically, you duplicate your source disk to your destination disk.

If you have a single drive, as most do, then you've noticed that it takes four disk changes to copy one file. If you're copying 57 files in 17 folders, take up knitting instead.

There are other ways of copying which make it easier.

The first is a FILE TRANSFER. You select the files from the desktop and copy them on to the new disk. The second kind is called SECTOR COPYING (also called "bit copying"); you copy sector by sector, regardless of content. Yea, for it is written in the Book of the Lord, Blessed are those who maketh their Backups (Romans, IV.15).

It is simple to copy several files (file transfer). A RAM disk works best here; transfer the files into a RAM disk, insert the new formatted disk, and transfer the files from the RAM disk to the target disk.
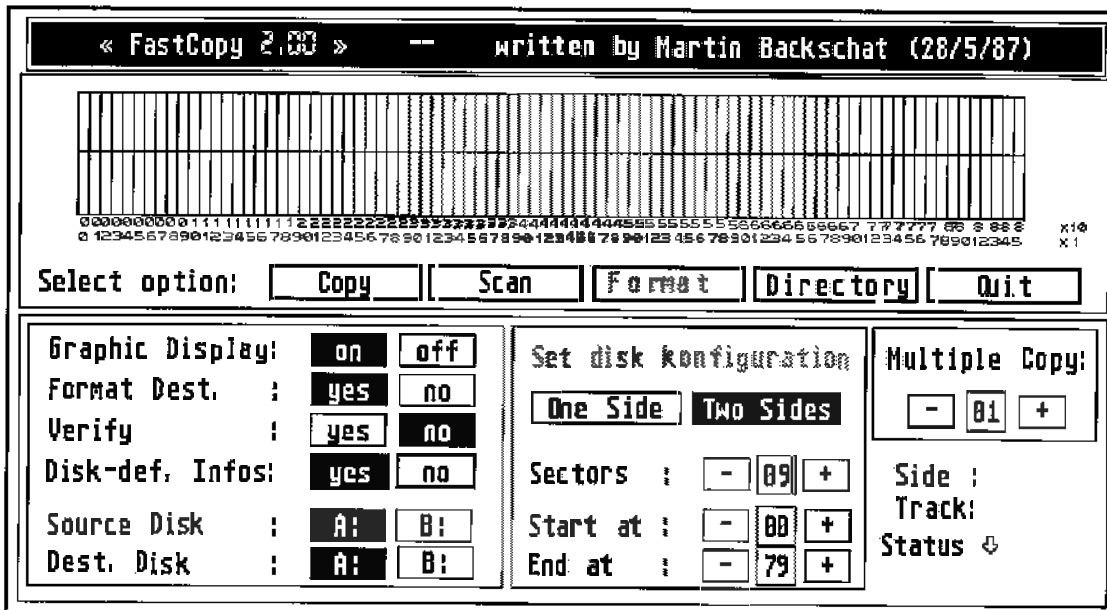
To copy whole disks, use a sector copy program. The program reads your entire disk into memory, and then throws it out again on to your new disk, formatting as it goes along. This is quicker. FCOPY2 is very fast (48 seconds for formatting/copying).

As noted above, you must be certain that whatever program you use, the serial number is set correctly; each newly formatted disk must have its own serial number. Of course, sometimes you need a formatting/copying program that will not change the serial number; if your program has a protection system based on serial numbers, then a new copy will create a new serial number, which the program will then reject.

If you need to make a backup of a copy protected program, buy a commercial copy program. These often sell specially because of their ability to copy programs which are protected (this is like selling armour to farmers to protect their cows against hunters, and then

selling armour-piercing bullets to hunters). There are different kinds of copy protection methods, But as soon as someone comes up with a new method, two weeks later there's someone selling a copy program which guarantees to copy it.

Dealer's choice: The quickest, most versatile, and easiest to use is FCOPY_2.PRG: user friendly surface, allows multiple copies, disk scanning (for formatting errors), sector control, verification, and directory listings. It creates Standard, Fat and Extended formats, plus various exotic formats. It is very fast. It correctly creates a unique serial number for each disk, but can also make copies with the same serial number. I use FCOPY_2 for all my PD work. Never a problem. Other copy programs: SUPERCOPY.PRG (it requires a minimum of 1 MB memory). PROCOPY V.1.41 and 1.5 (not a PD program), ST_COPY_30 (not PD), and BITTE_EIN_BIT (BIT_36.ACC or .PRG; this is PD) are all recommended by many users as well.

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┌─────────────────────────────────────────────────────────────┐
│ « FastCopy 2.00 »   --   written by Martin Backschat (28/5/87)│
├─────────────────────────────────────────────────────────────┤
│  [graphic display of vertical bars]                          │
│  0000000000111111111122222222223333333333444444444455555555556666666666777777 88 888  x10│
│  0123456789012345678901234567890123456789012345678901234567890123456789012345  x1 │
├─────────────────────────────────────────────────────────────┤
│ Select option:  [  Copy  ][  Scan  ][ Format ][Directory][ Quit ]│
├─────────────────────────────────────────────────────────────┤
│ Graphic Display:  on   off    │ Set disk konfiguration │ Multiple Copy:│
│ Format Dest.   :  yes  no     │ [ One Side ][ Two Sides]│  [ - ][01][ + ]│
│ Verify         :  yes  no     │                         │               │
│ Disk-def. Infos:  yes  no     │ Sectors : [ - ][09][ + ]│ Side :        │
│                               │ Start at: [ - ][00][ + ]│ Track:        │
│ Source Disk    :  A:   B:     │ End at  : [ - ][79][ + ]│ Status ⇩      │
│ Dest. Disk     :  A:   B:     │                         │               │
└─────────────────────────────────────────────────────────────┘
```

*FastCopy 2.0 is the best all-round
formatting and copying program*

How to Use...

FCOPY2.PRG

*A disk formatting and disk copying
program by Martin Backschat.*

Start the program by double clicking on the
icon. The FCOPY screen shows up. The top
series of bars shows the work in progress. The
lower part of the screen give you several op
tions.

Graphics Display: This option can be turned
off and the program will run slightly faster.

Format Dest. (destination): This will format the
new disk. If it is already formatted, then it will
copy faster if you don't format it while copy
ing. FCOPY2 creates fast format disks.

Verify: This scans each sector for errors. It will
copy more slowly if this option is on, but if
you need to be safe, then switch this on. If you
are sending a disk by mail, or making back
ups, you should use the extra check. Normally,
FCOPY2 can find most disk errors.

Disk Defaults: FCOPY2.PRG is an intelligent
copier; it reads the disk information from the
boot disk. If you have a disk with 46 tracks and
7 sectors per track, no problem; it will create
the same format on the destination disk.

Source Disk: the original disk, or, the disk
from which you will copy.

Dest. Disk: (Destination disk) the new copy.
First, select the drives. If you only have one
drive, then it will work with that drive in any
case. If you have two drives, then click on the
destination drive B: (Dest. Disk option.) If you
want to reformat the disk in drive B, then click
B for source disk.

Copy: click the COPY option and follow the
messages. If Disk Defaults are set to "yes",
then you do not need to use the disk configura
tion options. If you want to make multiple
copies, then click on the plus or minus signs.
Sometimes, a message will appear that a sector
can't be read. Keep on pressing Return and
after several tries, it may be able to read it. If it
can't, then quit. The disk and or data are dam
aged.

Scan: this checks the entire disk. Click on Scan
to check a disk.

Format: This option is normally grey, or off, so
that you don't accidentally reformat your disks.
Click "Disk Defaults" to "no"; Format be
comes available. Select whether it should be

single sided or double sided. If you leave the disk configuration values as they are, then the disk will have a standard ST format: 79 tracks and 9 sectors (actually 80 tracks: zero is the first). By setting sectors to ten, you add one sector more per track. Find the upper limit of your drive by making a format with 86 tracks and then scanning. If your drive can't find the 86th track, then make a new format to 85 tracks and try again. Since most drives can't deal with more than 83 tracks, you should start with 83. If that is okay, try 84. This is a rough test on your drive and should not be overdone. When you find the limit, write it on your drive. You can now format all of your disks to ten sectors/83 tracks, for example. Disks which you send to other people should however have a standard number of tracks: if their drive can't read the higher number, then information will be lost. All drives can read ten sectors. A further useful trick: if you are experimenting with disk editors or copy programs, then make disks with only ten tracks; it is faster to copy and there are fewer tracks to hunt through.

Directory: To check the format information of a disk, or to see what is on it, click here. If there is too much information to show on one screen, then press Return for the next screen. If the disk is unformatted, then remove, insert a formatted disk and press return. It can't recognize an unformatted disk and can't exit: this is a slight bug in the program.

Quit: quits. You can abort any process by pressing Escape.

In long copy sessions, it is practical to place the cursor over the copy box, press Alternate+ Insert and then Return. Alternate + Help will freeze the computer.

FCOPY2 originally appeared as freeware on ST Computer's disk 77. It is widely available and pretty much the standard copy/format program. Fast, small, and reliable. It correctly gives new formatted disks a unique serial number; copies receive the original's serial number. Martin Backshat, Bergstrasse 16, D-8071 Hepburg, West Germany. Tlf. 08456/5495.

Recovering Lost Files

To rescue things out of the garbage can. Okay, so you got careless, excited, or whatever, you've deleted a file or even your whole disk either by dragging it into the garbage can or by clicking DELETE in 1st Word. Of course you have a backup disk, haven't you?

Don't panic. The computer, to save time, doesn't actually erase the whole file, it just changes the directory name from an active file to an inactive file. On the next WRITE or SAVE, it will be written over. In certain cases, you can restore that file name, as long as you haven't made a new WRITE or SAVE. Programs called DISK DOCTORS will help you recover files. Before you attempt this kind of surgery, Herr Doktor, practise first. On a test disk, set up a file, delete it, and then load your disk doctor and try and recover it. Practise makes for good recoveries. Make a backup disk of your injured disk before you try surgery. Copying disks with a sector copier will copy not just active files, but also 'deleted' files, since sector copying copies everything that is in the sector.

Recoveries however have many problems. As we noted above, the fact that directory sectors may be in different places means that many of the recovery programs will not function on double sided disks. There is not yet a disk doctor that will recover files that either were inside a folder, or an entire deleted folder. Sadly, one cannot just enter the directory with a disk editor and simply restore the correct values (the value for an inactive file, the ASCII value called a delete flag, is E5; this is substituted in place of the first letter of your file name), It should be reasonable to simply change that value to anything else (eg 55, which is U). But

```
    0 1 2 3 4 5 6 7 8 9 A B C D E F
0
1   0   2 3 4 5 6 7 8 9
2   !  "  #  $  %  '  (  )  *  +  ,  -  .  /
3   0  1  2  3  4  5  6  7  8  9  :  ;  <  >  ?
4   @  A  B  C  D  E  F  G  H  I  J  K  L  M  N  O
5   P  Q  R  S  T  U  V  W  X  Y  Z  [  \  ]  ^  _
6   `  a  b  c  d  e  f  g  h  i  j  k  l  m  n  o
7   p  q  r  s  t  u  v  w  x  y  z  {  |  }  ~
8
9   É  æ      ö  ò  û      ü  ¢  £  ¥  β  ƒ
A   á  í  ó  ú  ñ  ñ  a  º              ½      i  «  »
B       ã  β      œ  Œ  Å  Ő
C   ij
D
E   α  β  Γ  π  Σ  σ  μ  τ  Θ  θ  Ω  δ  φ  ε  ∩
F   ≡  ±  ≥  ≤  ⌠  ⌡  ÷  ≈  °  ·  ·  √  ⁿ  ²
```

An ASCII Table in Hex values. To find the delete character (E5), find E in the left column and go across to the 5's column.

the directory entry contains only the file size, file name, and information which identifies the first cluster. Restoring the file name will save your file name, and only one cluster of material (about one screen full). The rest is still lost.

The following programs have a file recovery ability: DR_FLOPPY.TOS, GOODIES.ACC, MINIDOS (all PD programs). The ability is however very limited; you will need to experiment. H and D (Holmes and Duckworth's) disk tools FRECOVER.PRG (a commercial program) works with single sided disks, as long as the file was not in a folder.

There are different kinds of DISK DOCTORs. Some work by only opening the directory sector and changing files back from inactive to active. This is easy and quick. But if your disk has suffered a directory crash, in which the entire directory has been destroyed, then another kind of DISK DOCTOR is needed, If the first one is a first aid, then this second one is a sort of DISK SURGEON (as explained to me by Arthur Dent). This one goes through and reads each individual sector, cluster by cluster, allowing you to save those to a new disk, It's more work but it works in those cases where the first one doesn't. Such a program is RE-COVER.TOS (PD).

If the disk was a work disk, on which you have made countless write/deletes, you will find to your amusement that the file, especially a long file, has been scattered in bits and pieces all over the disk, Recovering can be done, but you will spend a long time putting it back into correct order. It is practically impossible to do this with programs; you can rarely distinguish codes from garbage.

Since your lost file has been changed from an active status to an inactive status, it is extremely important that you don't save new files onto that disk. If you do, then part or all of your lost file can be overwritten and then it will be completely lost! Not even the CIA can get this back.

It is often interesting to look on a disk to see what has been deleted. It can usually be recovered. A PC user received a demo version of a large business program that was worth £15,000; out of curiosity, he checked for deleted files, found the installation files, and got the program to function.

Disk Editors

One of the most powerful programs you can have, and certainly one program which you need, is a disk editor. Every user should have one, along with a word processor, a RAM disk, and a copy program. Yet it is at the same time a very obscure program; many users never grasp exactly what it is, or how to use it, With a disk editor (also called a "disk monitor" or a

"disk doctor"), you can look directly at the sectors and clusters on disk. Furthermore, you can change those bits directly on the disk. This lets you change the way the file will appear on screen. You can "customise" a program so that it fits your work. You can also translate a program from German to Danish, for example. You can improve the wording of menus and messages. With a disk editor, there is no limit to the amount of changes you can make. This is of course dangerous; a wrong byte, an incorrect value, and the program can be destroyed. Never work with an original. Make a copy.

The Resource Construction Set can be used as well to edit dialogue messages. RSC sets however are rather complicated programmers' tools.

There are many disk editors available. Of the commercial ones, DISK DOCTOR by Daniel Matejka, distributed by Antic is good. It has many options. GEM, dropdown menus, and lots of help. The HELP is actually over 20 pages long; it is a very well written guide to disks and using a disk doctor. I am always sorry to recommend programs which are usually unavailable. So...

How to Use...

MonoMon

A Disk Editor by Sven Geier

MONOMON is not just "next best". It is excellent. I prefer it to Antic's DISK DOCTOR for several reasons: the best is that you can run a program from within Monomon. This means that you can make changes in the program and then run it directly to check them. Furthermore, the options are all on screen at once: no menus. Best of all, MONOMON is free. There are also a number of other PD disk editors: DISKMON, DR.FLOPPY, and UTIL are all useful. ENGINEER is well recommended.

So... let's do something! For example, MAXI-DISK is in German and you want to make an English version. Copy MAXIDISK.PRG on to a new disk.

Start Maxidisk and write down at least one of the German words that appears on screen. Now start up MONOMON. Click on SEARCH. You want to find the bytes that contain particular German words so that you can translate them into English. Choose to look in ASCII so

you can work with alphabet characters, instead of hexadecimals. A word is called a "character string"; this means a string or row of characters. For example, "COMPUTER" is a string with eight characters. Type in one of the German words from Maxidisk, for example "Wieviele", and press return. The disk editor then begins to search sector by sector for a match; it will soon find "Wieviele". All of the screen text which appears in a program is usually together in one or two sectors. When you find that sector, write down its number. To the left of the screen are the hex values of the sector; to the right of the screen are the ASCII characters: the text. Now you can began to change bytes. Simply move the cursor on to the first letter of the word and begin to type. Turn the German "Wieviele" into English "How many". Go through the sector and turn all the German into English. You must be very careful to change only letters; spaces and periods are not just spaces and periods. A period on screen can actually be a code for the program to perform something; if you change it, the program may have problems. Watch the HEX codes to the left of the screen and see what values the characters have. It is often useful to print out the sector BEFORE you begin surgery; you can always change things back again. Unfortunately, you can't just blank out the area and write whatever you want as the new text must be either the same number of characters or fewer. It is a bit of a challenge to find a new word which means the same and doesn't take up more spaces. When you finish, click QUIT; a message box asks if you want to write the changes on to disk. Clicking YES means that the bytes on disk will be changed. Now you can start up Maxidisk and see if it appears in your language. Good work! If it is a mess, just delete it, make a new copy, and try again.

The .RSC files of all programs contains the screen text: that which you see in the menus and message boxes. All of that can be changed. It is child's play to translate a large program into English or Danish or whatever; you can do this in an afternoon. There is no reason to wait six or seven months for the commercial distributor to translate a program. Do it yourself.

More uses for a disk editor: The file selector boxes of many programs can be changed. TEMPUS's file selector box shows options for * .MOD and * .BAS (modula and basic) files, something which I will never use. It is however much more useful for me to be able to click on * .BAK, * .TXT, * .DOC, and * .LIB files. Just use a disk editor on TEMPUS, search for the

* .MOD string and change it. FILEFIX.ACC, the file selector, can also be changed so that .DOC, .LIB, .SDO, or whatever you like is shown in the extender selection buttons.

Many programs often have silly messages written by people who can't say something clearly. Change those stupid messages. It is not just poor taste, but very immoral, to delete an author's name and copyright message. Nor should you change the name of a program; it only creates confusion. There is of course the legal problem in making these changes; lawyers argue that only the author may make changes. One begins to suspect that lawyers are involved in a conspiracy.

You have a disk with 673 files; most of them contain your girl friend's telephone number, but your wife now has taken an interest in computers. How can you find and change those numbers without opening and searching every single file one by one? Let the doctor operate! Use SEARCH to find the evidence. You can then change the bytes directly into your mother-in-law's telephone number. Monomon's SEARCH option can scan an entire double sided disk in about 3 minutes.

We can change many things in the directory sector. The first line is the disk name; just change that for a new name. This is where files can be renamed, deleted, hidden, and unhidden. Print out the directory sector and try experimenting with the different values.

You can also look at the boot sector of a disk to see if there are any virus messages.

Monitors also help you with fixing a text in your wordprocessor. If you have a text which was written on another wordprocessor and there are problems with it, you can compare the various codes which are used to create the wordprocessing styles. Different wordprocessors use different internal codes. A disk monitor lets you see these and replace them. In the wordprocessing chapter, there is more information about this.

Monomon can be obtained from any PD library (disk No STC 141. Monochrome only) MONOMON is written by Sven Geier, Kausstrasse 17, 6430 Bad Herzsfelf, West Germany. Send a 10 DM contribution to receive an update. It is available in German and English.

Hiding a File

It's possible to change a file so that it won't appear in the directory listing. This makes it invisible, so to speak, so that no one else can find it. With any disk editor, go into the directory sector; the file names will be displayed. If your disk editor shows the name in ASCII, then add a "down arrow" (press Control + B). If you have to enter new characters in hexadecimals, then write 02 (zero two); this will appear as a down arrow. To unhide the file, simply remove that down arrow; replace the 02 with a 00.

I can't really find any use for file hiding, unless you want to hide something from someone else. The file is inaccessible; an accessory won't be loaded, programs in the AUTO folder won't start. It is much easier to just change the extender. If you want to hide the file, it would seem easier to me just to hide the whole disk under your mattress. In any case, this is how it is done or undone.

Fixing a Broken ST

The following piece of information is intended to be read only by users who know what they are doing.

After about 12 months and 5 minutes after you buy your ST, that is, five minutes after your guarantee dies, the entire machine will die. This has happened to quite a few users; you are working happily along, and you ask for a directory (open a window from desktop, load a new file, etc..) and there is nothing there. Your disk is blank. You tearfully try another disk. Blank as well. All of your disks are blank. Your girlfriend, hearing all this noise, comes into the room and asks what you are doing; you casually say "Oh, nothing. I just decided to turn the computer off for the evening." The next morning, you go down to the store; when you tell them what has happened, they grin (!). The salesman says "Well, we maybe can fix it. It will take two days." (After which his grin becomes even wider). (!!) You come back after two weeks of no ST'ing. Your ST works now. You shake the salesman's hand and gladly pay the 60 to 100 pound repair bill (two hours of expert technical work on the machine, says the bill). You walk away, waving; his grin is triumphant. (!!!) Why doth the heathen rage? That turkey plundered you for two seconds of work. Most likely he fixed it himself.

If this happens to you: blank desktop, no files in any disk, Zero bytes used, etc, then:

0) Read Point 11. Twice. Read everything once, and then once again.

1) Unplug everything. Otherwise your girlfriend will find Kentucky Fried Chicken sitting in front of your ST.

2) Flip your ST over. Take out all the little screws. Keep them separate; if you put the long (back) screws in the front short holes, they will go through the cover and stick out.

3) Remove case.

4) Lift off keyboard. Be careful not to twist or break off the keyboard wires. Notice the direction of the keyboard wires plug. Write this down. Gently unplug them.

5) Atari does not want you in here. More screws. Take out. Undo the little metal twists and remove metal plate gently. ST's are put together by 15 year old girls in the Far East. They have nimble fingers.

6) Now you can see the chips. The insides of the machine. Using the first three fingers of your five fingered right hand, gently press all the large chips squarely down. This does the trick. What happened was that the chips eventually get loose; the girl who built your ST had The Furs (Forever Now) on her walkman.

7) Start putting everything back together again. The cat hid the screws under the sofa. See point 2.

8) Plug it up again. Insert a disk, and start computer.

9) Your files are back from Limbo. Place £50 in an envelope and send it to me.

10) If this doesn't work, try again. If it still doesn't work, you have real problems.

11) *Any modification, change, opening, just peeking inside, fooling around, the cat did it, or whatever will cancel your warranty. The store loves to cancel your warranty for any reason. Do this at your own risk. It is not my fault, and I take no responsibility, if you ruin your ST or blow out the electricity.*

The Last Trick

When the going gets tough, get rough. If you are getting 0 bytes used, a blank screen, a choppy, partial screen, or getting more bombs than the Ayatollah, then:

1) Find a large, flat, solid surface.

2) Unplug everything.

3) Pick up your ST evenly about four inches into the air.

4) Drop it.

5) Other users prefer to slam it down, firmly and solidly.

6) This has the effect of jarring the connections. It works. If you are too gentle with the machine, ask your girlfriend to slam it

down. They usually do this happily. Be prepared to grab it away from her after a few swings.

7) Believe it or not, this is usually the first thing a repairman does with your machine.

Different Disk Drives

Atari Corp doesn't built the ST from the ground up. It buys many of the components, according to price changes, quality, etc. There are at least fourteen different kinds of disk drives inside the machine. Some of them work in very different ways. What is in there? The following drives have been used as Atari components: Chinon Model 353AT S/S, Chinon Model F-354-C D/S, Panasonic Model JU-363-03, Epson (all models), Toshiba (all known models), Teac (all known models), Mitsubishi (Panasonic), Fujitsu (all known models), Sankyo (most recent) (this list is from a Compuserve message by W.K. Whitton).

The CHINON drives have the small bug that they will not allow you to update the directory window by pressing ESCAPE. CHINON drives can be identified by the serial numbers 084... and 094... which appear on the drive's head print plate (near the 34 pin interface plug). This can be fixed in the following way:

1) If print plate 084..., then short circuit (connect) the pins 2 and 8 of the IC4. Raise pin 3 of the IC1 from the board and connect to TP2, signal IX. TP2 is near the step motor's socket).

2) If print plate 094..., short circuit pins 4 and 10 (connect together) of the IC4. Raise pin 3 of the IC1 from the board and connect to TP1, signal IXS. TP1 is at the corner of the board near the drive motor. The connection from IC1, pin 3, should be secured with silicone (or whatever) so that it won't shake loose if the drive vibrates. The CHINON drives don't use an infrared light to detect a disk change: they have a microswitch.

Whitton writes that disk drives with microswitches often fail after a while. These can be repaired by opening the drive, finding the little spring which pulls the microswitch back into place (find this by pushing a disk in and out of the drive; watch for the switch to enter the write protect hole), and then tightening that spring. If it is broken, then you need to find one by taking something else apart (your girlfriend's walkman, for example).

The Write Protect

Tab On the back of the disk, in the upper corner, is a small tab which can be pushed back and forth. When the hole is closed, then the ST can write on to the disk and delete files from the disk. When the hole is open, then the disk is write protected; it can't be changed.

This is one of the best ways to protect your disks. As a rule, your disks should always be write protected. This prevents accidental reformatting, virus infection, deletion, etc.

File Compression

One more thing. A file compressor can reduce the KB size of your file. These work by substituting long identical strings with single symbols, saving up to 50% or even 80% on text files. This saves space on disks, especially with backup disks; if you use a hyperformatted disk and compress all of the files into one, a terrific amount can be put on to a disk. Pictures compress up to 90%; think of a hundred pictures on one disk. This is also useful for transferring large amounts of data over a modem (it saves telephone time). ARC. TTP is the standard compressor (there are about five or six). See the communications chapter for more information.

Speeders

There are various programs called Verify Off or Speeders. These switch off the disk driver "verify read" or "verify save" function. The drive will not double check each sector. This speeds up the process by 50%. Some function only when reading, others work when writing to disk.

There is plenty of discussion about the safety of using such a program. If the drive reads a single byte incorrectly, and then saves it, the file will change. The chances of this happening are however nearly zero. You have a greater chance of becoming the President of the United States.

If you use fast formats, speeders have no effect. Fast formats are safe. Therefore, speeders are not recommended.

Disk Label Programs

There are plenty of programs which let you make labels for your disks. These usually display the directory, from where you can select the items to be printed. Some programs allow you to add graphics, either from an available collection or you can draw your own. Label programs require that you have disk labels on fan paper; this can usually be bought from a computer supply store. Otherwise, use paper and glue. STICKER, freeware on ST COMPUTER disk number 152, is very complete.

At a stationery store, you can get a marker pen that writes on all surfaces. This lets you put your name on the back of disks.

What to Do with Dead Disks?

Give them to children. They love having their own real computer disk.

The Book on Disks: Scheibenkleister II

This book is the definitive discussion of the disk. If you can read German, it has everything you ever wanted to know about disks, drives, RAM disks (programming disks using BIOS, XBIOS, GEMDOS), copy protection, protected copying (sounds like the armour for cows again), using, adjusting, and repairing drives and hard disks, both Atari and others, Hardware and software reference guide to the DMA chip, the drive controller, the hard disk controller; plus GEMDOS, BIOS, and XBIOS functions (also as a GFA Basic library for using in your own programs); System variables, mechanics, pins, ports, etc etc etc. Plus a disk: a track editor, a sector editor for disks, RAM disks, and EPROM disks, a hyperformatting program, nonsequential sectoring program, etc., etc., etc. Scheibenkleister II by Claus Brod and Anton Stepper. One thousand pages. Disk included. In German. Order from Maxon GmbH, Industriestraße 26, D-6236 Eschborn, West Germany. Tel. 06196/481815. The price is around 59 DM or £20 - an English translation may happen in 1990.

Hard disks

For professional or advanced work, a hard disk is very useful. A 20 megabyte (20,480,000 bytes) hard disk (HD's) holds the contents of nearly thirty disks. You can keep all of your programs and files on a hard disk. There is no need to switch disks. Harddisks let you read and write very quickly. In fact, the only use for your floppy disk drive will be to occasionally add new programs or files. You can work entirely from the hard disk.

Many of the new professional programs are very large; the programs often are 1000 kilobytes large. The files are also very large; 500 kilobyte files with Calamus are not unusual. The hard disk lets you store and work with such large files. For university work, a hard disk gives you instant access to about 6,500 pages of text.

Hard disks are measured in megabytes. One megabyte is 1,000 kilobytes. An ordinary disk with a standard format has 720 kilobytes. There are 20MB, 30MB, 40MB, 60MB, and 100MB hard disks. Prices are constantly falling. About 20 to 25 percent of ST users have hard disks now; nearly all professional users or doctoral students have a hard disk.

It is not desperately necessary to have a hard

disk. I have a 20MB hard disk, but I don't use it. The fan bothers me, so I loaned it out to a friend. A Mega-2 ST lets me make a 1.2 MB RAM disk; I use two double sided disk drives and my disks are hyperformatted to 950KB (thanks, Claus!); that's over 2 megabytes of storage space without changing disks. This system is good enough for me to write a 500 page thesis (with about 700 additional pages of notes) and this book. A good word processor such as TEMPUS or Le Rédacteur which loads and saves quickly to disk is necessary. Mac people nearly always have a hard disk, not because they are such cool dudes, but because they are forced to have one, the poor fools. The Macintosh has its operating system on disk; this must be loaded (and takes up RAM). Macs constantly need access to the disk; it is nearly impossible to use a Mac with just disk drives; Mac users need to swap disks the whole time. Try using a Mac emulator and find out how often you must "Please insert other disk...". Therefore, Macs must have a hard disk. The ST, with its TOS in ROM, saves both RAM memory and the startup disk. It loads a whole program into RAM. The total price of an ST system for serious work is therefore much cheaper than a Mac; we don't need hard disks. The ST's TOS, despite all of my complaints, is actually much better than the Mac operating system.

A hard disk is a small metal disk, about the size of a CD disk, which has been polished to such a degree that it reflects better than a surgical mirror. It is really a pretty thing to see. This disk sits inside a drive, with several magnetic heads on either side (all hard disks are double sided). When I was in college and visited the computer department for the first time (my university did a lot of the major research on computer image recognition; research that made the cruise missile into the peacekeeper it is), I was shown the large hard disks, which are about the size of a bicycle wheel, and told in a very dramatic voice how a smoke particle five microns large would slam into the drive head at 27,000 meters per second and destroy the entire medium. This story is told at probably every computer department in the world; I have heard many versions of it. Well... I was visiting a friend who repairs hard disks; I picked one up gingerly; he tossed the next one over to me, I asked if the things weren't sensitive. He laughed. He took the magnetic heads in one drive, pulled them apart, and "plinged" them together. The things are tough. Nothing happens to them. The disks were stacked up like old mail. I have transported my SH-204 in a small back pack; it also rides well on the back of my bicycle around town, without that nonsense of parking the head. Some time ago, while resanding the floors, the shelf upon which it was sitting collapsed and the hard disk

fell one meter on to a hardwood floor, landing squarely on its side. No problem. Considering this, there is no need for the head parking space. Using that as ordinary sectors gives you 1.5 MB more space.

The hard disk can run for a long time. The 20 MB Atari SH-205 hard disk on our BBS has been running continuously since November, 1987; The BBS's 520 ST has been running continuously since July, 1987. The screen is always switched off.

There is the older Atari hard disk (HD): the SH-204. The ugly box was replaced by the SH-205. Both have a fan. The new Atari hard disks are called Megafiles; these are available in 30 or 60 megabyte sizes. There are plenty of hard disks available from other manufacturers and there is little difference between them. Supra (called Frontier in the UK) are very good. 20 megabytes is about the contents of 28 double sided disks.

As I wrote earlier, the TOS was not originally designed to be used with a hard disk. Or, if it was, then it was poorly designed. No partition (drive) may be larger than 16 megabytes. Which means that a 20 MB drive must be partitioned into at least two drives; 16 MB in one and 4 MB in the other.

The 540 megabyte compact disk drives are a spectacular piece of nonsense. A single disk which can hold 30,000 to 45,000 programs is possible, but the copyright fees alone on such a disk would cost a fortune; if we consider that each program would cost £10, then the disk will cost a little under half a million pounds. This could be an idea for PD collections, which are free; the PC PD compact disk costs 200 dollars and has 45,000 programs. But PD collections are obsolete within 3 to 4 months. Commercial programs are updated every few months. And CD's are read-only; you can't change the data. Therefore you can't save program preferences, setups, etc etc. There is also the amusing fact that CD's aren't stable. They fall apart. Music owners began complaining that their CD's were getting worse; no one thought that this would happen. The aluminium oxidises; it rusts. Hold a CD up to a strong light; you will clearly see pinholes of light. Those are holes. 50 or so holes is normal, but this grows quickly; when it gets to 50,000, the disk is good only for playing frisbee with the cat. CD's were artificially aged; the life expectancy of a CD is anywhere from five years to eighteen months. Goodbye, Yellow Brick Road! Test CD's are now being made of pure gold. Until this issue is solved, nobody is going to store data on a medium that isn't stable.

Do It Yourself Hard Disks

It is possible to build hard disks using a cheap IBM drive and a controller. Several persons have done this. Sooner or later someone will began selling them; that should mean cheaper hard disks. A 30 MB hard disk can be built for about £300. Used 10MB hard disks can be bought for around £60 from places which repair HD's for large companies. The ST Club publishes a couple of information sheets on building your own hard disks.

10 Megabyte Floppy Drives

Another possibility is the new 10MB disk drive from Frontier. These use 5.25 inch disks which look like our 3.5 inch disks; each holds 10MB and has half the access speed of a hard disk. Simply insert and remove. The disks could give you a large storage capacity for the money spent. The drives cost about £800; each disk costs about £10. The price will certainly fall later. Other companies make hard disks with 30 megabytes, 40 megabytes, 60 megabytes, and even 120 megabytes.

Keeping Your Hard Disk Tidy

Many hard disk users notice that after several weeks of intense work, there is such a disorder on the disk that a hard disk will become slower than a diskdrive. Files are scattered over the entire surface of the drive, and it takes TOS quite some time to find all the sectors. There are four things to do about this:

1) Backup the entire disk and reformat. This takes time.

2) Move everything out of, for example, C drive into D drive, delete the contents of C drive, and move things back from D drive into C drive. They will be stored in sequential order. However, since hard disks are usually filled to the gills with all sorts of stuff, you rarely have room to move things. (Law 43: The amount of data always exceeds the storage space by 10% - this also applies to your wardrobe).

3) Get a program which reorganizes your hard disk. These cost around £30 to £50 and take about 20 minutes. Do this every three or four weeks.

TURBO.DOS

In previous versions of the Y2M, I recommended TURBO.DOS. I regret that I must recommend you not to use TURBO.DOS. In extremely rare cases, TURBO.DOS forgets parts of a file. This means that you will lose data. If your data is so important that you have

a hard disk, then you can't risk losing it.
TURBO.DOS was good because it managed
the FAT and directory information; this meant
that the ST could work much faster with the
hard disk even if files were scattered all over
the scenery. TOS V1.4 has a similar ability to
Turbo.DOS to manage file information.

Buying a Used Hard Disk

If you buy a used hard disk, a standard test is
to perform three disk scans. Get a written
agreement which allows you to return the hard
disk in case of problems. Hard disks suffer
mostly from construction faults. Several per-
sons have had hard disks which crash unex-
pectedly or lose material.

Auto Booting

The SH-205 set up program will easily con-
figure the SH-204 so that it can autoboot.

Hard Disk Trouble

Never start a new accessory or autoboot pro-
gram on your hard disk. If it is faulty or con-
flicts and crashes when booting, you can't get
into the hard disk in order to delete it.

To get into a hard disk:

1) Turn off the ST and the hard disk.
2) Turn on the ST with an ordinary disk in the
   drive and wait until the desktop appears.
3) Turn on the hard disk.
4) Insert the disk with the hard disk install
   program AHDI.PRG (Atari Hard Disk
   Install).
5) Start the AHDI program.
6) If the C drive icon is missing, create a new
   one with INSTALL DRIVE option from the
   desktop menu.
7) Doubleclick on the C drive icon; it will
   open. Go to the AUTO folder in the hard
   disk and delete the trouble maker.

The hard disk DMA port has a weak current in
some of the pins. This lets the ST know if the
hard disk is turned on or not. You must turn
off the ST before plugging or unplugging the
hard disk (or printer, modem, screen, or what-
ever). If the wrong pins accidentally touch to-
gether, then it's a visit to Mr. Fix-it Man.

Hard Disks and Disks

Having a hard disk does not mean that you can
get rid of your disks. In fact, you'll probably
have even more disks. You need to make back-
ups of the hard disk.

Local Area Networks

If you want to share a hard disk in the home or
office, network systems (Local Area Networks,
or LAN's) are possible. All of the ST's and
hard disks and printers are hooked together.
Every one shares the same programs and each
has his folder with controlled access. BioNet
and Pam net are well known. There are also
several simple public domain LAN's: NET-
WORK and ANET 2; these can be obtained
from most PD services.

Fan Noise

The worst thing about hard disks is the fan. It
makes a lot of noise. This is fine in an office,
where there is background noise, but in a
home, the high whining noise of the fan is
nearly unbearable. If you can get a hard disks
without a fan, such as IBMs, then it is better.

A simple solution is a HD thermostat. These
are simple devices which are added between
the fan and the hard disk. When the tempe-
rature begans to rise, it turns up the fan and
cools the HD down. These cost about £20 and
can be gotten from most computer stores now.
Turn off and disconnect everything. Open the
hard disk and clip the wires to the fan. Place
the device between the wires and rewire every-
thing. The hard disk can tolerate up to 50
degrees centigrade.

Switching the hard disk on and off does not do
it much good. In fact, switching computers on
and off is not good for them. The negative ions
surge in and bruise the chips' molecules. Lots
of people let their systems run constantly; my
ST is often on for two weeks straight. Our user
group's BBS system has been running since
August, 1987; this must be the world long dis-
tance record.

Hard Disk Cables

The older ST hard disk cable apparently is not
too well insulated. If it is too close to the moni-
tor cable, there will be interference; this shows
up when you write to the hard disk (save). Files
will either not appear on the hard disk or they
may be corrupted. Solution: move the two
cables away from each other. Monitor cables,
stereo cables, disk drive cables, etc. should not
cross over each other.

Programs For Your Hard Disk

There's a PD disk which has collected all of the
available HD programs; it has the strange
name "A Hard Day's Night; The Hard Disk
Disk for your Hard Disk." All sorts of tools

and utilities. (No. This disk will not "turn your single sided drive into a hard disk". People have asked.)

First of all, the hard disk AUTOBOOTER from Atari Corp for the 204 and 205 hard disks. This lets your hard disk boot itself.

SUPRBOOT.PRG lets you select the auto programs and accessories. AUTO_SEL.PRG is even better; it lets you select different setups.

To avoid the 40 Folder problem? Use the FOLDER.XXX, from Atari Corp. A small program DIRLEFT tells you how close you are to the limit.

Want to know what is on your hard disk?

HD_DIR gives you a full directory listing of the entire mess. Did you make a 2 MB file and need to save it to disk? SPLIT will break it into segments and save it over several disks. Let the VIRUS KILLER from Richard Karsmaker, Holland, keep your HD virus free. Sagrotan, the German virus killer, can scan an entire hard disk for all sorts of virus.

You can never be too careful: TURTLE 3.0 will make a full backup of your HD. If you preformat the disks, it's very quick.

VDOS

If you have a hard disk, this may be useful for you. VDOS is a complete desktop shell which replaces the GEM desktop. There are thirty or so disk commands, such as formatting, deleting, copying, disk directories, update, plus free memory, find, show or print a text file, verify on/off, display a calendar, print screen, use an accessory, set time and date, or reboot. Better still, up to 50 programs can be added to the bottom-up menus, so that you simply click on a program name and it is automatically found and started. Five of these programs can be placed on key macros. Press Control + W and your word processor starts up. No need to hunt around in windows and folders. VDOS is shareware; it comes complete and fully working on disk. It is widely available from PD services. If

you use the program, you must register with the authors; for your 25 US$ fee, you receive a 100 page manual with full documentation, examples, and tips. Marathon Computer Press, P.O. Box 68503, Virginia Beach, Virginia 23455, USA.

Hard Disk Bugs

Superbase Professional had a bug; when you started the program, you were asked to insert the original disk (that's not the bug), If you inserted the wrong disk, the disk and the hard disk were deleted. That was the bug.

FLEXDISK, a RAM disk from Applications Systems Heidelberg, will crash the hard disk if TURBO.DOS is loaded. Application Systems has rewritten FLEXDISK. Beware of early versions.

A small production series of 30 MB Atari hard disks have problems with the power system. First, a wrong capacitor was used; the supplier labled them incorrectly. This needs to be replaced. You'll know if your hard disk is affected; it won't be able to start up. At some point, the entire electrical system may have to be replaced.

Laser Printers and Hard Disks

The Atari laser printer is wrongly documented. If you follow instructions, you will have no end of problems. The documentation writes that the hard disk should be connected to the laser printer and the laser printer should be connected to the ST (hard disk + laser + ST). This is wrong. When you do this, the ST will make very minor errors of single bytes in writing files to the hard disk. You can check with Tempus; it can compare files. Compare the original file, such a Calamus, from the disk against the copy on the hard disk. One or two bytes will be missing.

The correct system has the laser connected to the hard disk and the hard disk connected to the ST (laser + hard disk + ST). The laser printer is connected to the hard disk's out port.

If you connected your system wrong, then you must check all of your programs. It is much easier to simply make new copies.

As part of a system, the Atari laser printer was poorly designed, to say the least. The laser printer must be turned on. Luckily, the back flap can be left open (remove the spring); this reduces a great deal of noise.

The laser printer must be turned on first. Next, the hard disk and then the ST. To turn things off: first the ST, secondly, the hard disk, and lastly the laser printer.

Chapter Five:

RAM Disks
Just What is a RAM
Disk?

Well, First, What it Is, and Then What it Does.

A RAM disk is a program which creates a virtual disk drive, 'Virtual' means 'as if' or 'fake'. The computer thinks that there is another drive. The program takes a chunk of memory (RAM) and uses it for holding data. The good thing is that this data moves back and forth very fast because the data transfer occurs directly on chip. There's no bother about the drive reading the disk; this is even faster than a hard disk.

RAM disks have all sorts of different names: Buffer Disks, Memory Disks, Memory Cache, Electronic Disks, Virtual Disks, and then there's the commercial products; K-RAM, to mention the best known, FLEXDISK and the FIVE-IN-ONE RAM disk. MAXIDISK, ETERNAL, Mike's RAMDISK, RAMBUFFER.ACC, and PROFILRAM are the the best public domain versions. MAXIDISK is the best of them all.

Different Types of RAM Disks

First of all there is the standard one; the size is fixed. You can't change it. Others are definable; you specify the size and set it up; you can't change it later. Reset and it is gone. Redefinable is better. You specify the size, set it up, and then change the size (smaller or larger) without losing the contents. A "volatile" RAM disk means that it can evaporate, that is, disappear. If you reset or the computer bombs, the contents are lost. "Reset proof" "Resident" or "resettable" RAM disks mean that the contents will survive a reset; you reset (either to

start up new accessories, delete others, hop out of a program, or you bomb out); no problem; everything is still there. Reset proof RAM disks will not survive if you switch the computer off. "Compressor" RAM disks will automatically compress the contents (and decompress to run or use); this lets you put for example nearly 500 KB of data into a 350KB RAM disk (the amount of compression depends on whether your files are text, programs, etc). And "dynamic" RAM disks have no specific size; you just throw whatever you want into the drive icon and the RAM disk will grow to fit. As you delete, it reduces in size again. Finally, RAM disks are available as both programs and accessories.

How to Get a RAM Disk

There are lots and lots of them in the PD services. MAXIDISK is the best; it compresses files, is reset proof, definable and public domain. It compresses files automatically (especially text files) so that you can hold over 800 KB in a 500 KB RAM disk. It has also been updated for the Mega-2 and Mega-4 ST's. Some people complain that it is a bit slow (it takes .000003 microseconds longer to open a file); for them it is available without the compressor. The ETERNAL RAM disk from the USA is also reset proof. RAMBUFFER.ACC is very easy to use; it can be deleted from the desktop without rebooting. It also includes a spooler which can be flushed. There are also various commercial RAM disks; the FIVE-in-ONE RAM disk from Holland is probably the best (I still prefer MAXIDISK).

FLEXDISK, from Application Systems Heidelberg, is an interesting RAM disk. It can be called up as an accessory and lets itself be resized without rebooting. If you have set up a 120 KB RAM disk and then need more room, then simply change the size to whatever you want. If the RAM disk is taking up too much room, it can be reduced in size. It can also be used as a C drive, from which AUTO folders and accessories can be started. It is reset-proof as well.

Beware, FLEXDISK V1.0 and TURBO.DOS do not accept being together; your hard disk will be deleted.

Saving a Lost RAM Disk

As with all RAM disks, there are possibilities of losing data. If the cat pulls the plug out of the wall, the entire system loses power and nothing survives. Depending on the importance of your file, maybe the cat won't survive either. There are certain crashes, especially those with three bombs, that destroy Maxidisk. This is extremely rare. If you have a memory monitor, you'll find that while the RAM disk can't be re-established, the data is still in memory. Using MONOMON, you can enter the RAM disk drive and salvage the data.

How to Use...

How to Use Maxidisk

A RAM Disk by Max Böhm

Maxidisk is a reset proof RAM disk. This means that in case of a crash, bombs, etc, you don't lose the contents of the RAM disk. Maxidisk also compresses its contents. File compression is usually about 30% for programs, 45% for text files, and 85% for graphics. A 200 KB RAM disk can hold perhaps 270 or even 300 KB of programs and files. This lets you have much more in the RAM disk than otherwise possible.

You can use Maxidisk in several ways.

Doubleclick on its icon. A screen appears which shows you the available memory and asks you to select a size in kilobytes (1KB is 1024 bytes). 30KB is the minimum and the maximum is your ST's kilobyte size.

Normally, you should use about 30-40% of your ST's available memory. Enter a number and press Return. A second line asks you the drive letter for the RAM disk. Enter "D". You can also use just about any letter of the alphabet. Press Return. You now return to the desktop. If you don't have an icon for the RAM disk, then create one by first clicking once on A drive and then going to the "Install Disk Drive..." option in the OPTIONS menu. Simply write the letter of the drive icon (for example, D) and press RETURN. The disk icon appears. Doubleclick on it to open the window. You can now copy files into it from your A drive.

To save the trouble of having to create a drive icon every time, insert your boot disk and select "Save Desktop" from the options menu.

```
INSTALL DISK DRIVE

Drive Identifier: D
    Icon Label: My RAM disk!

[Install]  [Remove]  [Cancel]
```
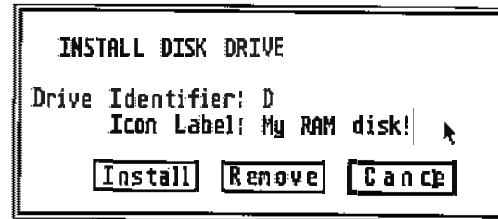
This saves the D drive icon into the DESKTOP.INF file on your boot disk.

When you reset, you must doubleclick on Maxidisk program again to re-install the drive. But this time, it automatically uses the values which you used the first time.

If you start Maxidisk from the desktop, a small blinking square will appear on the edge of the screen. This is a minor bug that occurs with a number of TOS programs. It doesn't affect anything.

To spare your trigger finger, place a copy of Maxidisk in the Auto folder. When you reset, Maxidisk program is run automatically from the folder and the drive is re-installed. This time, the "blinking block" bug doesn't happen.

AUTO

A very clever thing happens if you choose "C" as a reset proof RAM disk drive. The ST boots from a C drive. Therefore, if you place your accessories in C drive, it boots them there. This is much faster. This requires a second

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step. First, create Maxidisk in C drive. Open the C drive window. Now, select "Save Desktop". The DESKTOP.INF file appears in C drive. Copy this into A drive. Copy the accessories into C drive. Be sure that a copy of Maxidisk is in the AUTO folder. Now, press reset. The accessories load from the C drive RAM disk, which goes much faster.

More tips. You can configure Maxidisk to automatically have a pre-defined size and drive. With 1st Word, in WP mode off, write "250 C" and save the file w "MAXIDISK.INF". Place this little file on your start up disk with Maxidisk in the Auto folder. When you boot, Maxidisk looks for its .INF file, reads the information, and creates the RAM disk.

You can have a collection of programs which will be copied into Maxidisk automatically. To do this, you need a program called COPY.TTP. Add a second line to the MAXIDISK.INF file so that it reads:

250 C
COPY.TTP A:\STUFF C:

Save in "WP mode off". Place COPY.TTP on a disk along with the MAXIDISK.INF file.

Create a folder called STUFF. Copy your programs, documents, and accessories into the STUFF folder. Now, press reset. This file tells Maxidisk to startup the program COPY.TTP and to copy everything in the folder named STUFF into C drive. The STUFF folder can of course have any name, as long as it has the same name in the .INF file.

There is a further program: SET_TIME.TOS. Write its name as a third line to the file MAXIDISK.INF On the first setup, this asks you to verify the system date and time. Afterwards, the correct time and date will be used, even after resets.

Maxidisk, Copy. TTP, and SET_TIME were written by Max Böhm, Im Engelbrauck 5, 4670 Lünen, West Germany. Maxidisk has been upgraded to a new TOS version: MAXI4MB. There is a version of Maxidisk without the compressing ability; this runs faster. Since Maxidisk compresses the entire data into one large file, it needs to decompress each individual file when adding or deleting. That's why there is often a short pause. Maxidisk is freeware and can be obtained from any PD service.

☆

RAM Disk Applications

The best use for a RAM disk is to run your programs. Make a RAM disk just big enough to hold 1st Word and some files. Open the RAM disk. Double click on 1st Word and instead of taking ten seconds or so to load, it opens in less than two seconds. Create files and save them; it is very fast. There is no nonsense with the disk access speed. Pop out of 1st Word (QUIT) and then start up again. Out and back in seconds. It's great if you use big programs which require frequent changes to look at disks or use other programs in between.

Remember that a .PRG often has some .RSC files (RESOURCE) along with it. Those contain graphic notes, message windows, and perhaps various saved user specifications. All of these must be transferred into your RAM disk (for example, 1STWORD.PRG and 1STWORD.RSC, and, if you're going to print, 1STPRINT.PRG, 1STPRINT.RSC and the printer driver file 1STPRINT.DOT.

What other uses are there for a RAM disk? If nothing else, it is the best way to copy files from one disk to another on a single drive system. Copy your files into the RAM disk,

switch disks, and then copy from the RAM disk to the new disk. This means no countless disk swappings. Simply drag the DRIVE ICON into the new window. If you have no accessories, then you can make a large RAM disk, up to 80 or 90% of the entire memory, and copy entire disks as often as you like. This doesn't work with copy-protected programs, of course. Copying in this fashion is called a file transfer.

Booting From a RAM Disk

Another great thing about resident RAM disks; create your resident RAM disk in drive icon C. Click SAVE DESKTOP. The DESKTOP .INF file is saved not on the disk, but in the RAM disk. Copy that file from the RAM disk to your real disk (so that it is present in both A and C drive). Now... place all your accessories in the RAM disk. Reset. Voilà! They load not from disk, but from the RAM disk. Which is of course faster. The ST is set to use the C drive as a default for a hard disk; it will try to load from it first.

Note that if you SAVE on to a RAM disk, you have to transfer the data from the RAM disk to

your normal disk at the end of your work session. When you turn off the power, the RAM disk and everything in it disappears. If your ST loses power, then you lose data. If there are electrical storms, the electricity may fail. But of course, when there's a big storm, it's more fun to sit on the balcony with a bottle of whisky and watch the lightning (set your camera for infinite focus, f5.6, a wide angle lens (28mm or so), use a tripod, a manual release cable and let it catch a few good rays). If you are using a program which often crashes, then you will lose your data in the RAM disk if it is not reset proof. There are however some major crashes which can destroy even a reset proof RAM disk (this is very rare).

The problem, if any, with a RAM disk is that you have less work memory. If you start with 400 KB of memory in a 520 ST and cut up part and call it a RAM disk which you make 300 KB large, then your available working memory (what is left over) is only 100 KB. You can of course make smaller RAM disks, only 27 or 54 KB large, or any size you like.

How to Make a RAM Disk

First load a RAM disk program (doubleclick on it). Then use INSTALL DISKDRIVE in your menu. Some RAM disks will demand that your disk have the right "drive identifier"; others don't care and will work with any drive identifier. Make a new disk drive Icon, the letter must be in capitals, either C, D, E, F, G, H, I, J, etc etc, go all the way out to P if you like. TOS can't go higher than P. The description is up to you: 3rd Disk, RAM disk, Ram-drive, Disk, The Big One, Karen's Disk, or just blank; that line really doesn't matter. Click on INSTALL. It's now active. Use it just like a second or third drive. Don't format it; you don't need to. You can then copy data from your real disk into your 'fake' disk. And from your "fake" disk to your real disk. You can open multiple windows from that RAM disk icon and move things from one to the other. Deleting is very fast. If you want to keep that icon on your desktop for next time, click SAVE DESKTOP.

Some programs will not run in a RAM disk (ST Basic, for example, but that doesn't work anyhow) but others work very well and much faster. Degas, the drawing program, with all of its silly disk operations, works very well on a RAM disk. Flight Simulator is a pain in the neck on disk; just when it gets interesting, the screen stops so that the disk can load new scenery. Make a 350KB RAM disk (Maxidisk can be smaller) and copy everything over. Click on FSII.PRG. Instant startup, smooth operations and no silly disk loads.

If you've noticed then, by using the ESC key

to switch disks in A drive and using a RAM disk in C drive, there is no need for a single drive user to have a B Drive icon.

For those who think ST's are great, just look at the Amiga RAM disk. It is always available. It expands as large as needed, and automatically reduces when you delete material. Always resident.

Chapter Six

Fooling Around With Your Screen

Icons

It is curious that these little things are called "icons". The word comes from Greek and means "representation"; it now mostly means a religious pictorial representation, or an object of uncritical devotion (for example "$").

Before there were icons, there was the command line. You literally had to write a command for every operation. It is easier to explain this through the use of an example; you want to delete a file named BERT.DOC on a disk in drive A, stored in a folder called FRED, which in turn is stored in a folder called SID. In order to do this you had to type the following:

DELETE A:\SID\FRED\BERT.DOC.

Learning all the possible commands and typing them took a lot of time.

A major improvement was the graphics environment. Obscure commands were replaced by symbols. The idea was to use images and concepts as close as possible to the average user's daily world. The user, instead of writing out those commands, now simply moved the symbols around. The environment is called the "Desktop". The mouse was developed so that the symbols could be "handled". These symbols are the icons; they are desktop images which make it easier for you to manage data. The different icons have their own particular rules: a folder icon acts only as a folder; a program icon acts like a program. You can't make an icon do something else. This makes it easier to remember rules; instead of writing obscure command lines, you simply drag the different sorts of objects around the desktop and the various commands are carried out automatically.

Mouse Icons

The mouse as well has its rules; in the normal state, it is a little arrow. When a button is being held down, it turns into a little pointing finger. This is copied from the Macintosh mouse; when it is being dragged, it turns into a small gloved hand, which looks like it is holding the object. That is of course "more natural" than the pointing finger. All of these little images are there so you can identify what the mouse is up to.

Many of the associations between the icon and their rules are visual puns. The drive icon, which looks like a little filing cabinet filled with files and folders, will "open" when double-clicked.

Desktop Icons

In a window there are three different kinds of desktop icons. First, there are DISK icons; these look like file drawers; click on them twice to open. FILE icons can look like stacks of papers; PROGRAM icons look like nothing in particular. FOLDER icons look like and act like folders; they can hold both files and programs; folder icons are used to manage your data. There is also a RUBBISH BIN icon; anything (except a DRIVE icon) that is dragged on to the rubbish bin is deleted. That is easier and more intuitive than some bizarre set of commands such as:

"DEL C:\WRK*.CFG ‹ENTER›"

which just means delete. All of these, when

"active", change their colour (invert) so that you can see which one has been chosen. And there are MOUSE icons; these can change.

It is possible, with various programs, to change the shape of your icons. It is also possible to give the icons new properties. ICONE.ACC lets you design new icons for ST's with the new TOS.

You can experiment and find out that you can give any file a PRG ending and its icon will change to look like a program icon. Just try to start this new "program" of yours. Strange things happen - usually an Error #35; the data is not a program, even though its icon looks like one.

AUTO Folders

AUTO folders are special. Any program in a folder called AUTO will be automatically loaded when you boot. To create an AUTO folder, click on the NEW FOLDER option from the Desktop and write AUTO. Fill it up with all the spoolers, RAM disks, utility programs, etc. Press RESET; all of these programs will automatically start up. This works well, except with programs which have a lot of graphics (like 1st Word). Such GEM programs can't be booted in this manner. A boot disk with twenty programs in the auto folder and six accessories will take a loooooooong time to open; your computer has to read and load all of them.

A curious fact: the ST loads first the program which was placed first into the AUTO folder. This is not done by name or size. So, to be sure that a program such as SUPRBT2 starts first, move all of the files out of the folder, place SUPRBT2 first into it, and then copy the others back in.

Pre-1989 TOS ST's can't load GEM programs from the AUTO folder. There is a program which will let you load a GEM program (AUTOGEM). Just copy this into your AUTO folder, and, when you boot up, your chosen GEM program will automatically start up. (It is available from any PD service).
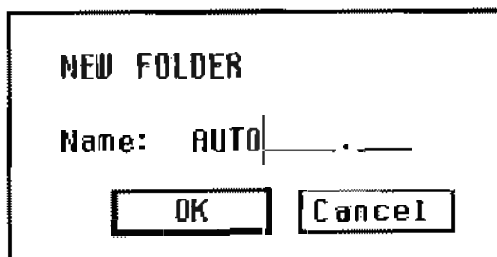
File Names

So now we have our file displayed in the window. Their names contain information for us.

The three letter EXTENDER at the end of the file name (e.g. .ACC, .DOC, or .BAK) is also pretty much up to the user, except a few are reserved for the computer (for example, .PRG, .ACC, .TOS). Give a file the extender .PRG and it will be given a PRG icon, regardless of whether or not it is a program. Many programs require that their files have specific extenders. Look at the other files in the program and use those extenders. Folders can be named anything except AUTO; the contents of AUTO folders (programs) are run automatically when the machine is booted.

.DOC is a common extender used by word processing programs. .BAK often means "backup"; these are usually deleted and overwritten when you save a new version. .TXT usually means text files which are in ASCII (ASCII will be explained in chapter eight). .TXT files can be read directly on screen without starting up a word processor. .TOS programs are usually simple programs without a graphics environment (GEM). .TTP is a kind of program which needs a command; usually you can type either the name of the program itself, HELP, or ? to get started.

What are those files which end in .RSC? That's where information about the program is kept. For example, when someone in Quezon imports 1st Word, they open the .RSC file and translate all the English into Tagalog so that the user gets his local language. It's no big deal to do this. But that's why you need to keep the .RSC files along with the .PRG when it loads; otherwise your program won't know what words to show on screen. Sometimes you can load an .RSC file into a disk editor and change the words so that the program will be personalised.

The choice of names for files and folders is practically all left up to the user. You can write anything you like, except small lower case letters. Underlines(—) create spaces, and the key ESCape deletes the whole line. If you have an old ST (with the old TOS), be careful not to use an underline in the directory line at the top of the Item Selector window; this crashes the ST. This has been fixed on the new TOS.
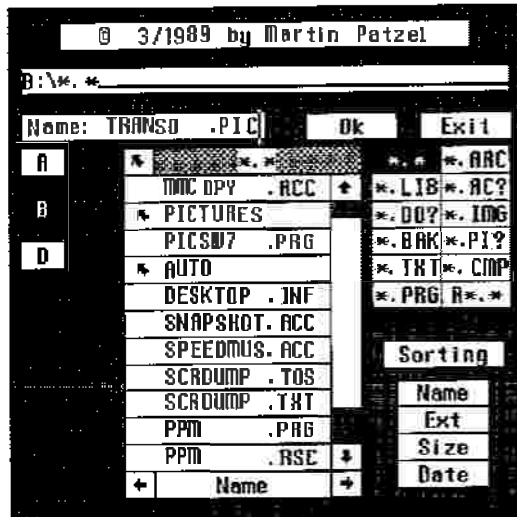

NEW FOLDER

Name: AUTO|_____.___

| OK | | Cancel |

FSELECT

New File Selector by Martin Patzel

What is It?

FSELECT is an improved file selector window. Whenever a file selector box is needed, the FSELECT box appears instead.

How to Install FSELECT

Place FSELECT.PRG in the AUTO folder on your start up disk. If you don't have a folder called AUTO, use the CREATE FOLDER option in your FILE menu from the desktop (and read this book more carefully)!

Contents

The first window is the file selection window. The top line displays the path. This can be up to 128 characters long; but only the last 38 characters are displayed. If you write a path in the path line, click in the in the redraw box which displays the search mask (e.g. "*.*") to activate a manually typed in path. If you write an incorrect path line, it is automatically corrected. Path lines must end with an extender (e.g*.*). However, you can write Drive plus colon (A:), this creates a "A:*#". The second line is Name: this shows the current selected item. It is here that you must write the names of files or folders you wish to select, create or delete.

By clicking on the copyright message, you get the second window. The active drives are displayed (maximum of 8 drives). Only active drives are displayed. Click to select. Doubleclick on a drive button for information (total capacity, space used, space remaining).

Click on an extender to mask the window (shows only files with extenders of that kind). Doubleclick on an extender button to edit it. You can save your new extenders in the second window (see below). The window can be sorted by Name, Extender, Size, or Date. Click on the right or left arrows at the bottom. If you sort by date the most recent file will be displayed first. The up/down arrows have a repeat function; hold down to scroll.

Second Window

Click in the copyright message to reach the second window.

This is made up of several parts:
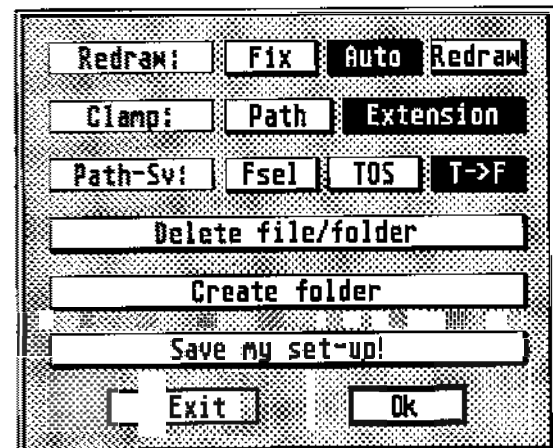
1) Redraw: When a file selector box is opened, the centre of the screen is taken up by it. The ST has to know what was there previously so that it can be redrawn after the selector box goes away. Several programs have problems in redrawing the screen after a file selector box has been used. These options let you take care of this.

1a) Redraw Mode: this lets the current program take care of redrawing the screen itself. FSelect does not bother with making a buffer. Generally, you should use this mode. If there are problems (grey bars refuse to disappear, etc), then select either AUTO or FIX.

1b) Auto Mode: If Auto is selected, then FSelect takes over the screen redrawing. The entire screen is moved into a 32KB buffer.

When the selector box disappears, the entire screen is moved back from that buffer and the buffer is deleted. This is an extremely fast way to solve this problem.

Some programs, however, grab the entire ST's memory, and don't leave 32KB left for the Auto redrawing. Therefore...

1c) Fix Mode: The 32KB buffer is kept permanently; it is not deleted. Thus FSelect, which is started first, grabs its 32KB buffer, and holds on to it. If you find that you are running out of memory, select Redraw, save configuration, and reboot.

So... normally, use Redraw mode but if there are problems (bits and pieces don't go away), then try Auto. If that doesn't help, exit the program, switch to Fix mode, save configuration, and start up again.

2) Path: Some programs let you define the paths. If so, then that path shows up. That's a program defined path. FSelect lets you choose whether that default path will be used, or whether FSelect should do the work. If you click FSelect, then it remembers the last path you used and will return there whenever you use the file selector.

3) Extension: the same thing as Path. Either you let the program choose the extenders, or FSelect remembers the last extender you used and displays that one. Le Rédacteur, for example, always shows * .LIB extenders first. If

you click Extension/FSelect, then you can avoid that.

Normally, leave both of these set to "Program".

4) Delete files/folder: first select a file or folder (click on it). Click on the copyright message to enter the second window and then click on "Delete files/folder".

5) Create Folder: Write the name of the folder in the file selector line. Click on the copyright message to enter the second window and then click on "Create folder".

6) Save Configuration: All the changes which you made (new extenders, which kind of sorting ((name, extender, size, date)) selections in 1,2,3) can be saved into the original FSelect. Insert your disk with FSelect and click here.

That's it. If there are bombs while booting, FSelect can be "ignored" by holding down the Alternate key during the booting.

FSelect was written by Martin Patzel, of West Germany. It was written at first for the German TOS; later, he adapted it to the Spanish TOS and then to all TOS versions. If you use FSELECT, consider making a contribution to Martin of £10, 100 Kr, 20 US$, or 30 DM. Martin Patzel, Promenadeweg 15, 7905 Dietenheim 1, West Germany.

☆

Working on Groups of Files

To copy or delete a whole group of files, just DRAG a box around them; this selects all. (Dragging means that you move the mouse downwards to the right, keeping the left button pressed.) You can hold SHIFT down and click on the individual icons. This lets you select a group of icons which aren't together. If you miss one, then they all revert to normal. This also works in reverse. If there are 27 icons on screen, and you want every one except the one in the middle, drag a box around everything so that all of the icons turn black. Then press shift and click on the icon you don't want. It turns white. This is called de-selecting (that is certainly not good English. Computers were obviously developed by Californians).
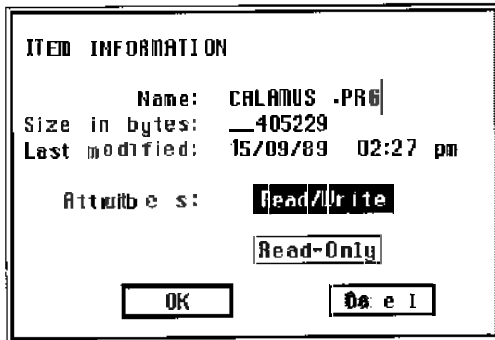
Various Notes to the Screen

The cursor. In 1st Word, you will notice a small black rectangle that moves about on your text. This is the cursor. Some people have spent hours trying to figure out how to get it off of
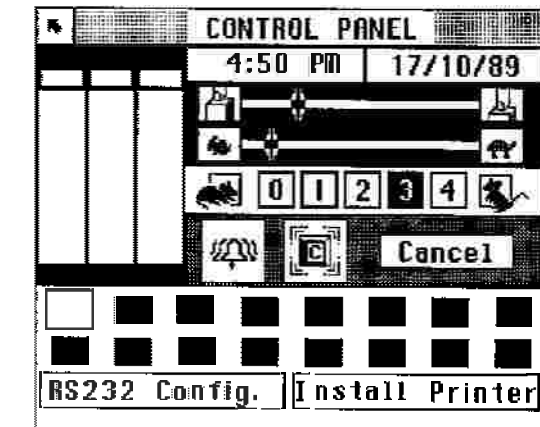
their text so that it would not appear on paper when they print it out; they try to catch it with the mouse and delete it. To those people: don't worry about it.

From the Control.ACC, you can move the three colour bars to the other end; the monochrome screen will invert colours to white on black. Move them back again to reverse this.

```
ITEM INFORMATION

         Name:  CALAMUS .PRG
Size in bytes:  _405229
Last modified:  15/09/89  02:27 pm

    Attribe s:   Read/Write

                 Read-Only

        OK           Da e I
```
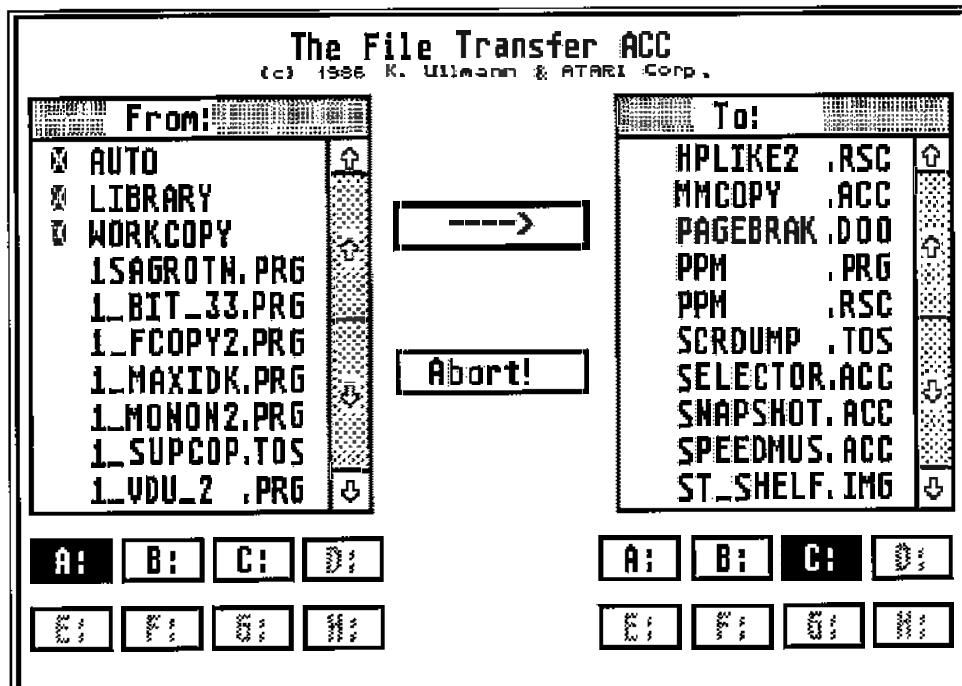
READ ONLY

The READ ONLY option is pretty useful.
Click once on the file. Use the pull-down menu
for File and ask for SHOW INFO. The message
box will ask, among other things, whether the
file should be READ ONLY or READ /
WRITE. If it is set to Read/Write, then it can
be deleted. If it is set to Read Only, then it is
protected against accidental deleting, changes,
or further editing. To remove this protection,
repeat the procedure. This is a simple but effec-
tive way of protecting your programs on your
work disks.

SHOW INFO also lets you rename files. An-
other way to do this, and often quicker, is to
make a copy of the file on to the same win-
dow; a message box appears which lets you
rename the copy. Then delete the old version.

Disk Icon Names

Click once on the icon and then ask for IN-
STALL DISK DRIVE under the Options menu.
Press ESC to delete the drive name and write
in a new one. This also lets you create further
drive icons; you can make up to 26 or so,
which is rather useless, as the ST can only
support two real floppy disk drives. Of course,
26 drive icons will impress anyone. You can
create two icons with the same drive letter; put
a drive A icon in each corner of the screen if
this will help you find it - they will all work in
the same way.

It is a nuisance when the file you want is
buried down in a bunch of other files. You
don't want to scroll down every time to find a
file. My main programs have been renamed; I
used SHOW INFO and renamed them with a
number. FCOPY2.PRG, which I use often, is
called 1_FCOPY.PRG. It appears at the top of
the pack. My virus killer is 1_KILLER.PRG.
1st Word and WordPlus let themselves be
renamed to 1_WORD.PRG, which brings them
up from the obscurity of the .RSC and .HLP
files. Most programs allow themselves to be
renamed, as long as the extender isn't changed.
Use 1_,2_, 3_, to place them in order of im-
portance at the top of the screen.

```
              The File Transfer ACC
               (c) 1986 K. Ullmann & ATARI Corp.

    From:                              To:
  AUTO                ⇧        HPLIKE2  .RSC   ⇧
  LIBRARY                      MMCOPY   .ACC
  WORKCOPY                     PAGEBRAK .DOO
  1SAGROTH.PRG    ----->       PPM      .PRG
  1_BIT_33.PRG                 PPM      .RSC
  1_FCOPY2.PRG                 SCRDUMP  .TOS
  1_MAXIDK.PRG                 SELECTOR.ACC
  1_MONON2.PRG    Abort!       SNAPSHOT.ACC
  1_SUPCOP.TOS                 SPEEDMUS.ACC
  1_VDU_2 .PRG    ⇩           ST_SHELF.IMG   ⇩

  A:  B:  C:  D:               A:  B:  C:  D:

  E:  F:  G:  H:               E:  F:  G:  H:
```

*Here MM_COPY is used to show files and
folders which are sorted according to the
numbers at the beginning of the file names.*

The DESKTOP .INF File

You will notice that when you click on SAVE DESKTOP option from the Desktop (with an unprotected disk), a little file called DESKTOP .INF is created on your disk. This has some very interesting abilities. DESKTOP.INF lets you customise your desktop. Assuming that your desktop was the way you liked it (icons had your names on them; icons and windows were in the right places; etc), then by having

DESKTOP.INF on your start up disk, things will always be to your liking. Press reset and the ST will start up again with your desktop.

You can edit (change) this file even more. WordPlus, ridiculously enough, can't open Desktop.Inf. Oh, well. Dig out your 1ST WORD (and switch to WP MODE off) or nearly any other word processor or text editor. Load DESKTOP.INF. Don't use WP MODE. You will see the following:

```
 1  #a020000
 2  #b000000
 3  #c7770007000600070055200505055522207705570750555077702111103
 4  #d
 5  #E  83  03
 6  #U  00  00  30  01  1D  17  08  C:\*.*@
 7  #U  00  00  10  01  1D  17  00  @
 8  #U  00  00  00  04  26  0E  00  @
 9  #U  00  00  0F  0A  15  0B  00  @
10  #M  00  01  00  FF  C  350  Ram Disk@  '@
11  #M  00  00  00  FF  A  Disk Drive@  @
12  #T  00  06  02  FF  Waste Basket@  @
13  #F  FF  04  @  *.*@
14  #D  FF  01  @  *.*@
15  #G  03  FF  *.APP@  @
16  #G  03  FF  *.PRG@  @
17  #F  03  04  *.TOS@  @
18  #P  03  04  *.TTP@  @
19  #G  03  04  1STWORD.PRG@  *.DOC@
```

This is my DESKTOP.INF. Yours will certainly differ. If you type all this into an ASCII file and then save it with the name DESKTOP.INF and re-boot, your desktop will be the same as mine.

What does all this mean?

Line 1: The settings for SET RS232 CONFIG.

Line 2: Settings for INSTALL PRINTER.

Line 3: Colours and Key Repeat from CONTROL PANEL.

Line 4: Not yet in use.

Line 5: Saves SHOW DIRECTORY command.

Line 6-9: Determines how and where windows will open (fx, line 6 has the command for a window for Drive C to open)(C*.*@)

Line 10, 11: DRIVE ICONS. The coordinates, values, identifiers, and label (name of the drive icons).

Line 12: RUBBISH BIN ICON. The coordinates, values, identifiers, and label (name of the rubbish bin icon).

Line 13, 14: Commands for which files/folders will have icons.

Line 15-18: Which files can be run as programs, and what kind of program they are: GEM, TOS, TTP.

Line 19: Which programs are INSTALLED APPLICATIONS and the type of files for each (e.g. Line 19, "1STWORD.PRG@ * .DOC@" 1st Word has been set up to load when any .DOC (* .DOC) is doubleclicked). If there are further INSTALL APPLICATIONS, then they will appear as extra lines.

If some Californian wrote TRASH on your rubbish bin, you can rename it. Simply edit line 12. First, ON AN UNPROTECTED FORMATTED DISK, click Save Desktop from your Options menu. Your desktop configuration will be saved to your disk in a file called DESKTOP.INF. Now load 1st Word, switch off WP MODE, and open DESKTOP.INF. Half way down the middle, in line 12, you'll see the old name 'TRASH' or whatever. Carefully delete those letters and write in your new name (GARBAGE, DELETE, Temps Perdu, Paper Wolf, BLACK HOLE, Goodbye, WC, Niemehrsehen, Tax Office, etc). There's only enough space for 12 letters; so experiment. It is not necessary to use capital letters. Click SAVE

FILE. Re-boot. If you did it right, your waste basket has a new name. If you did it wrong, just delete the file and start over again.

You can also rename your disk drives here (lines 10 and 11), instead of using the INSTALL DRIVE from the desktop. Just delete the old name and write in your new name with a maximum of 12 letters. (e.g. Drive, Disk Station, My disk, Top and Bottom Drive or Left and Right, Hard disk, RAM disk, Virtual Disk, Library, Hot Mama!, 500KB, The Big One, or just blank). Save and reboot.

You can also change the *.* in line 6; this determines what kind of files will be shown. *.* means that all files with all names and all extenders will appear. If we change this to *.PRG, the window will only display any file with the ending .PRG. (This trick is especially useful on a hard disk, where you keep only programs, and don't want to see all the silly .RSC files).

Furthermore, Line 19 can also be used to let your system look in another drive for an in-

stalled program. If you try to run an installed program from Drive B (C, D, etc.) and the program is in Drive A, TOS will often success-fully look "upwards" into Drive A. But if the program is in Drive B, C, etc, and you start the file in A, then TOS won't think about looking "downwards". By adding a pathfile to the program name, you can have the program in a second drive (your hard disk or RAM disk) and just doubleclick on the text file in drive A. If I place 1st Word in a folder called "WP", I would thus write:
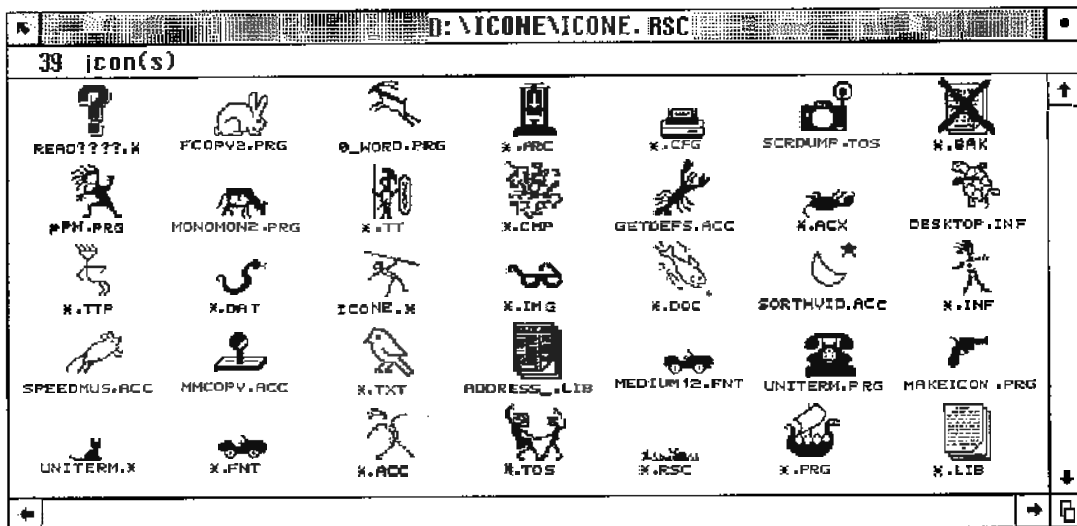
C:\WP\1ST WORD.PRG. * .DOC@

This tells TOS that when any .DOC file is clicked anywhere, it should look for 1st Word in Drive C, and in a folder called WP.

And last of all. You've noticed that once you've installed a program, it stays installed. You can't "de-install" ("de-stall"? "un-stall"? "out-stall"? Whatever.) You usually just make a new DESKTOP.INF. No more. Just open up your

☆ ☆ ☆
An Example...
☆ ☆

ICONE

Use the PD-program ICONE.ACC to design your own icons. Furthermore, you can define two independent icones, one for selected and one for non-selected. Normally, when selecting an icon it changes from white to inverse video (black). ICONE lets you change the second icon; this gives you a bit of animation.

Normal   Selected

D:\ICONE\ICONE.RSC

39 icon(s)

READ!???.X	FCOPY3.PRG	0_WORD.PRG	X.ARC	X.CFG	SCRDUMP.TOS	X.BAK
FPH.PRG	MONOMONE.PRG	X.TT	X.CMP	GETDEFS.ACC	X.ACX	DESKTOP.INF
X.TTP	X.DAT	ICONE.X	X.IMG	X.DOC	SORTHVID.ACC	X.INF
SPEEDMUS.ACC	MMCOPY.ACC	X.TXT	ADDRESS_.LIB	MEDIUM12.FNT	UNITERM.PRG	MAKEICON.PRG
UNITERM.X	X.FNT	X.ACC	X.TOS	X.RSC	X.PRG	X.LIB

DESKTOP .INF file, find the bothersome line (line 19, etc) and delete the whole line. Save. It's no longer installed.

Don't do these experiments on your boot disk. Use an extra disk for these tests. If it works, fine. Copy the new DESKTOP.INF to your boot disk. If it doesn't, just turn off the machine and insert your old boot disk. Back to the laboratory, Herr Doktor.

If your desktop has that annoying habit of opening new windows directly on top of other ones, it is because of your DESKTOP.INF. Just place the first window where it should be. Place the second one where it should be. Same with the third. The fourth too. Now close those windows one at a time in reverse order, closing last of all the window you want to open first. (If you want opened windows at boot time, leave them open now.) Now click Save Desktop. DESKTOP.INF will now remember where you like your new windows to show up.

You don't have to go through all this to make your desktop for different disks. Just copy the DESKTOP.INF file on to the other disks.

Rainy Day Projects:
Make Your Screen Bigger!

Once, when we had nothing better to do and our guarantees had expired, we began to fool around with the monitor; we took it apart, and found out how to increase the screen size. You can increase the screen by at least 2 cm horizontal and 2 cm vertically. If you have an Atari monitor which sits on a stand, no problem. There are three little knobs in the back to turn; these make it bigger, etc. But if your monitor does not have a stand, then it's time for surgery!

This means opening the monitor. This will instantly delete your guarantee. It is very dangerous as well. If you touch the wrong thing, see elsewhere in this manual for a good barbecue sauce. It's finger licking good!

You need a star screw driver and a long screw-driver (25cm), with a plastic or rubber handle. You can insulate a long screwdriver by wrapping it in electrical tape. Ordinary tape is no good.

A screen can be dangerous even when turned off. It can hold an extremely high static charge for quite some time; this can knock you down. People with pace makers or weak hearts should not do this.

Unplug everything. I mean this! Read the following carefully before you

attempt it. Place the monitor screen down on a towel. Unscrew the back of the monitor. Be careful: there is a little wire connecting the speaker. Note where it connects and unplug this gently. Place the monitor next to the ST. Carefully plug it up again, remove fingers, and turn it on. You need to see the screen while moving things around.

Please be careful.

The following instructions assume that you are standing in front of the monitor, looking towards the back.

At the back of the tube (the big thing), there is a heavy, thick wire in thick plastic. This is the hot one. 12 thousand volts. It kill you fast. No touch. Streng Verboten!

To the right, there are three little things resembling plastic cubes (great description, huh?). All of them have slots on top for a screw driver. In very small print, next to them, you can read "Horizontal Hold, Horizontal Size, and Focus". The biggest of the little things (in black plastic) makes the screen wider. One of them may be buried under a lot of wires. Gently slip the screwdriver through the wires. Leave the focus alone for now. Just turn the screws back and forth until the screen is as large as you can get it.

Still breathing? Good. The next three are more fun. Get out the 25 cm insulated screwdriver. On the left side of the tube, towards the front, just under the tube, is a row of three more little plastic boxes with slots on top. Next to them is Vertical Size, Vertical Hold, and Vertical Line. Don't touch the screen. It may have a bit of voltage. Carefully turn the little things until the screen is taller. It goes a long way.

Great! Have you ever thought about an exciting career in electronics? Now focus. Place the

Front of Monitor
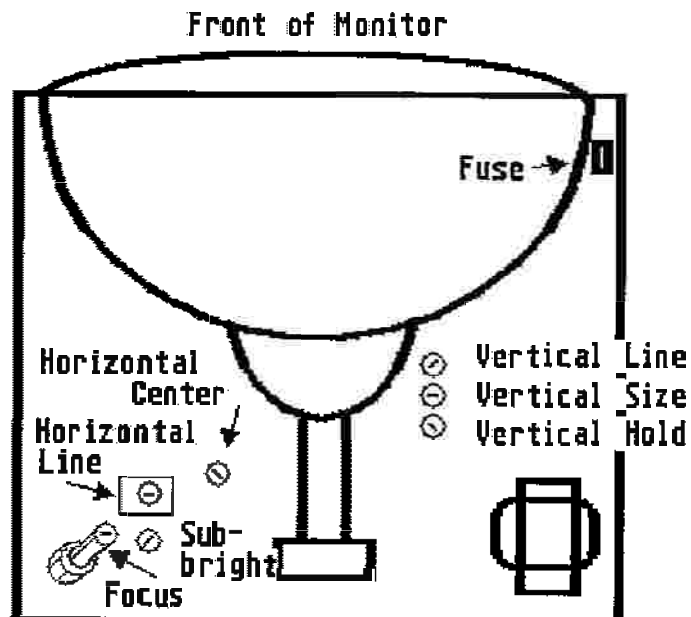
rubbish bin icon up in the corner and get close. Now move focus until you get a very sharp image. You can see the individual pixels. Wow! While we are here, a bit of a side tour. Note on the left side of the monitor, up on the side, near the front, a small white plastic box with ventilation holes. Your fuse is in there. If the screen dies at some point, you can change it here. Note at the base, just below the fuse box, your monitor type, which company actually made the thing. Tour's over! Everyone back to the bus!

Finished! Unplug everything. Put everything back together again. Remember the little speaker wire. The missing screw is under the sofa.

If you've had the monitor for a long time, you can easily see the "old" image burnt on to the screen. That will gradually go away. You may get a bit of a shaky screen (mine did for a while). Push in the monitor plug very hard. It is much better to have a bigger screen; if you use graphics mode in WordPlus the little letters are nearly the same size as ordinary mode. Don't fool around with anything else in the monitor. There's nothing more there to change.

More Fixes for Your Monitor

If you get a slight flickering on the screen, this can usually be fixed by tightening the monitor plug into the ST. Just jam it in as tight as you can.

If the screen continues to be wavy, a connection may be loose inside the monitor. Unplug everything, open the monitor casing, and press the plug-in cables securely into place.

To repeat a point already mentioned, it is possible to insert the monitor plug upside down. You must be careful to insert cables the right way. They have a top and a bottom. Look at the end; there is a notch or a sort of indentation; this side goes up. If you insert a cable the wrong way, it can seriously damage your computer. The ST often runs a small current through various pins; such a small voltage is enough to destroy a chip.

Flickering can also be caused by any electronics near your monitor or monitor cable (for example, stereos, hard disk or disk drive cables crossing over the monitor cable, the modem, etc.) Move these away.

Programs for Your Monitor

If you have a monochrome monitor and you want to play a game which only works with colour monitors or if you have a colour monitor and want to use a program which only works with a monochrome monitor, then you need a monitor emulator. There are several

kinds; one lets monochrome screens use colour programs; the other lets colour screens use monochrome programs. MONOWARE.PRG is a monochrome emulation program for the ST colour monitor. EARB_EMU and LO_MI_HI are colour emulators; these let monochrome programs use colour programs. The degree of ability is limited, however. Many programs can't be used; games are especially difficult. All of these are PD.

From ROBTEK, a monochrome emulator is available for £50. You can use monochrome programs on your colour monitor or TV. Contact ROBTEK at Unit 4, Isleworth Business Complex, St. John's Road, Isleworth, Middlesex, TW7 6NL, England. Or Tlf. 01/847-4457 or 01/847-4458. GFA, West Germany, not only has a monochrome emulator, but also a colour emulator: colour programs can be used on monochrome screens. However, most games use special routines; the emulator can't work with these. The best solution is to convert your monochrome monitor into a multisync monitor.

Screen Savers

There are many screen savers (usually called NITE.PRG, BLACK.PRG, NIGHT.PRG or suchlike). If you get up and walk away from the computer, NITE automatically turns off your screen after two minutes. To turn the screen on again, simply touch the mouse. Turning off the screen prevents "screen burn". After several years, the screen image becomes "burnt into" the monitor. You can see the screen image as a ghost image (screens in banks, for example, which run 15 hours a day every day, have the image burnt in) The home user will not experience this problem to a great degree. The image of 1st Word is slightly burnt into one of my screens after several years of use.

Be careful about using old screen saver programs; these work by painting the entire screen black. The screen has a resolution of 72 dots per inch: 640 pixels per line and 400 lines per screen, 640 x 400 = 256000 pixels on your screen: that divided by 8 bits means 32,000 bytes. The entire screen picture is thus 32KB large. These screen savers therefore use 32 kilobytes of RAM. The newer screen savers use trick; the ST thinks that there is a video camera attached. Since there is no camera, there is no picture. This only takes a single bit. Use a RAM checker accessory to see if you have an old or new screen saver.

To use one of these programs, create a folder called AUTO; copy the program into that folder, and press the Reset button. The program runs automatically.

The screen should be turned off when not in

use. Moni tors hav e a life of about fiv years;
10% of th em how ever don't last that long.
They can short-circuit. One monitor of mine
nearly caught on fire. The ST doesn't mind if
the monitor is switched off. You can't remove
the cable without resetting.

A possible way to help with overheating is to
cut holes into the side of the monitor casing.
It's only plastic. Remove the case and heat up
an old knife on the stovetop.

Some screen savers will cause problems if the
screen switches off during a process. For ex-
ample, if UNITERM is in the act of trans-
mitting an ASCII file and the screen suddenly
blinks off, the transfer is aborted. And the
history file in Uniterm disappears as well.

Turning Your Monitor into a TV

You can buy a PAL modulator for your moni-
tor. This converts TV signals for your monitor:
hook up an antenna and tune in to "I Love
Lucy". This is very clever as your monitor
only needs a bit more electronic gadgetry in
order to be a full TV set. Computer technik
Zaprorowski, a West German company, makes
a PAL interface for 198 DM (approximately
£60). Dreieckstrasse 2b, 5800 Hagen 1, West
Germany; Tlf 02331/86555. They also make a
wide range of ST hardware and software; they
will gladly send free information. PAL inter-
faces are also available from Wieeske Computer
Electronik, Potsdamer Ring 10, 7150 Back-
nangm, West Germany. Tlf. 07191/1528 (they
don't make them, but they sell them). Wieeske
also carries a wide range of ST hardware,
software, books, etc. In the UK Philips market
the AV7300 Tuner Module for £69.95 - avail-
able from any good ST dealer,

Second Word

A German word processor, 2nd Word, is clever-
ly able to show almost an entire DIN A4 type-
writer page on screen by the simple trick of
turning the monitor sideways. By standing it
on its side, you get a normal page size. It also
prints in graphics mode and proportional spa-
cing. For further information, contact Omi-
kron's distributor.

ASCII Files

Storing text files in ASCII mode (ASCII =
American Standard Codes for Information
Interchange) is useful for making READ ME
files or indexes to data on disk. The PD pro-
gram VIEW lets you scroll both forwards and
backwards. Ascii files can be transferred be-
tween all word processors,

About Monitor Radiation

All monitors, being cathode ray generators,
produce a large electromagnetic field around
them. Exposure of over three hours per day
can lead to health problems: mostly headaches.
There is also sleeplessness, heart disturbance,
and flimmering vision (which sounds like
being in love). Long range effects are unknown
(birth defects, cancer, genetic variation, etc.)
An independent comparison of 17 monitors by
a respected West German consumers test
institute found the ST SM124 and SANYO
CRT41 to have the least electromagnetic
radiation and therefore to be the safest on the
market. Lucky us.

On the back of your CRT, however, you will
find a small sticker which reads:

> X-Ray Warning: Shielding of this cathode tube
> for X-Ray radiation may be needed to protect
> against possible danger of personal injury
> from prolonged exposure at close range.

Very interesting...

Three Resolutions

The May, 1988 issue of ST COMPUTER, from
West Germany, had a long, detailed, illustrated
article on how to modify your monochrome
monitor so that it could function in all three
resolutions: high, medium, and low. This re-
quires some electronic ability (plus, I should
add, the ability to read German). A Multi-
Synch monitor (£400+) will also display all
three ST screen resolutions.

Fun With Your Monitor

Stand back about four or five meters and clear
your throat. The screen becomes wavy. Do this
long enough and you'll get a sore throat.

Screen Cleaners

The best way to clean your screen is with a few
drops of spectacle cleaning fluid: you can get a
little bottle of the stuff at any optician's or che-
mist's. Opticians usually give away small sam-
ple bottles. It really takes off the greasy finger-
prints and reduces the glare. Ordinary window
cleaner works well too. The monitor's static
electricity acts like a dust magnet. A small
cloth can wipe off the screen.

The monitor is tough. I once dropped mine
face down on to its screen. Nothing happened.
Some of you must wonder how my ST keeps
on running. I've dropped the monitor, knocked
over the hard disk, threw a dictionary at the
keyboard, slammed the computer. It had better
keep on working. Or I'll hit it again!

Chapter Seven

ACCessories

Although the ST TOS can't multitask, it has the ability to use certain other programs from within a program. These are accessories. They have the extender .ACC.

What Is an Accessory?

An accessory is a special kind of program. It loads automatically from the disk into memory at BOOT time. From the desktop or while using nearly any GEM program, you can always get instant access to those accessories by pointing with the mouse at the ATARI logo in the upper left corner. The menu drops down and you can select the accessory by clicking on it. It will then appear on the screen.

The accessory is called a RAM resident program; it "resides" in the RAM at the same time that other programs are being used. The ST is not running these programs simultaneously; the accessories are just being kept there on hold. When you open the accessory again, it appears instantly onto the screen; it is not

loaded from the disk, but rather, from the RAM memory. If you close a calculator accessory, it will still show the same number when you re-open it.

Accessories form a challenge to ST programmers; there are many small irritating limits to the ST: the inability to multitask demands a way to have other programs available, the lousy disk copying/formatting or disk access, the lack of many basic programs (calculators, clocks, free RAM indicators, control of the mouse, etc). Since accessories are RAM resident and are always in the memory, they must be small in order not to occupy too much room. And there can only be a maximum of six active accessories. These restraints call for clever little programs which can solve many problems. Making accessories is very popular; it gives an opportunity to learn the GEM interface. It is usually the first thing that a good programmer writes.

How to Set Up an Accessory

You can recognize the program by its extender: .ACC. (Often, it may be in an inactive state; the extender has been changed to .ACX, which has become the standard "inactive" extender). Copy the .ACC file on to your boot disk, along with any .RSC files. Make sure that you don't have more than six active accessories on the boot disk. (Use SORT BY TYPE to group all the accessories together.) Now press RESET. The ST, when rebooting, will recognise the .ACC extenders and load them into the memory. After loading, your accessories should be available.
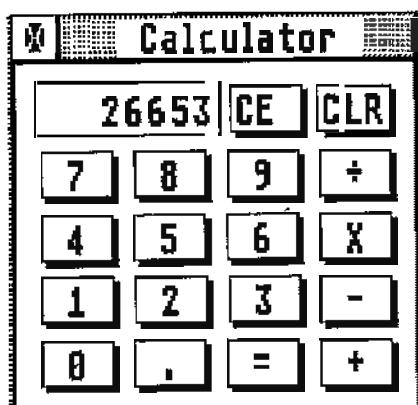
An Accessory Will Not Load If:

1) the EXTENDER is not .ACC (it could be .ACX, etc. Use SHOW INFO from the FILES menu to change (edit) the extender from .ACX back to .ACC.).

2) the accessory is inside a folder.

3) it is faulty (missing data, bad copy, etc).

4) its .RSC file is missing or faulty (but only if it requires a RSC file).

5) you have more than six active accessories on the boot disk. The ST just won't boot. Hold down the reset button and insert a different disk. Change some of the .ACC to .ACX.

6) two or more of the accessories conflict. They try to use the same spaces in the RAM. Change all of them to an inactive status and test them in combinations.

7) the accessory is not TOS compatible. Some accessories written before November 1987 may not work.

8) it is not an accessory - any file can be given an .ACC extender, but only programs written as accessories can be loaded as accessories.

9) and there are files which end with .ARC; these are not accessories. See the communications chapter for more information.

Turning Accessories Off

If you run out of memory, you can create more space by 'switching off' your accessories. Click once on one of your .ACC files, and ask for SHOW INFO. Change the file name from WHATEVER.ACC to WHATEVER.ACX (.AC2 or .ACK or anything except .ACC); reset. Your accessories will not be loaded. To switch them on again, go to your desktop, click, and change the names back to WHATEVER.ACC. Reset. Similarly, if you have an AUTO folder, you can stop the programs in it from loading by opening the folder and changing the extenders from .PRG to .PRX or whatever. To avoid all this opening and closing, I keep an extra disk with no accessories or AUTO folders and boot with that (especially to make very large RAM disks). A better way is to get an accessory loader program; during booting, it asks you which accessories should be loaded. It then automatically changes the extender. (You can get an accessory loader from any PD service. Recommended: SUPER-BOOT, LOADER or AUTO_SEL.)
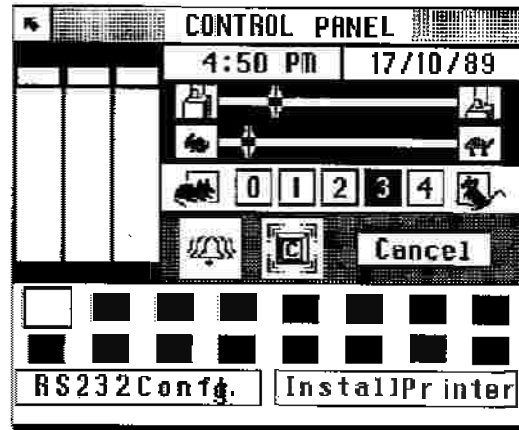
CONTROL.ACC

The standard accessory is CONTROL.ACC; this is your control panel. This accessory allows you to set the system information file (DESKTOP .INF): time, date, colours, keyboard response, mouse click response. You can also initialize (define) the printer and the RS232 port. The control panel can also be used to invert the screen colours. On monochrome systems, pulling the colour bars all the way to the end will invert colours (white to black and back again). You should have received a copy of CONTROL.ACC with your ST. If not, get a copy from any PD service.

The CONTROL.ACC has been updated by Atari Corp. The old CONTROL.ACC (which was 16 KB large) requires three accessory spaces (the CONTROL PANEL, INSTALL PRINTER, and RS232 PORT). The new Control Panel (20 KB) solves some of this problem by bringing all of these into one accessory.

If you try to print a picture or make a screen dump with an Epson compatible printer and find that the right side is being cut off, then you change this by using the CONTROL.ACC. Open the CONTROL.ACC and click on INSTALL PRINTER. One option lets you decide between 960 and 1200; this defines how many pixels per line will be sent to the printer. Click on 960 and press ENTER. Now go back to printing full pages. The Atari 9 pin uses 1200.

The ROCP.ACC

The Read Only Control Panel, is great. After a few months, you never change the settings in the control panel. Yet the thing takes up 20 KB of space. The ROCP reads the control panel information from the DESKTOP .INF file and sets it up in a 4 KB file which takes up only one slot. Furthermore, it doesn't take up so much KB space. On a 520 system, saving 12 KB is often necessary.

GETDEFS.ACC

(Get Definitions) is a further improvement. It does the same thing as the ROCP. It is smaller: only 1294 bytes, instead of the ROCP's 3854 bytes.

There are many more accessories. Here is a list of some 130 public domain accessories:

Acc_load Address Anaclock Assist2 Atarick Bical2 Bit_33 Breakout Cadenza Calc Calculat Calendar Caps Cf_acc Clip Clock Code_tab Combined Contrl_F Control Copy Crab Curcfg D_C_S Deskcol Digiclock Dir2 Dirdruck Dirprint Diskinfo Diskman Druckdir Filecopy Filefix Font Fonttrix Fortunec Freeram Gemterm Gemtree2 Getdefs Getfree Goodies Hexcalc Hplike2 Install Intram Intramdk Keymac2 Kontrol Kurzdemo Lifegame Lommereg Maus2 Megramd Melt Mini dos Minos Mite Mmcopy Mobzkey Mramdisk Nakajima Notepad Onecpy Pallet Phone Prdirect Printit Priv_eye Protect Prtpanel Puzzle Rac2 Ram Rambaby Rambuffr Ramd97 Ramdsm Ramfree Ramfrei Rastac Rat_Trap Reversi Rmd158 Rmd208 Rmd349 Rmd648 Rmd709 Rmd1040 Rocp Rs232vt Rvsscrn Schizo Scrdm10x Scrnsave Scrsav Selector Setdrive Showclip Si_RAM Snapshot Speedmus Spool Spooler Squirt_It ST_dial ST_DKUK Starhelp Startupm Std StepRate Strip System TI5 9calc Tinytool Tnydegas Tnylodr Tool2 Ud V_Kill_2 Vt52 Vt52_f Watch Word400.

Here are descriptions of some of the most useful:

RAM Reports

The first is a FREE_RAM.ACC. This small accessory tells you how much remaining memory is available. There are many versions, with all sorts of names. This is useful to check the amount of memory which a program is using. If you upgrade your ST's RAM yourself, a RAM accessory lets you check on the success of the operation.

Clocks

Frankly, I don't think much of clocks on the screen. It's nice to have a little clock up in the corner. Beware of older clocks; they eat up a lot of memory. Some of these can use up to 30 kilobytes and they have to be reset every time you boot. The modern ones use only several kilobytes. Atari made a good choice by not putting clocks into the machines as standard: less work, lower prices. I've not yet noticed a reason for having a clock. Many users stick little £1.00 digital clocks on the front of the monitor (over the Atari logo). I have. It's always there; needs no attention. Stopwatch and date included, which is handy when using the modem or checking the speed of a program. An egg timer is also very useful; buy your own, or you may find that instead of timing your program, it will end up in the kitchen timing the potatoes.

Calculators

The same with calculators. They seem great, but it's more practical to keep a small solar calculator stuck in your disk box. Always there. If you really want one as an accessory, then there are normal ones with and without memories, scientific calculators, and even an HP-E41 (Hewlett Packard) and a TI-59 (Texas Instrument); all are PD.
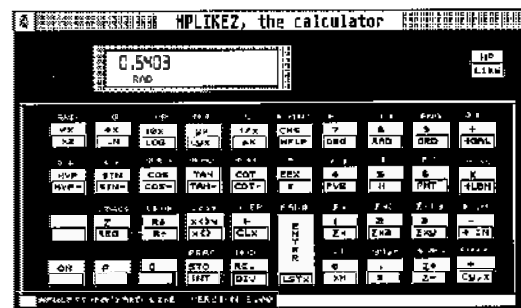
Notepads

And notepads as well. It's just more practical to keep a pencil and some note paper on your desk. Write down file names, etc. It is precisely when you most need a notepad that you are in a situation in which you can't use it. The groove on top of the ST makes a great place to park your pencils. If you absolutely insist, NEW-WORD.ACC is a mini word processor.

Mouse Accessories

The Speedmouse accessory is very good. It lets your mouse move twice as far over the screen; a simple wrist movement moves the mouse from one corner to the other. This reduces the mouse movements so that you don't need as much desk space. I have become addicted to the Speed Mouse; booting without it feels like swimming in honey. RATTRAP keeps the menus from falling down whenever the mouse comes near the top. Rat Trap and Speed Mouse conflict with each other.

Copy/Format Accessories

BITTE_EIN_BIT (BIT36.ACC) (new versions are available every six months) is excellent; it is a copy and formatting program. Not only can you make hyperformatted disks with this accessory (up to 83 tracks and 11 sectors), but disks can be reformatted without losing their contents. You can convert a single sided disk into a double sided disk. Also, if you run out of space, Bitte ein Bit can extend the disk for you. This program wins my prize for best name; Bitburger Pils is a widespread beer in Northern Germany; their advertising slogan for years has been "Bitte ein Bit", "Please, a Bit!"
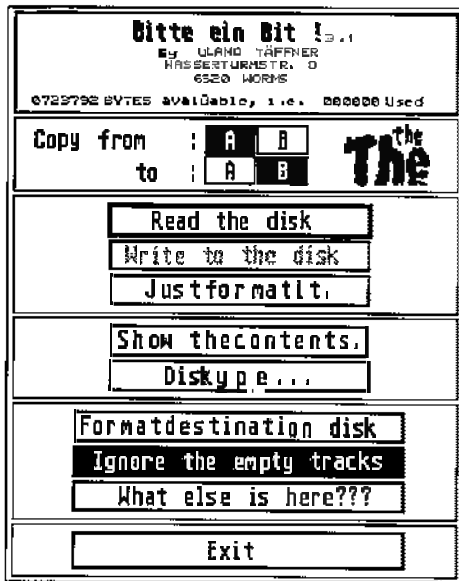
First and second window in the Bitte ein Bit copying program. It's available either as an accessory or as a program.
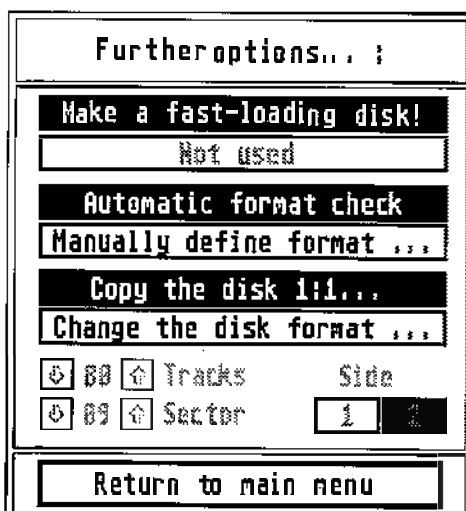

CapsLock

There is a small CAPSLOCK.ACC which shows whether the CapsLock key has been pressed.

Key Mac 2

KEYMAC2.ACC lets you store whole sentences (character strings) on a single key; by pressing Alternate plus the key, your entire address, your mom's address, your favourite hate words, or whatever will spill out on to the screen. Very useful for writers. You can also place path names on to macros; instead of typing in C:\1STWORD.FLD\TEXTS* .DOC, you place all of this on a keymacro and punch it. To cause an automatic carriage return (as when you press RETURN), press Control and M at the same time; this puts a little CR on the line. KEYMAC2 can place up to 70 macros of 60 characters each on your keyboard. KEY-MAC2 also lets you use the ASCII table; press Alternate plus a character's ASCII decimal value and the it appears on your screen. This is extremely useful when working with foreign languages. It would be difficult to write his address with this. KEY MACRO 2 was written by Jack Anderson, Aalborg, Denmark. It is shareware; registered users recieve a nicely printed manual and a disk of many more of his programs. Send £10 to Jack Andersen, Næssundvej 150, DK-9220 Ålborg Ø. Or call him at +45 98 15 52 40.

File Mover

MM_COPY.ACC lets you move files back and forth from disk to disk or folder to folder. Especially useful if working with a RAM disk.
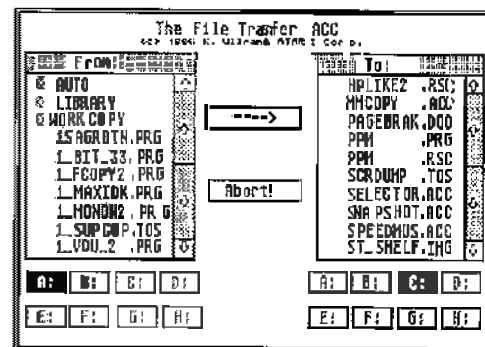
Snapshots

SNAPSHOT.ACC is very widespread. GST wrote Snapshot and it must be one of the most widespread programs for the ST. This little accessory lets you make screen grabs. You drag a rubberband box around the section of screen and it saves it as a graphics file in various formats. You can then load this into a painting program. Sections of pictures can be "snapped" and used in a wordprocessor with graphics ability, such as WordPlus.

A second, better snapshot program is PART-COPY.ACC; it lets you make odd shaped screen grabs. SNAPSHOT only makes rectangles. PARTCOPY can make lassos (free shapes)

and polygons (multiple sided figures). PART-COPY creates Degas.format files. PARTCOPY is not public domain.

Practically all of the illustrations in this book were made with SNAPSHOT and PARTCOPY; I started the program and then used SNAP-SHOT to copy part of the screen. Later, I moved the illustration into the Public Painter graphics program, cleaned up the picture or translated the text, and then saved it. The graphic file was then read into Calamus and added into the text.

RAM Disk Accessory

RAMBUFFER.ACC contains a RAM disk which you can set up in any size you like and close down at any time. It also has a printer spooler which you can make in any size; it can also be flushed; this clears out its contents. Very useful.
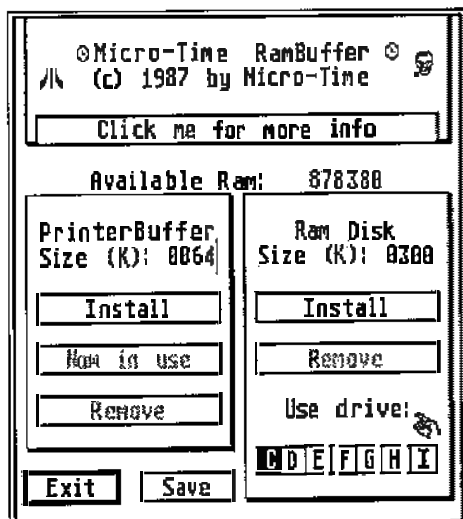
And Last of All...MELT.ACC

This program lets you see what the workers at Tchernobyl saw on their monitors. There is also CRABS.ACC; it warns you not to click on it. An invasion of crabs shows up and starts to munch on your files. Great fun!
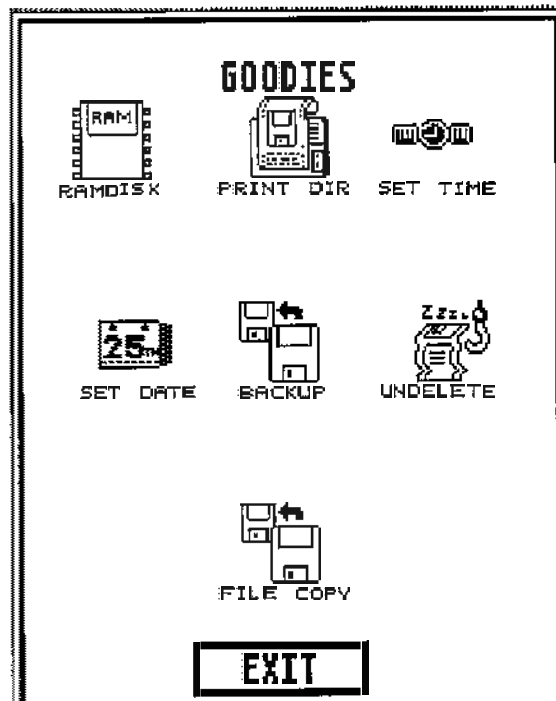
Goodies is a nice little accessory. Among other features, it enables you to recover (undelete) erased files. However, it only works on single sided disks.

The PD-program Rescue brings files back from DSL (Double Sided Limbo).

CAT.ACC

An Accessory by Julian Reschke.

The CAT lets you get rid of the mouse. By using CAT.ACC and CAT.PRG, you can set up any GEM program (those which have menu options) to allow keyboard commands. You can then press a keyboard combination to carry out a menu option, instead of using the mouse to pull down a menu and select an option. This is faster for experienced ST users.

Place CAT.ACC and CAT.PRG on a disk (in the root directory), but not in a folder. Place on the disk your GEM program (such as Public Painter), but not in a folder! Press RESET. The following applies to any GEM program; I'll use PUBLIC_PAINTER.PRG (PUB_PAINT.PRG) as an example. If you are in doubt, try anyway; it won't do any damage. (As always, do all experiments on a copy).

Start CAT.PRG by double clicking on it. It asks you to select the .RSC file for the program; in this case, it is PUB_PAINT.RSC. You are then asked to press the up and down arrows. This puts two commands into your CAT file; you can page up and down in Wordplus, for example, by using the up/down arrows. Your program's menus then appear on screen. Select an option, for example, SAVE FILE. Click on it. Now, make your keyboard combination commands. Press the CONTROL key once and then press the "S" key once. This "Control + S" will then be your command to save a file; just pressing the control + S keys will save a file. You can then select a second option and create a second command. Continue doing this for all the options which you want to have on the keyboard.

When you are finished, press SHIFT + S; this lets you exit. You are then asked whether you want to save the commands. Click yes; the CAT will then create a CAT file for it (PUB-PAINT .CAT). You can then continue to load a second program and make a CAT command file for it, or you can quit.

Now, start up the Public Painter program. In the upper left corner, under the ATARI symbol, select the CAT option. A selector window lets you pick out PUB_PAINT.CAT. Click OK. You can now use the keyboard commands instead of the menus.

Further Notes to the CAT

You can of course use both the keyboard and the mouse. CAT lets you use both. When creating a CAT file, first look at all of the options. Write down the options which you may want. This avoids possible conflict. The CAT doesn't allow you to change your choices. If you make a wrong or poor choice, you must quit, delete the CAT file, and start all over again. You can use any combination of keys for a command. SAVE FILE can be just plain "S", or "Control + S", or Alternate + S, or CONTROL+ Alternate+ S, or "G", or whatever. Keep it simple! Use a key which reminds you of the command: S for SAVE, O for OPEN, etc. By using combinations of keys (e.g.control plus S, etc) the same key can be used several times.

The CAT.ACC is freeware by Julian Reschke and available from many PD services. In Germany, the CAT.ACC is known as SHORT-CUT.ACC.

Chapter Eight

Word Processing

This chapter was easier to write several years ago; 1ST WORD was the standard (and nearly the only word processor) on the ST. Now, there are dozens of text editors, word processors, etc. 1st WORD, that word cowboy, has been updated into WORDPLUS / 1ST WORD PLUS - even the publishers can't agree on the name; I'll refer to it as 1st Word / WordPlus here. SIGNUM (both 1 and 2), TEMPUS, WORD-PERFECT, BECKERTEKST, are all standards. There are at least 15 to 20 more word processors and text editors.

You must choose your word processor like you choose any other tool. It may not be necessary to have a professional word processor, no matter how much your mother will be impressed! First, there are different kinds of word tools: text editors, word processors, graphics editors, desktop publishers, and typesetting programs.

Text Editors

A text editor works just with plain text: no fancy stuff. No reformats, no bold or underline, just ASCII, the English alphabet. This is good for editing program codes and for writing straight text. TEMPUS is a good example of an editor.

Word Processors

A word processor is for fancy writing. Nice blocked paragraphs, underlining and other style commands, automatic page breaks. Many of these have so-called WYSIWYG display. (WYSIWYG = What You See Is What You Get, pronounced "wissywig".) The image on screen will be the result on paper. If this doesn't make sense, take a look at a word processor from an IBM PC. That certainly doesn't make sense.) There are simple word processors (like 1ST WORD V1.06). More advanced word processors have built in dictionaries which check your spelling for you or graphics capability, so that you can put pictures into the text.

Graphic Word Processors.

There is also the sort of word processor which I call a "graphic word processor"; Signum is the best example. 2ND WORD is also a graphic word processor. The characters are not sent to the printer as ASCII codes; instead, the printer recieves a matrix of pixels. Franz Schmierbeck, author of Signum, realized that the printer had a much greater dot per inch resolution than the monitor. By printing in graphics mode, so that you get extremely good printouts, even with your cheap (O.K., O.K., your printer isn't cheap. How about..).. "economical" printer. Furthermore, you are not limited to the ASCII table; your printer can print in Arabic, Chinese, upsidedown, or whatever.

Desktop Publishing

Then there are Desktop Publishers, DTPs, which allow you to do newsletter/magazine layout. Letters are printed with proportional spacing; columns are allowed; graphics and text can be mixed. There are lots of special effects. A newsletter should obviously be printed with a laser printer. These programs are aimed towards more professional use and the prices rise accordingly. Calamus and Pagestream, are the main programs here.

Typesetting Programs

Last are typesetting programs. These allow total control of the page. These are for professional use. TEX is in this class. A shareware version of TEX is available.

All of these programs have limitations and weakness; no program does it all. If they have graphics, then they don't have outliners. They print in graphics mode, but without a dictionary. Some programs have only several fonts. (Even ten fonts is not much. Professional DTP systems have several thousand fonts.)

What makes this chapter difficult is that earlier one could assume that everyone had the same word processor; and we did; there was only 1st Word. Now, most don't. I can only write a few things about the major word tools and about the word processing tools which are in the PD collection. Specific tips for all word processors are nearly useless. If your word processor isn't covered here, or you want to know more about one which I haven't covered, try contacting a BBS or user group. ST World magazine frequently writes good comparison tests of word processors.

Rules for Buying a New Word Processor:

1) Are my texts compatible? Can I convert my texts from my old word processor to the new one? Can I read texts from other word processors (either straight or with a simple conversion)?

2) Will it produce ASCII files? Can I write a file and save it in nonword processing mode? Sometimes, such files are needed.

3) Can I print out with the new program? This isn't a joke; the ST doesn't have a standard printer driver. Someone has to sit down and actually write a program (or redefine a printer program) so that your particular printer will print out a text. In the beginning, there were quite a lot of ST users here who couldn't get their printers to print Danish, which nearly caused the Danish language to die out. And just because the printer will print out one text from one program doesn't mean that it will print yours.

And just because a Juki printer will print, your Seikosha may not. And just because... etc. Seeing is believing. Make a text document with all the possible characters, functions, styles, graphics, etc., take it to the store and make a print out.

4) Will it run on my 520 ST? Many new programs can just squeeze into a 520 but the only thing you can write is a message to your cat. Will the program leave enough work space?

5) Will the new program get along with all of my standard programs? Will it crash if I use my RAM disk, file transfer, accessories, etc.?

6) Is it compatible with my TOS? Will the program run on my ST? Just because it runs in the store doesn't mean that it will run on your machine. Some programs run fine, until you leave them and start up other ones. Bomb time. Once you tear the cellophane, you're out of luck, Jack. Take your ST to the store and try it.

If the salesperson is bothered by all these questions, imagine how bothered he will be when it doesn't work and you come back. It will then take him at least a week to figure out how to solve the problem. If he isn't interested in helping you, find a better store. Maybe you pay more, but you get service and support.

Some general notes about word processors and printers:

ST WRITER Elite 2.30

This is a good word processor; it is also free. It has been upgraded from version 1.75 by a user who managed to get the source code from Atari USA.

ST WRITER started on the old eight-bit Ataris and was transferred to the ST. In the beginning, it was one of the few text editors on the ST, but it soon became obsolete. An American user managed to get Atari Corp to give him the source code; he hacked away at it until V.2.3 was finished.

ST WRITER now has GEM; it is very fast, and lets you use two columns. Footers and headers, search, etc. Best of all, it is small; it only uses about 60 KB. Many people use it as their daily word processor. It can also be used for straightforward writing; you can then do the lay out and printing on Signum or Calamus.

ST Writer is freeware and is available from many PD services.

GST's 1st Word/ WordPlus.

This word processor was the first for the ST. For a long time, it was bundled (included) with the computer. It was easy to learn and had a wellwritten manual that was also a good intro duction to word processing. All of this made it into the standard ST word processor; there are lots of accessories and utilities for GST's Word-Plus; most other programs have the ability to read GST's .DOC files.

GST started off with version 1.01, upgraded it to 1.04, and then to 1.06. After that, they worked on a commercial version; in Britain it was to be called 1st Word Plus, but elsewhere it ended up as WordPlus. It was announced for ages, competing with the blitter as a long promised, never seen item. Then beta copies began to float around; soon, everyone had copies of V. 1.19. It was a test version and it bombed all over the scenery. Finally it was ready; V 2.02. Or was it V 1.21? It's a mess. Every country has its own version, with con-flicting numbers. The dictionaries aren't com-patible. Various dealers announced that they had the distribution rights. V 3.0, 3.10, 3.14, and 3.16 was released in Spring, 1989. These numbers don't mean much; they differ from country to country. GST has lost interest in developing Wordplus; Atari has the rights to it and distribute it with the machines. While this was good in the beginning, it has made it diffi-cult to introduce better wordprocessors to the ST; everyone learns Wordplus and then tends to stay with it.

1st Word/WordPlus is a GEM program; it uses windows, mice and menus. It also uses the A-line and VDOS routines written by Atari Corp. Here is the source of the problem; the ST screen is basically a picture. With every change, the computer must redraw the entire screen. This makes scrolling, even at the best of ti mes, sluggish. Since the words are kept in word processing mode, the memory manage-ment is overburdened. Simple operations like search or search/replace can take a long time. None of the major programs of the last two years use the standard A-Line and VDOS routines.

Back to WordPlus. I'll go through the options in the program as they appear on the screen from left to right. Since 1st Word and WordPlus are so similar, I'll refer only to 1st Word.

First of all. It is not necessary to have the 1st Word program on the same disk as the text file on which you are working. When you load 1st Word (by double clicking on it), a copy of this program is put into the computer's memory. You can now take out the disk. The computer doesn't need it any more. Put in a new disk

with the text file and ask 1st Word to open a file. It will work on that file. You can insert and remove disks as often as you like; your texts (in separate files) can be on several dozen disks, if you like. (OK, so many of you know this. But there are quite a few who don't; nobody ever told them.)

Delete – Take Care

Be careful with the DELETE function in 1st Word; it's very eager. Sometimes, while delet-ing, if your mouse is floating over a file name, and the drive is working, for no apparent reason the computer will think that it was a doubleclick and delete whatever the mouse is pointing at. Keep your mouse away from the directory window and the OK box. This seems to be a problem with the mouse and drive. If the computer is in the process of opening a folder, a further click is interpreted as a double-click. It does have a use, however, if you're quick, then you can keep the drive running and click in and out of folders to see the direc-tories.

A way of avoiding this problem is to change the mask on the directory line. For example, you want to delete all the backup copies (those files ending with .BAK). Instead of having A: \ **, wh i ch means that you will see every-thing, just change it to show A:* .BAK (do this by moving the cursor to the top line, back-spacing, and rewriting the line); this will mean that only .BAK (Backup) files will be shown; then you can just click away and delete all of them.

Special Format Only

WordPlus has the annoying problem that it often can't read files which are not in its special format. For a while, I kept a copy of the old 1ST WORD simply because of this. There is a better solution. A "code remover" (such as AJAX.PRG) will remove the special word pro-cessing codes; you get straight text left. Word-Plus can then load this. But how about those texts which you can't reformat in WordPlus? Use CON_WP .PRG (CONvert to WordPlus; this is a PD program); any text from any word processor or ASCII format is converted to GST WordPlus format. With these two small pro-grams, you can read any text file. Again, these programs can be obtained from any PD service.

Open a Document

When you start up WordPlus, a default docu-ment is offered: UNTITLED.DOC. Open this document, set it up the way you like it, make all your style preferences (Ruler, Justify on/off, set the tab spaces, page layout, etc.) and then

save. Now, every time you start with W+, use this document which will open up with your preferences. Use SAVE AS... when saving your new text. Use SNAPSHOT to make a small blank picture and then save; every time the file is opened, it is automatically in GRAPHICS mode.

Merging Paragraphs

1st Word/WordPlus's habit of merging paragraphs together when reformatting can be easily stopped. This happens when there is an invisible "space" at the end of the paragraph. If there is such a space, then a REFORMAT will pull the next line up; if it happens to be a new paragraph, then it will be joined to the first. The result is one long paragraph and a bother to separate them again. To find if there are blank spaces at the end of a paragraph, simply click with the mouse out to the right of the final word. If there is a blank space between the cursor and the final character, then back-space; the blank space is deleted and the REFORMAT will work correctly. This can also be done with the keyboard (for those who hate mice) by using the cursor arrows. Move the cursor to the line below the paragraph and then press the left arrow cursor once: it will jump to the end of the previous line. If this blank space is there, press BACKSPACE to delete.
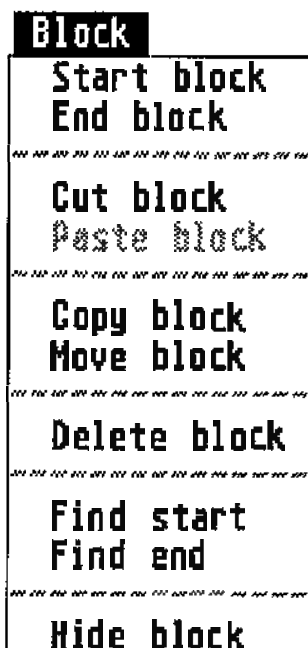
In WordPlus, if WORDWRAP and JUSTIFY find it necessary, HYPHENATION will break a word automatically at the end of a line; a message asks for confirmation. This can be switched on or off.

What is a Block?

A block is an area of text which you have marked out. On screen, a grey pattern covers it. The text in this area, or block, can be moved around, changed, etc. It is very useful.

To Make a Block

Either, place your cursor where the block should start. Go to the BLOCK menu and click on START BLOCK. Now place the cursor where the block should end. Go to the BLOCK menu and click on

Block

Start block
End block

Cut block
Paste block

Copy block
Move block

Delete block

Find start
Find end

Hide block

END BLOCK. Or, place the mouse where the block should start, press and hold down the left mouse button, and drag the mouse (move while holding down the button) downwards and to the right. This creates a block. It is not necessary to move horizontally; you can just drag the mouse downwards; that catches a whole line. Or, in WordPlus there is an even easier method available; point the mouse where the block should start. Doubleclick. Go to where the block should end (this can be several screens on down). Doubleclick. A block will be formed between the doubleclicked spots. The block can be extended and shortened simply by doubleclicking. This is a nice touch to the program.

Now You Have a Block. So What?

You can move this block of text around as you like. This gives you a lot of freedom in editing.

To Copy a Block

Make a block. Place the cursor where the block should go. Open the BLOCK menu and click on COPY BLOCK. C'est tout.

To Move a Block

Make a block. Place the cursor where the block should go. Open the BLOCK menu and click on MOVE BLOCK.

To Move the Block into Another File

Make a block. From the BLOCK menu, click on CUT BLOCK. This makes a copy of the block to a buffer, a small memory space. Open another text. Place the cursor where the block should go. Back to the BLOCK menu. Click on PASTE block.

To Delete a Block

Make a block. Go to the BLOCK menu, click on DELETE block. Goodbye.

Restyling Blocks

The style of the text within the block can also be changed. If you want to turn it into italics, just go to the STYLES menu, select italics, and then select RESTYLE. The block changes.

To Save Blocks

Make a block. From the FILES menu, click on WRITE. A file selector window pops up; write the name of the new file. A copy of your block will be placed there. Very useful.

Which Leads to PRINT BLOCK

1stWord and WordPlus can't print a text which is on screen. In WordPlus you can print part of an open text file by using the WRITE BLOCK option, just create a block as above, and then choose PRINT FILE.

To Get Rid of Blocks

If there is a block marked on screen, everything scrolls slower. And sometimes you can't see anything. Furthermore, if you want to make a second block, you need to finish using the first one; 1st Word can't deal with two blocks. Either make a new block which only covers one or two letters in a far corner of the screen or place the cursor towards the end of a paragraph and punch F10, Reformat. The block markings disappear. (Tak til GG!)

Rulers

At the top of the screen is a line which looks like the tab settings on a typewriter. That's what it is. Click here to set or remove the tab spaces. When you press Tab (on the left side of the keyboard), the cursor hops to that space. Double clicking in WordPlus' ruler line produces a tab for decimals. A little hash sign (♯) appears. When you write numbers with a point (e.g. 1199.95 $), the decimals will line up properly.

The ruler is set for PICA (10 characters per inch) (1st WORD has 66 characters per line; WordPlus correctly has 65, which is the office standard; you don't have to use that, but just so you know). To change this, "grab" the closing bracket with the mouse by pointing at it and holding the mouse button down. You can now move it back and forth.

WordPlus allows various rulers. To change the ruler, ADD RULER can be started either from the menu or by clicking on the typographer's paragraph symbol up at the top right corner of the screen ¶. This results in options; change the ruler spacing, etc. You may choose to write in PICA (65 characters/line), ELITE (78 characters/line), CONDENSED (112 characters/line), or EXPANDED (33 characters per line). Assuming that the proper printer driver is installed, this information will be sent to the printer, permitting mixed ruler formats within a single file.

Elite and Typeset

You can print out WordPlus in Elite typeset, at Near Letter Quality (NLQ), and then reduce on a photocopy machine 10-15%, with a bit of contrast. This produces an excellent page image, as good as or better than office typewriters.

Most people don't know about this sort of stuff: rulers, pica, elite, or that you can specify exactly how many characters there will be per line and how many lines there will be per page. This allows a great deal of control. And a great deal of fooling around. If your girlfriend has to write a twenty page assignment and it turns out to be 27 pages, well, just put it in Elite, tag on a few extra spaces (82 characters per line, instead of 78), use only a few lines in the page layout for footers and headers, and, from the Print option, set the left margin offset to 5, instead of 8 (the page is placed 5 spaces from the left, instead of 8). On a good photocopy machine, reduce the page by about 10%, to create larger margins. All of this really packs in a text. Since most don't know that a page layout can be manipulated this way, they don't notice it, but afterwards, they feel as if they have read a major novel in a few pages.

And of course, if she can't come up with more than 17 pages on Conrad's understanding of Nietzsche, then do all of the above in reverse. But if the lecturer has an Apple Mac, you're dead.

Justify

It is here (¶) in WordPlus that JUSTIFY is turned on or off. This produces even or ragged right hand margins.

Footnotes

WordPlus manages these automatically. Click on the Footnotes option from the HELP menu for information.

Page Layout

This option lets you define the number of lines per page. You can also write headers and footers: the title lines that appear that the top and bottom of every page. If you have the egoism of Napoleon, every page can have your name and title of the paper at the top. This is actually useful, however, if the cat uses your notes to make a nest, you can sort them out again. The page number is set as a default to appear at the bottom of the page, centred. You can place this little hash symbol, ♯, anywhere you like; the page number will appear there. You can write "Page ♯"; this produces for example "Page 7" on your paper. If you want to have a "-7-", then write -♯-. If you want it in German, write Seite ♯

If you are bothered by the default line spacings in the layout window, which are indeed somewhat generous, make up your ideal page and save this as UNTITLED.DOC. When you start up the word processor, your favourite layout appears as a standard. It is possible to change

the program itself, so that the values are changed. But the UNTITLED.DOC trick is easier and allows frequent change.

A further variation is to make and save several blank files with the proper formatting information (headers, footers, lines per page, tabs, rulers, etc.) for different kinds of documents (plain texts, letters, letters to mom, messages, business letters, etc.). When you need one of these, call up the proper format, write, and then use the SAVE AS... option. This works pretty well. (Thanks to HS.)

Bold, *italic,* ᵘᵖᵉʳ and ₛᵤᵦ

If you use style commands a lot, then note that when a menu is pulled down, the keyboard doesn't work. Not quite. Nothing happens on screen, but when the menu goes up, all those typed in commands are carried out. Go ahead, make a block, pull down the STYLE menu, add in several style commands by punching the F keys. Click RESTYLE, and everything is carried out.

You don't need to bother to reopen the menu to turn off the Superscript/Subscript functions (or any of the other STYLE commands); simply press ESCAPE. This turns off Bold, Underline, *Italics,* Light, ˢᵘᵖᵉʳˢᶜʳⁱᵖᵗ and ₛᵤᵦₛᶜᵣᵢₚₜ.

Reformatting

Reformat is much improved in WordPlus; it is faster. If you have checked that all the paragraphs end correctly regarding the carriage returns, then you can use Reformat Whole Document. Reread what I wrote above about the blank spaces at the end of the paragraph. Another problem is two spaces between a word. Use Search and Replace to replace two spaces with one. Yet another problem is the different kinds of blank spaces. One is a fixed space (ASCII decimal value 32); it has a fixed size. This is used by a text editor to make a space between two words. When you open such a file from the desktop, the words are separated, because the screen is "showing" the blank spaces. The other kind of space is called a stretch space (ASCII decimal 30); it is used by word processors to squeeze and stretch the spaces between the words so that lines can be justified. When you open a .DOC text from the desktop, it doesn't have any information about what to do with the stretch spaces and so they are minimum size - simply nothing is shown. There is no spacing between the words. There is a curious bug in WordPlus; it converts all fixed spaces into stretch spaces; simply use Find/Replace and tap a single space into the top line and a single space into the bottom line. Click on ALL and press Enter. All of the fixed spaces turn into stretch spaces and your text

will reformat nicely. A further problem occurs if you have several blank spaces between words. From the screen, you can't see if it is long stretch space or two spaces. Repeat the same process; use the REPLACE option to convert three spaces into one space. Next, convert two spaces into one space. I know that all of this sounds like turning flotsam into jetsam, but it works.

Extra Characters

It's awkward to use the FONT TABLE so get KEYEDIT.PRG to redefine your keyboard layout; this is very easy to do and requires no programming knowledge. See the keyboard chapter for more information. Or, use Key Macro 2 for extra characters (see the accessories chapter).

Give the Mouse a Break

In WordPlus, press SHIFT plus the right or left cursor arrow to move to the beginning or end of a line. SHIFT plus UP or DOWN arrows moves the cursor across the window as well.

Page Breaks

A practical, but little used ability of 1st Word are page breaks. There are three kinds of page breaks:
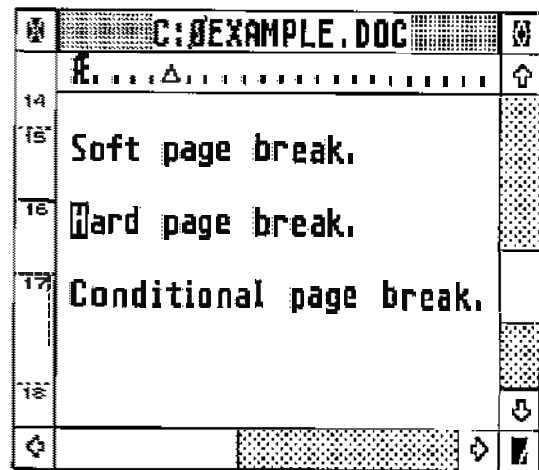
1) a soft page break (which 1st Word makes itself at the end of the page; this is a dotted line with a number below it.)

2) hard page breaks, which you set yourself. This is a solid line with a number below it (press either F7 or click once in the left margin. Click twice on the number to remove.)

3) the conditional page break. This is rarely used; most don't even know what it is. And it is the best one. Make this by dragging downwards in the left side along the para-

graph in the left side of the window. Remove by dragging upwards. It looks like a dotted line across and then downwards. This function is very useful when writing long texts and you don't want certain paragraphs or tables broken up over two pages. It turns that paragraph or space into a special space which will not be separated over two pages. It maintains that option, regardless of how many times you reformat or edit. If you read the text to a new file, then

Indents

To indent whole paragraphs (for extended quotes), press F9 before starting the paragraph. Write the paragraph. Hit F10 to reformat the entire paragraph. The INDENT is cancelled after using the RETURN key at the end of the paragraph.

Outdents

To write a paragraph with a flying outdent (like this one), place a little tab marker on the ruler line where the paragraph should be. Write the outhanging words, and then hit F9.

The Spelling Checker

The WordPlus dictionary will suggest possible spellings of errors. If CONTINUOUS CHECK is clicked, a bleep will signal a misspelling while typing. Correct spellings may be transferred to text from the dictionary. One can also check a finished text, which is somewhat faster; press ESC to go to the next misspelled word. Apostrophes can't be entered and odd alphabets, such as anything used outside of England, are not acceptable. For some strange reason, which must have a very interesting explanation, the dictionary has misspelled "nakedness".

To add words to the dictionary, click on ADD. When you finish, a new file will be created with extra words called .SUP (supplementary dictionary). This can be merged into the main dictionary by using the DICMERGE.PRG. To remove words, open the .SUP file and place a minus sign in front of them (or just add them to the .SUP file); for example, to delete "dog", write "-dog". The German PD program INDEX_PLUS allows you to make an alphabetical list of all words in a text; this can then be fed to the WordPlus dictionary. The program Le Rédacteur can also do the same; in this way, you can increase the size of the dictionary.

Graphics

To put graphics into 1st Word, fool the printer. Make a drawing and print it out. Run the paper through the printer again for the text. O.K., so it's not on screen. Pretend. Some people want everything. It's a cheap solution that works. Like beer.

Remember that you can always reinsert the same piece of paper back into the printer. You can print text onto magazine ads, illustrations, coloured paper, to make invitations, or letters onto Playboy or Playgirl foldouts. Be creative. You're not George Bush.

Use SNAPSHOT (see Accessories Chapter) to grab screens from drawings. These can be kept in a folder of illustrations. PUBLIC PAINTER, a drawing program, is the best; it reads formats (.IMG) which are accepted by WordPlus. To delete pictures from a text, place the cursor on the picture and click on Delete Pic from the Graphics menu.

Printing: First, Some Tricks...

How to make multiple columns with 1ST Word. The program can only think in in one column. To make two, or more columns, you have to fool the printer. Basically, just run the paper through the printer again and again.

Make the first column ending at tab space 27 by dragging the right margin to the left and then print. Then make the second column, also with 27 characters per line. Use the PRINT option to define the left hand margin (LEFT MARGIN OFFSET set to 46) to the middle of the page, and then reinsert paper and reprint. An easier way is to do the same as the last paragraph, but to use radical indents, starting at tab 38. This is more visible on screen. Set both windows next to each other.

Problems with WordPlus V2.02

Files over 100 KB large may cause the entire disk to be scrambled at some point. Users in West Germany noted this (what an understatement! they lost large files and went hysterical) and told GST about it; GST denied it and didn't bother to tell anyone else. Neither Atari nor GST can figure out exactly why this happens. Don't make files over 100 KB. When you do make large files, for printing out, keep backups on a separate disk. Footnotes have problems in WordPlus. They may disappear, or appear randomly in the text.

There is a further problem, which I call the "drunken cursor". It happened on my machine perhaps once a month. The cursor begins to stagger back and forth, throwing out random letters, until it falls into a coma; the machine slowly freezes. If you immediately move to SAVE FILE, the menu will slowly come down, and, after several long clicks, will save the file. You then reboot. This tends to happen if you type very fast; the cursor has reached the end of a line and is wrapping down to the next line but you hit backspace to delete a few letters. The crash allows you to save the file. Rebooting is the best thing to do.

And last, but not least, WordPlus doesn't know that a disk is full. If you save a 100 KB file onto a disk which has only 60 KB of free space, then the first 60 KB is saved and the remaining 40 KB goes to join the buffaloes in the Happy Hunting Grounds. This also happens with RAM disks; saving a 100 KB file onto a nearly filled RAM disk will produce a shortened file. Very annoying.

You may want to keep the old 1st Word. WordPlus can't open many ASCII files, nor many 1st Word files. Load them into 1st Word, save in ASCII, and then load them into WordPlus. Or, use CON_WP; this converts any format into WordPlus format.

WordPlus doesn't work too well on a 520 ST which has a RAM disk installed. Strange crashes result.

A RAM upgrade is recommended. The half megabyte of a 520ST is not enough to allow four windows and extensive text.

WordPlus's built-in spooler doesn't work too well. Simultaneously printing, opening new files, and switching disks is a certain path to trouble. A second spooler in an AUTO folder, or using RAMBUFFER.ACC, is recommended.

WordPlus V3.1, V3.14, V3.16

The newest version (version numbers will vary according to country) has some changes. The major improvement is that the menu options can be selected from the keyboard. Block sections can be capitalised/decapitalised. Restyle is automatically carried out. The dictionary loads quickly. Proportional space printing is possible, but not with justified margins. One and a half line spacing can be done now.

Regrettably, the keyboard command combinations are rather odd; Quit All is Control + Q, while Quit is Control + A. Many combinations make no sense. One can't move these around. The graphics mode stays the same size; one can't display 40 lines per screen any more. The problem of a blank space at the end of a paragraph has still not been fixed. The entire block system is definitely worse. The block buffer holds only 3 or 4 pages. As with Wordplus 2, some 1st Word files can't be loaded. The blinking cursor is rather poor; one needs to click during a blink. The German ä ö ü can be put into the dictionary, but not Danish æ ø å. The German words do not appear in regular alphabetical order, they are simply put at the end of the list. Words starting with German characters are stored in a kind of Alaska; I can't find them. Keyboard editors have a curious problem; characters placed in shift combinations on the numerical pad cannot be used. But when in a dialogue box, such as the dictionary, then they are suddenly available. And they still can't spell nakedness!

Reportedly, the 100KB limit has been fixed. As for the footnote bug, only experience will tell.

So... Wordplus's speed has not increased. Reformatting, search and replace and scrolling are slow. The block system is clumsy. The 3.0 series is not a major improvement over the 2.0 series, and the changes only appear to be minor ones. If I had to use Wordplus, I would continue with version 2.14 and add the CATACC to make my own key commands.

——————————— ☆ ———————————

WordPerfect.

WordPerfect is the main word processor on the PC. Since it is so successful on the PC, WordPerfect Corporation has been translating it to other computers. Users have this strange idea that the ST is only good if it can function like a PC. WordPerfect Corporation started to translate the program to the ST in 1988, but they gave up before it was completed. They say that they couldn't get cooperation from Atari Corp. I say that they looked at the tiny American ST market, made up mostly of Donkey Kong heroes, and walked away.

WordPerfect has been in this on again/ off again state. After it is announced that there won't be any further versions, a new version appears. My Uncle Toby says that the program

was intended to be sold only to Kansas house-wives; there is only an American keyboard and an American dictionary. It allows two windows, but this only means that the screen is divided into two parts and can't be moved or resized. For all of this, WordPerfect demands too much: one megabyte of RAM and two double sided drives (or a hard disk).

It is normal for a major software package to be launched in a partially complete version. It is unfair, but normal. By selling the program today, instead of six months later, the producer has a step ahead on the competition. They can sell early versions and earn money to pay for further development. Furthermore, the custo-

mers are "locked in"; they are forced to continue buying further versions of the program because all of their files are already in that format. There is another reason as well. Programs are not like Athena; they are not born perfect. A long period of use in daily work will find the bugs and provide suggestions for a better version. This method is acceptable if the producer is honest and the upgrades are available either free or at a reasonable price. Calamus is a good example; the first versions were buggy but they gladly took criticism; it was upgraded nearly every three weeks and the upgrades were free.

☆

TEMPUS V2.0

You should take a look at TEMPUS 2.0. This is text editor with word processing ability. It was originally written for programmers, who need to write and work with listings which often contain thousands of lines. Tempus can be used for writing as well.

What is the advantage to Tempus? Speed. It is incredibly fast. If you like WordPlus, don't touch it, you'll never be satisfied again. Tempus uses the GEM window, menu and mouse inter-face, but has its own own A-Line and VDI routines; these are the parts of the program which send the text to screen. They work much faster than the ones written by Atari. Tempus is also written entirely in assembler; this language can be processed by the ST much faster. Simon Poole, when testing Tempus for the first time by scrolling 100 pages top to bottom, thought that the program didn't work; it went so fast.

Another major contribution of Tempus is its file selector window; it is well designed, easy to use, and solves many common problems. Files can be masked by clicking in the various extender buttons; this lets you see only .TXT files, for example. Switching drives is done simply by clicking. The Find/Replace option is well done too; you can use 20 different character strings; these can be saved. There are many more options to Tempus.

Tempus has its commands in menus and on the keyboard. Everything that is done with the mouse can also be done from the keyboard. The mouse is fine for the first few months; afterwards, a professional user needs to have keyboard commands. Tempus satisfies both users. Tempus is only about 60KB large, which means that it loads quickly and takes up little memory. You can work with very large texts; lots of memory is left over. It loads texts quickly, it can scroll, work with blocks, and search/replace very fast (about 580 characters per second!). As a pure word writing tool, it can't be beaten. You can write a text in Tempus and then move it to Signum or a desktop publishing program for the final printing.

These aspects of Tempus - its willingness to break away from the standard GEM desktop, its speed, its keyboard commands, its file selector box, and its very low price - has made it into a major program. It is certainly the best text editor for the ST. Tempus can be obtained
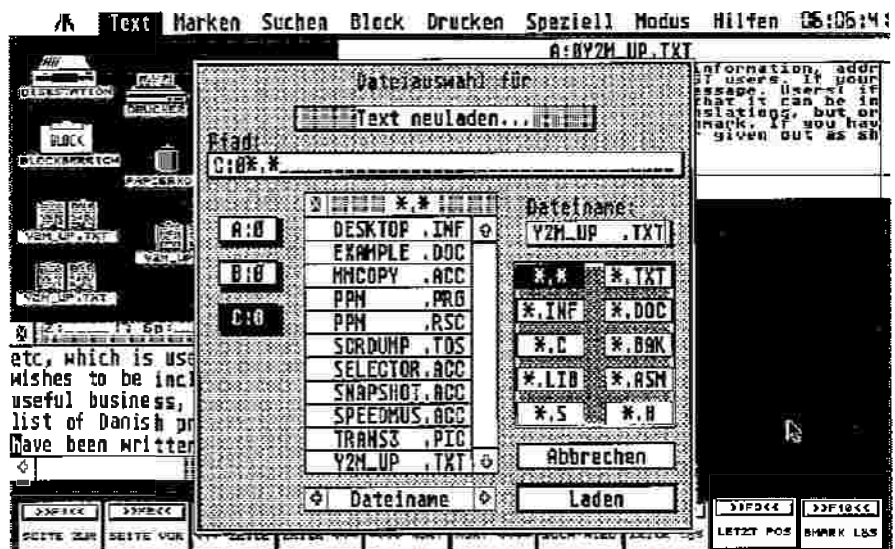
from HiSoft in England for £39,95.A PD
demo version of Tempus is available from
many PD services; this is worth seeing. HiSoft,
The Old School, Greenfield, Bedford, MK 45
5DE, The United Kingdom. Tel 0525 71 81 81.

*Tempus holds up to 20 textstrings in
its search and replace function. The
strings may be mixed by choice.*

☆
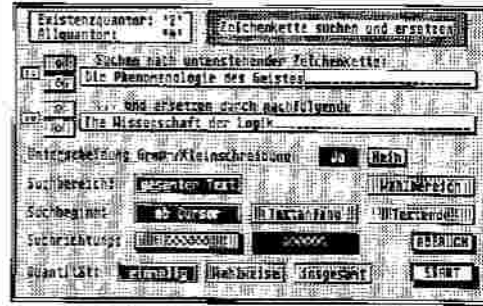
Le Rédacteur, V..1.97, 1.98

From France there is a professional word pro-
cessor written for the ST by, among others,
Dominique Laurent. Dominique Laurent is
also the author of TURBO.DOS. It was the
constant revision and feedback between the
developers and the 24 journalists of the French
newspaper Libération which made this into a
professional wordprocessor.

The major features of the program are speed,
keyboard commands, indexing, and complete
user configuration ability. There are about 69
commands; nearly all of which are available
from both the menus/mouse or the keyboard.
The program is GEM-based, but, as with
TEMPUS, it has its own A-Line and VDI
routines, and was written in Assembler. It
accepts and saves in nearly all formats: GST's
WordPlus (.DOC), ASCII (.TXT), Habatext,
Beckertext, and Evolution format.

Search and Search/Replace

allow up to a 57 character string. You can use
wildcards which find either numerical charac-
ters, alphabetical characters, punctuation, for-
matting codes, or style commands.

Speed

Le Rédacteur is fast. Going from top to bottom
of even 90 pages happens instantly. Blocks are
roî'med, restyled, copied, moved, and deleted
instantly. An entire text is reformatted in a
fraction of a second. There is no need to con-
stantly reformat as in 1st Word; the text is al-
ways correctly formatted. Move the ruler line
back and forth, the entire text is instantly re-
formatted to the new ruler. Enter a new word
in a line, and the spacings squeeze together to
make room for it, until it overflows and the
last word moves down to the next line without
any lag. Files open in several seconds, even 100
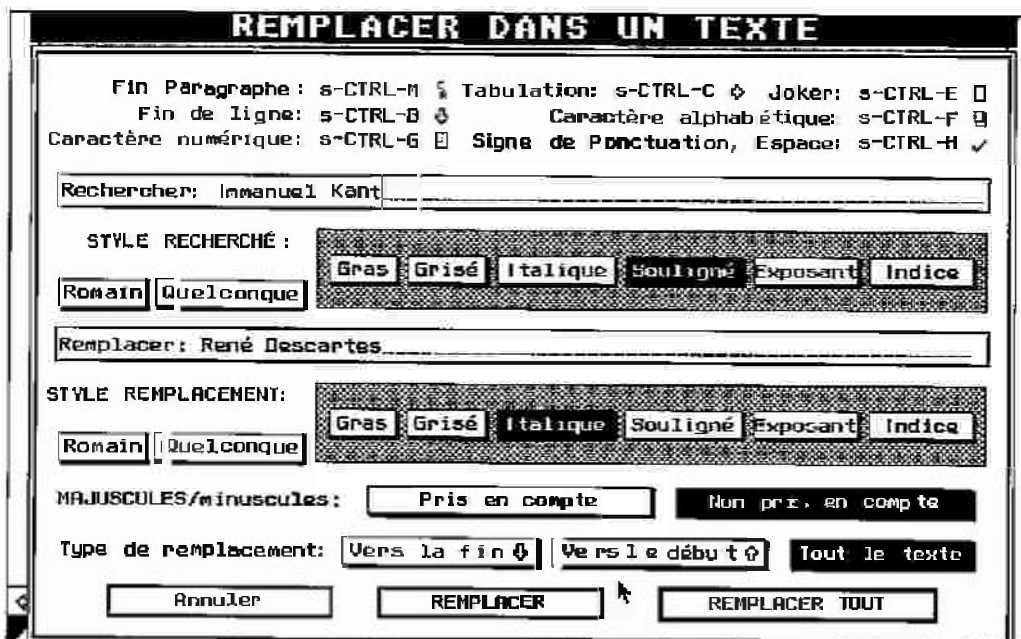
page files. Search and Replace is a blink. I usually work with 100 page documents without problems in speed.

Block

From the keyboard, a block can be made which has a single letter, a whole word, or the entire line. With the mouse, you can double click to create blocks or you can "drag" the mouse, which scrolls the text simultaneously, in order to create longer blocks. Deleted blocks can be recovered and, best of all, blocks can be sent directly to the printer.

Macros

Le Rédacteur has key macros; 36 keys can hold macros of up to 78 characters which can be joined to make macros up to 2,800 characters long. There is no limit to the number of macro files. Style commands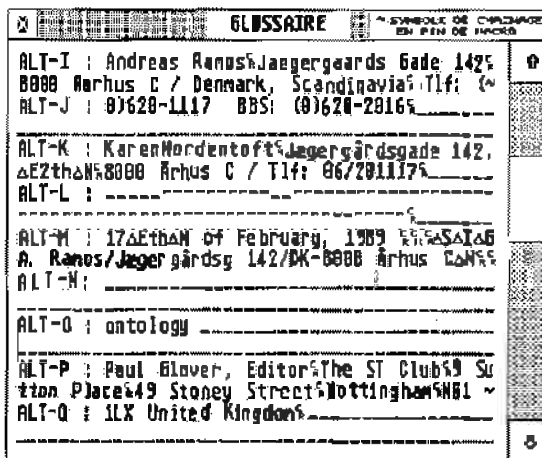 can be used and mixed; your address macro can have your name in bold, country in underline, and telephone number in italics. There is a keyboard editor as well; you can redefine the keyboard from within the program without closing a file.

The macro option in Le Redacteur is very useful.

Text Analysis

Style analysis is very useful. The number of characters, lines, words, sentences, paragraphs, and the average length of words or sentences appear instantly. Clicking on the word frequency pops a little hourglass on screen and when the sand runs down, the program has created a frequency count of the entire document. For a ten page text, that takes about 2 seconds. A list of all words, which can be organized either alphabetically or by frequency, appears on screen. Clicking on a word from the list takes you instantly to it in the text. Pressing ALT
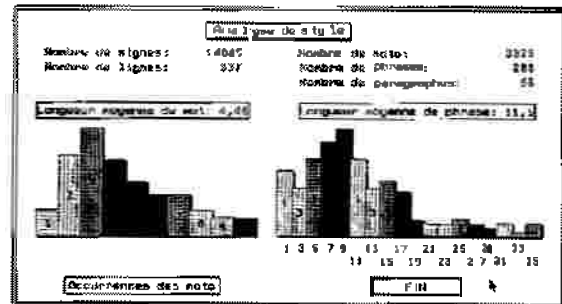
while clicking on a word will put the word into an index list. A full index, with page numbers of all occurrences, is quickly made. Considering the speed with which this program creates such lists, this is an excellent way to create lists of words for dictionary/spelling checkers.

Miscellaneous

You can scroll by words, sentences, paragraphs, pages or screens. Deleting can go forward and backwards, one character, one word (both forwards and backwards), one line, one sentence, one whole paragraph. UNDO recovers the deleted text. ESC reverses two letters; if you spell "Hoemr", place the cursor on "m" and press ESC; it turns into "Homer". Characters can be inverted from small to capitals or reverse; you can also change the first character in every sentence into a capital letter.

The program lacks some of the standard Word-Plus options: automatic hyphenation, outdents, footnotes, graphics, spell checking, expanded and condensed rulers.

The 209 page manual covers every aspect of the program and is well organized, illustrated, and indexed. Many other word processors are good, but not good enough to print their own manuals; these are usually done on a Macintosh (I'm not kidding). It does sound a bit unfair to say this, but the program and manual are at this moment available only in French and German. An English translation will be released eventually. If you can read even only a bit of German or French and you need an excellent word processor, don't waste your time waiting for the translation. Or, if you already know how to use a word processor, such as WordPlus, then there isn't much need to read the manual.

It is available from COMPUTER MAI in Germany: Weißenburgerplatz 1, D-8000 München 80, West Germany. Tel. +49 089/448 0691. 149 DM (roughly £50).

In France, contact: Coconut République, 13 Boulevard Voltaire, 75011 Paris. Tlf. 43.55.63.00. It costs 490 Francs. Version 2.0 has recently appeared in France.

Signum!2

People have actually bought ST's because of Signum!. It was written for the ST and is unique; no other computer has anything like it. Only Signum! can write in English, Arabic, Japanese, and Thai: all in the same paragraph! There are over one thousand fonts to Signum!2. Signum! is a word processor which works fully in graphics mode. One could almost say that it is actually a painting program with word processing ability. Signum! exploits the fact that the printer's resolution (9 pin = 240x216 DPI, 24 pin = 360x360 DPI) is much higher than the screen (72x72 DPI).

Graphics Mode Printing

Characters, instead of being printed out in normal character printing mode, are printed in graphics mode, dot by dot, with multiple passes. A character, instead of having a dozen dots or so, will have several hundred. Your nine pin printer, even a cheap one, will produce characters which are often better than those of a 24 pin printer. It is slow to print of course.

The font editor allows you to draw your own characters. This is however a major job. You can use it to create special symbols or little figures.

Furthermore, Signum! lets you place anything anywhere on screen with 1/90th inch horizontal precision and 1/54th inch vertical precision. Characters can overlap, ascend, etc, which is specially necessary for mathematical formulas and technical diagrams; Signum! is in fact the only word processor for scientific and technical documents. It gives you control over the page; the space between lines and margins can be totally defined. Since it is a graphics printing

program, graphics can be used. SIGPIC, a freeware program, lets you put graphics into Signum!1. Signum! also prints in proportional spacing. Two ll's are closer together; i's don't stand alone in the middle of a word.

The multiple fonts, graphics, and proportional spacing gives your text a much better appearance. With only a nine pin printer you can produce documents with professional quality. Our user group's postal transfer receipts are printed with Signum! on a nine pin printer; these meet the printed materials standard of the post office. You can think of the investment in the program as an upgrade for your printer.

Slooowly

Signum! is not an easy word processor, It is slow; many things happen only with multiple key strokes. The idea of writing a large text in Signum! is forbidding. Screen redraws are rather dramatic. You can't simply spring back and forth in a text. There is only one screen (no multiple windows). Printing takes a very long time. On a nine pin printer, it can take about an hour to print ten pages. It is easier to write your text on a word processor, save in ASCII, transfer it to Signum!, do the final layout, and print from there.

Signum! Tools

REVERS.ACC allows Signum!2 to write from right to left to produce Arabic and Hebraic. This costs about 100 DM. Das Signum! Buch is a 430 page book in German for both learners and advanced users: how to solve difficult layout tasks, etc. Das Signum! Buch. 59 DM. ISBN 3-9801834-0-8.

And the Signum! Font book shows 547 fonts with examples of usage. Das Signum! Buch zur Gestaltung. 29 DM. ISBN 3-9801834-1-6.

A further Signum! font editor is SCARABUS. This lets you convert 9 pin, 24 pin, and laser fonts. Shadowing, bold, outline, italics, etc can all be easily done. The sizes of the fonts can also be changed.

Exotic Fonts

Since the characters are bit-map fonts, you can print anything on the printer. Not only the Western alphabet, but also Arabic, Japanese, Russian, Greek, Hebrew, etc. Practically all exotic languages have Signum! fonts. Not even Macs have this. Fonts can be changed even within a word.

There are two separate groups which design exotic Signum! fonts: in England, Mike Meir, of Gate Seven Computer, 6a Gwendwr Road,

London, W14 9BG, Tlf. 01/602-5186. In West Germany, Veit Brixius is part of a group of theologians and language people who have designed Signum! fonts for Hebraic, Greek, Arabic, Syrian, etc. He can be contacted at Römerstraße 48, 6501 Budenheim, Tlf. 06139/6504. Do not expect any support if you do not have a registered version of Signum!

Information

In the UK, Signum! is represented by Signa Publishing Systems, Alexander House, Station Road, Aldershot, Hants GU11 1BQ, Tel. 0252 341 600. Fax 0252 341 584. For other countries, contact Application Systems Heidelberg, Englerstrasse 3, D-6900 Heidelberg, West Germany, 06221/300002.

☆
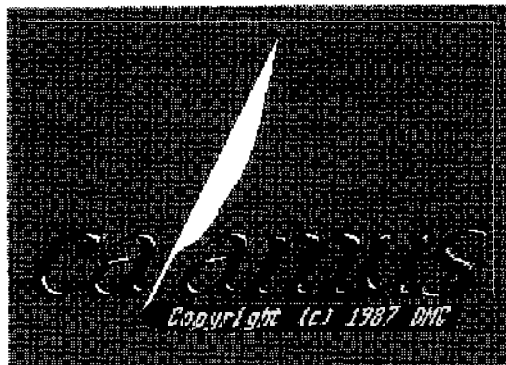
Calamus

There is so much to say about Calamus that I will only say a bit. With its brilliant complexity, the total control, the ability to work in many different publishing standards, and the excellent support, Calamus will set the DTP standard for quite some time on the ST or any computer. It's always fun to look up and see what the names of programs mean.

Atari Corp is strongly supporting Calamus. There are special classes of dealers, called Desktop Publishing Centres, which offer a full products line, support, and classes for desktop publishing. They can also help you find a linotype printing service.

Tough Beginning

Calamus had a rocky start; announced in the beginning of 1988, it finally appeared nearly a year later. Version 1.0 was buggy. It bombed at least every five minutes. DMC however has kept on developing the program; a new version has been released every month. V.1.09 is the most recent; by the time you read this, it will certainly be several versions ahead. Version 2.0 is rumoured to have colour separation, among other abilities.

Print Features

Calamus is a professional desktop publishing program and requires a professional amount of equipment. At least 2MB are needed; 4MB is best. The program uses a cache system to speed up work; the more memory, the faster. There must be a hard disk. And printing is best on a laser printer. Final printing is done with linotypes; this costs about £4 per page. It is indeed possible to work with a 1MB ST with a double sided drive and a nine pin printer; you can't however work with more than a handful of pages and printing is very slow.

Icons, Icons, Icons

There is a complex method of hierarchies to the menus. First select one of the four major modes from the top bar; you work with either frames, text, borders, or effects. This then changes the fixed menu bars on the side of the screen. Each of these again has four major modes; some have eight! Select one of these, and the twelve options change accordingly! The dialogue boxes are very complete, some have a second level as well. And the mouse uses both ears and often has several modes! Kits, cats, sacks, wives! There must be at least 400 options, which is very confusing for the beginner. However a message in the upper right corner tells you where you are at any point, and with some work, it all goes well. The hierarchy system is well planned; one can go back and forth very quickly.

Frames

Frames is the central concept; you create a frame, specify its size, type (text, graphics, etc),
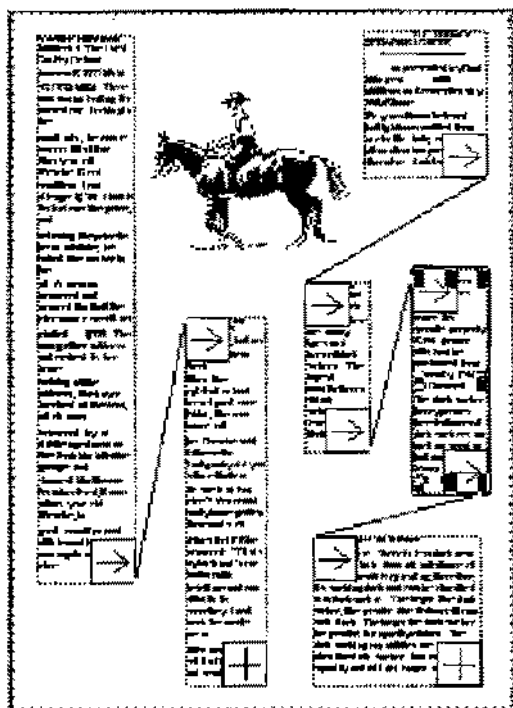
and position. There can be any number of frames on a page; these can overlap, be connected, etc. Within a frame, you can place rulers (lineal) which control the length of the line. This means that not only can you have multiple columns, but that these can also snake down a page, following the contours of an illustration.
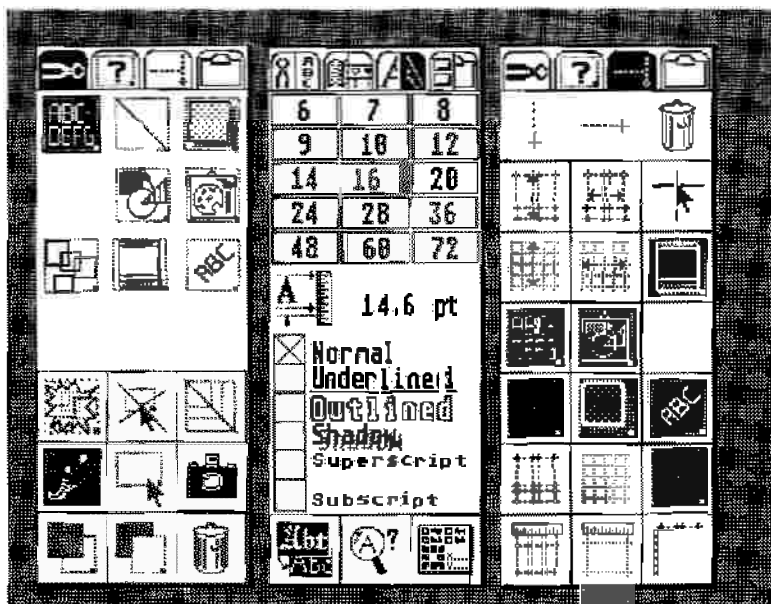
Vectors

Calamus uses vector fonts; a character is not a grid of pixels, as in Signum, but rather, a mathematical formula. This can be made into any point size; the ST simply recalculates it. Each letter within a word can have a different point size. Point sizes can be specified even to decimal places such as 16.7. Characters can easily be rotated, shadowed, outlined, etc. There are no problems with printing; the printer is totally controlled; you can work with millimetre precision from edge to edge.

These vector fonts get around a difficulty with the ST. Fonts are measured in points, a 250 year old printer's standard. A single point is 1/72nd of an inch (one inch is 2.56 cm). There are 72 points per inch, which is to say, 72 dots per inch. Bit-mapped fonts, which most DTP programs use, are either 10 point or 12 point. Each font must be drawn, pixel by pixel, and stored. All of this means that you are stuck with certain standard sizes: 10 point and 12 point characters. If you want a 92.7 point character for example, then you will need to draw up a new bit mapped font. With Calamus, you simply punch in the point size.

Compability

Text in either GST's DOC format, MS-Write, or ASCII format can be imported into Calamus. All formats of graphics can be used: both pixel based and vector graphics. Pixel graphics (such as .IMG or .PIC) can be easily changed horizontally or vertically; vector graphics can shrink and grow. You must be sure to read the

manual and learn how to optimize pictures to the printer. If you are producing text which will be printed on a linotype, you must get a Linotype printer driver so that the graphics can be optimized to the linotype's standards. A simple text editor is in the program; texts can be changed. Only one text can be edited. It is recommended to use a second text editor, such as PKS Write or Harlekin; these are faster and offer more options. I use Harlekin; it is very fast and works well with Calamus. Harlekin also has a number of other functions; you can work inside Calamus without having to exit. Harlekin is available from HiSoft, The Old School, Greenfield, Bedford, MK45 5DE, The United Kingdom. Tel 0525 71 81 81.

PKS WRITE also runs as an accessory, so it can be used inside Calamus. It allows up to seven windows, menus, self definable keyboard commands, complete block and search functions, and accepts Calamus, GST Wordplus, and ASCII formats. 198 DM. Pahlen und Krauss Software, Dieffenbachstrasse 32, 1000 Berlin 61, West Germany, Tlf. 030/6941791.

Extras

Further extras for Calamus include fonts, a font editor, and a graphics program. The FONTED.ACC is the font editor for Calamus. This lets you change characters or design new fonts. It works quite well. Font designing is however a time consuming job; the font must be balanced, consistent in style, and look good. This is a job for professionals. The Maxon logo in the copyright page was created with Font Ed. There are scores of fonts available from DMC; more are on the way. These cost about £150 per family (a "family" of fonts is the same font in the different variations: standard, italics, bold, etc). Contact a desktop publishing center for a folder which shows all the fonts. Berthold Corporation, one of the major type-setting companies, has been converting its fonts into computer fonts. They have about a quarter of a million characters. Contact Berthold at: Berthold Corporation, 1111 East Touhy Avenue, Suite 100, Des Plaines, Illinois, 60018 USA, Tlf. 312/803-4940. In Europe: Berthold Typographic Communications, Ltd. Parkway House, Sheen Lane, London, SW14 8LS, UK. Tlf. 01/392-1155. Or: H. Berthold AG, Teltowkanalstrasse 1-4, D-1000 Berlin 46, West Germany, Tlf. 030/7795-439. ITC, the world's largest typesetting company, has bought the Letraset company and is converting their catalogue of fonts into computer fonts as well. O-Line (Outline) is the graphics program for Calamus. It allows you to create special effects with texts and graphics.

Printing

The point in using Calamus is in the result. It can print on a linotype printer; this is used for preparing material for commerical printing. The linotype print out is however the final printing; before that, you need to print rough drafts. You must have a laser printer with Calamus. Nine pin and twentyfour pin printers are supported, but it is much faster to work with a laser printer. The proper printer for Calamus however is a linotronic printer. Linotronic printers look like washing machines. The linotronic printers can't be connected directly to an ST, so DMC has developed a linotype interface; the ST is connected to this a breadbox and that is connected to the linotype. A linotype can print up to 2400 dots per inch; this is very high quality. 600 or 700 dots per inch can be easily used for printing a book. The linotronic can print on photographic paper or film; the film can then be used to make printing plates. In most countries, there are printers which accept disks with Calamus texts; they'll print it on the linotype. This costs about £3-6 per A4 page.

Demo Disk

There is a demonstration disk which can be purchased from many PD services. It can't save your work, but it can print (on nine pin, twentyfour pin, and laser printers). If you have a 1MB ST and want to make a birthday card or small sign, no problem. Be warned; the demo is based on a very early version of Calamus and it bombs very easily. It is worth looking at in any case; the complex, brilliant structure of Calamus will appear in many programs to come.

Calamus Bugs

Calamus bombs occasionally; you can protect yourself against this by saving frequently. It also has a tendency to freeze if it runs out of memory; 2MB ST's suffer here. Upgrade your ST. If you have a clock in the corner, then you can see whether it has frozen. Calamus bombs are severe; resetproof RAM disks are often wiped out. When printing, Calamus sometimes forgets to use hypenation marks; instead, the last character in the line is doubled. You must proof the final sheets carefully. Linotype printers are very complex to adjust; a page of text can sometimes be shorter than intended. Again, you must check the final proofs carefully. Vector graphics in Calamus are printed too lightly on a linotype. Look into an accelerator board, such as Hypercache; it speeds up the ST. Screen redraws are slow. You should buy a large screen if you plan large projects with Calamus. A standard ST monitor is too small; you can only see part of a page.

A tip when doing layout: buy a spiral notebook for each layout job. In it, you can keep track of what appears on each page, the names of illustrations, page numbering, and whether it is a left or right page. The notebook serves as a quick reference to the layout.

The Manual

The manual, designed with the program, is complete and well illustrated; every option has a page of text. Problems aren't covered, however, and it is rather frustrating to discover how to do something without a bombing raid. It pays to read, re-read, and re-read the manual. You have less problems if you do things "by the book." The index is noticeably missing. DMC sends out a five sheet index when you upgrade your disk. The manual is a good example of DTP overkill; just because a DTP program has 457 options, you don't have to use all of them on a single page. There is a book promised by DMC: "DTP mit Calamus Praxis" by Jürgen Debald and Bernd Kalus, one a professional journalist and the other a layout designer. Other publishers have announced books. Markt und Technik's book is little more than a rewrite of the manual

Calamus is not copy protected, but it has a registration number. The fonts are specific to the registration number which means you can't just use fonts from any other program. These have to be sent to DMC along with your registration number; DMC will then install the fonts on your version. The two standard fonts are not very good. Since professional users will want to have other fonts, this form of copy protection is rather satisfactory.

Calamus is represented in the UK by Signa

Signa Publishing Systems, Alexander House, Station Road, Aldershot, Hants GU11 1BQ, Tel. 0252 341 600. Fax 0252 341 584. Contact them for the nearest Desktop Publishing Centre.

In Germany DMC has a hotline service: Tuesdays and Thursdays from 15:00 to 17:00. German and English spoken. Tlf. 06123/73881. DMC GmbH, Schöne Aussicht 41, 6229 Walluf, West Germany. Tlf. 06123/73881. In North America: ISD Marketing, 2651 John Street, Unit 3, Markham, Ontario, L3R 2W5 Canada. Tlf. 416/479-1880.

✦

Notes on Writing

In addition to your word processor, there are various other word tools:

The Control Panel Accessory

As I mentioned in the accessories chapter, this accessory sets your keyboard repeat speed, key sensitivity and mouse click speed. You need to play around with these settings until you find the ones which suit you.

The Keyboard Layout

Many of the keys are in strange positions. This is a keyboard for programmers, who don't write. In the Keyboard chapter, I described how to redefine your keyboard.

Keymacros

It is very handy to have addresses, salutations, etc on a single key. If you are writing about Joseph Conrad's "Heart of Darkness", having Marlowe, Kurtz, the brickmaker, and the Russian all on separate keys makes it easy to

just punch a key and spill out the name. A keymacro program places a group of words on a single key, which you usually call up by pressing Alternate plus the key. These programs are easy to use.

STRIP.ACC

If you are using texts from a variety of word processors, STRIP.ACC can help out. It lets you select a text and then it removes all of the special word processing codes, leaving a pure ASCII text behind. This can then be loaded into any word processor. It however also removes German, Danish, French, and just about any special character which you may require. The first selector window lets you choose the text file; select and press return. The second window allows you to create a name for the new file.

Transferring Documents to Other Computers

Many people worry that they can't use documents which were written on another computer. In theory, document files can be transferred from nearly any word processor and from nearly any computer. In practise, it is a

question of finding the easiest way. Your word processor can nearly always create and accept an ASCII text. If there are problems, try a control code stripper; this is a program which removes the word processing codes from a text and leaves it as pure characters (these are usually called "STRIP.TOS", etc). Texts which were written on a different computer can also be used. If it was written on a PC compatible which uses 3,5 inch disks, then simply put the disk into your drive. ST's have nearly the same format as PC disks. Amstrad, IBM, etc all use this format. PC's can also read ST disks. If it was written on an Amiga, then Amiga users have a program which can produce ST formatted disks. Amigas can read ST disks without difficulty. Macintosh uses a totally different format system and can't be read by ST drives. Most Macintosh users have a modem; you can set your modem to answer and receive the text directly from the Mac. They can also send the document to a local BBS, from where you can download it with your modem. Otherwise, you will have to construct a cable and use a file transfer program, such as KERMIT, which is the standard.

But Can You Type?

Hunt-and-peck is for the birds. There are typing programs to teach you how to touch type with ten fingers. TYPEWRITE.PRG has 40 courses, teaching both letters, words, and sentences, with repetition exercises. It originally appeared on ST Computer's PD disk number 109.

Typing courses are taught in evening schools. You can also find self teaching courses at any library or bookstore. A way to increase your memory recall is to tape something over a key once you have learnt it. This keeps you from looking at the keyboard.

A Document Holder

This holds your papers up next to the side of the monitor. You can either go to an office supplies store and spend a fortune or you can make one for less than two pounds. Buy a large

Make a clipboard.

A clip, fastened onto a piece of wood, with SUPB or t for heavy materials or books.

The clipboard can also hang next to the monitor.
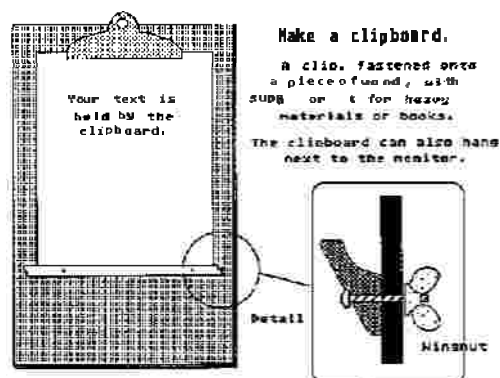
bulldog clip, at least four or five inches wide. Drill a hole in one side and bolt this onto a flat thin board about 10 inches wide and 20 inches long. Clip a sheet of paper into the board and place at its end a piece of wood which can support it (see illustration). Use wing nuts. You can make various holes, so the distance can be adjusted. Now figure out a way to hang this next to your monitor, such as with a student lamp with the lamp removed.

Correcting

It is very difficult to correct on screen. Studies have shown that 60% more errors are missed when you correct on screen. For some reason, one just really isn't used to looking at a screen. Karen and I gave up correcting on screen. You must print out a first draft, correct it, and then print a second draft.

Condensed Print

If you want to save paper, use condensed printing for making backup printouts. This puts twice as many characters per line (112 instead of 65); the text is only half as long. Check your printer manual on how to print in condensed mode or use a printer initialization program.

Spelling Checkers

It is here that computers really shine. If you use one, typographical errors are extremely rare. The computer isn't seeing whether the word is spelled right or wrong; it can't spell any better than you. It is very simple to make a spelling checker; you just compare two character strings (words) against each other. If the new one doesn't match up, then it is marked on screen. There are many commercial spelling checkers. If you use foreign words, make sure that it "accepts" them. WordPlus can't digest "møse"; it comes out as "mse". The Danish letter disappears. Don't get all clever about typing a dictionary into a spelling program and then selling it; dictionaries are copyrighted. The publisher deliberately misspells a few words in order to embarrass you in court.

The Collins Gem and the Langenscheidt pocket dictionaries are small, inexpensive dictionaries which are available in nearly all languages. You can get a French, German, and Spanish dictionary and still have money to feed the cat. These are remarkable in that they have about 40,000 words and include names of many contemporary, daily objects. (One of my favourite tavern games in Germany was to ask Germans if it was "die Coca Cola" or "das Coca Cola". No one ever got it right. Coke changes its gender depending on whether it is in a glass or in a bottle. What is it called when it is up in the air?) Kuma Software puts out a

respectable line of word tools: a thesaurus on disk with 150,000 words, an indexing program, and a rhyming dictionary as an accessory. These can be used separately or together with their word processor. All of these, plus their entire line of professional programs, are compatible with each other; files and data can be moved from one to the other. Kuma Professional Software, 12 Horseshoe Park, Pangbourne, Berks (why don't the English have sensible placenames?), RG8 7JW, UK. Tlf. 07357/4335.

Wordprocessing Codes

The following has been mentioned before, but it applies to all word processors, so I'll repeat it. Word processors which work in full WYSIWYG mode leave lots of word processing codes in the text which you can't see. This is responsible for the mess which results when you move texts back and forth between several word processors and text editors. Extra little spaces appear between words; you have to go through the text and delete these spaces so that it will reformat correctly. Several persons have suggested that perhaps a bit less WYSIWYG would be better; perhaps the codes should be visible on screen, so you can see what is normally invisible.

A single word which is in bold in the middle of a sentence has a style command before it which starts that style and a style command afterwards which ends that style and returns the display to normal text. In the following, I'll give the style command's decimal value for Wordplus; if you use a text editor, these will appear on your screen as various symbols or foreign characters. For other wordprocessors, create a sample text in various styles and then examine it with your disk monitor.

Style commands are started by an Escape character (decimal value = 27). Immediately afterwards, a second character defines the particular style. Decimal value 129, which starts the bold style command, appears on your screen as the German umlaut ü,

ASCII	Style
129 start	**bold** style,
130 start	light style,
132 start	*italics* style,
136 start	underline style,
144 start	superscript style,
160 start	subscript style.

To make combinations of styles, a different charcter is used. For example, 133 starts "bold plus italics" and 137 starts "bold plus underline".

A style command is closed (turned off) by a

sequence of escape (27) followed by a character 128. If we wrote out the codes in ASCII decimal values, then the word "computer" in bold would be "27 129 computer 27 128."

Paragraphs are ended by a decimal 13 followed by a decimal 10. Wordprocessing spaces (stretch spaces) are represented by the character 30. Hyphenation is done by character 25. Carriage returns, which close off a paragraph, are decimal value 13. Tabs are started by a 29, followed by the needed number of decimal 28 characters.

This is **bold**, underline, and *italics*.

This*is*ßbold,*ßunderline*,ıç, *and*ßä italics.ıç

All of this has some practical use; if you are trying to transfer text from one wordprocessor to another and you are having problems, it is because of the wrong style commands. By using a fast editor, such as Tempus or Harlekin, which also have the ability to work with all characters, including style commands, you can replace them. You can also use a disk monitor; this lets you see the style command characters between the words. You can also use the monitor's replace function to fix things.

In a limited way, you can also write text on an editor which doesn't have a full wordprocessing ability and then later print out the text with those styles. For example, in Tempus, you want to place your name in bold. Use the replace option to replace your name with the correct series of codes and your name nested inside. Later, when you load the text into Wordplus, your name will be in bold.

Service Contracts

Since you need your machine to function, regardless of whatever, a service contract may be interesting. These are standard for office equipment; you pay a yearly amount to a service centre; if anything happens to the equipment, they guarantee it to be functioning usually within 36 hours, either by repair or replacement. Such a service for a desktop computer should cost around £50 per year; this is a form of insurance. To find a local service centre, contact any shop which sells computers for professional use; they can usually recommend someone.

Printing

Printers happily fall into several simple categories. There is not much difference between the various kinds in each category; what they do is relatively simple. The two main categories are impact printers, in which the head strikes the

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paper, and nonimpact printers, in which the head does not strike the paper.

Impact printers divide into two main groups: those which print the character in one whole strike, or those which use multiple strikes. The first kind are daisywheel and ballhead printers. These are nothing more than computer guided typewriters. The advantage of these is quality. It's typewritten. The disadvantage is noise. Imagine a typewriter banging away at 200 characters per second. A further problem is that the characters are fixed on the head; if you want to print italics, you must change the head, let it print the word in italics, and then change the head again. This means obviously that you can't print graphics, unless you want to use x's and o's. Daisy wheel printers are mostly used in offices and they can often be bought very cheaply. Be careful with buying used office typewriters; a large typewriter has to be cleaned every two years. This can only be done by a service center; the machine is taken apart, washed in the equivalent of a washing machine, and then put back together again and oiled in about 2,000 points. Yes, the bill is high. People often sell them instead of cleaning them. Have a service center check the machine before you buy it.

The other kind of impact printers uses multiple strikes. These are called dot matrix impact printers. A series of pins in a rectangular matrix, held in a head, strike the paper. The size of the matrix will decide the quality; more pins means more small dots to build up a character. A curve will be less jagged if there are more dots. Dot matrixes have the advantage of letting the computer program decide the pattern in the matrix. With the proper matrix, any character can be printed, even Japanese, or things you draw yourself. The head is robust; an average printer can print about 100 million characters, which means in practise about 30 years. The first dot matrix printers had nine pins; over the past year, these are being replaced by 24 pin printers. A good 24 pin printer is cheaper now than a 9 pin printer two years ago. 48 pin printers are coming onto the market. The advantage is that anything can be printed. The disadvantage is the poor quality, noise, low speed, and the need for a printer driver for special characters. Another problem is the overheating; because the head is in motion, it warms up. During a large job, it can overheat. Some printers will then print very poorly. 24 pin printers sometimes have a heat sensor; if the head becomes too warm, then it begins to pass back and forth to cool it off. One very well known brand of printer cannot print more than thirty pages. Again, most printers are sold for office use, and business people never write more than two pages at a time. But for students, this can be a problem. If you have large jobs in mind, create a file of 100 pages of X's and print it out. Don't believe the salesperson. My Seikosha, a nine pin printer, has printed 450 pages in a single session without problems; I haven't yet seen the first 24 pin printer that can do the same. Dot matrix printers are rather cheap in use. Be sure that you can buy ribbons cheaply. The price of ribbons varies widely.

The other major category is nonimpact printers; nothing hits the paper. The ink is sprayed, jetted, or guided onto the paper in some manner. All of these use the dot matrix method of drawing a character. Thermo printers use heat to apply the ink, electro-magnetic printers use an electromagnetic field to guide the ink, and jet printers spray the ink.

Laser printers are the best known electromagnetic printers. Putting the word "laser" into the name is as fitting as calling a computer "turbo" charged. I'm sure that it was the advertising guys in their leisure suits who came up with this. Yes, yes, a small laser light beam guides the thing, but in reality it is just a photocopy machine. The black particles are very small; this means that a very high resolution is possible; the curve of a letter is very clean. Circles are circles and not jagged things. The advantages are quality, speed, and silence. The Atari laser printer can print eight pages per minute. There are no moving parts. The disadvantage is cost. Laser printers are expensive to buy and expensive to operate. The toner, a cartridge of ink powder, is expensive. Maintenance or repairs are very expensive. Laser printers have to be re-adjusted. It costs about ten times as much per page to print with a laser printer. It may be useful to have a small, cheap nine pin printer for first drafts and a laser printer for the final printing.

Thermoprinters have the advantage of silence. They print quickly and quietly. The disadvantage is that the ink disappears after six months or so, especially if it is in the sun or in a plastic folder. You need to make photocopies for storage. Thermo printers also need a special kind of paper which feels "greasy".

These are the options. The reality is that your bank account and your ambitions are going to have to make a deal. Go around, look at all the printers you can find. Get printouts from each one. You are not buying a printer, you are paying a lot of money to have one for about 18 months. By that time, much better printers will be on the market at cheaper prices.

Be cautious about a salesman showing you a printout. The quality of a printed character depends on several things. First, printers work

with different "DPI" (dots per inch). But... Some printers make better (smaller) dots. So... high DPI on a bad printer can be worse than less DPI on a good printer. Laser printers have a lower DPI than a 24 pin printer, yet the laser dots are finer, and therefore clearer. Next, printers have a built-in font, some have several. The font is the alphabet that it can produce. A beautiful font on a bad printer is going to look better than an ugly font on a good printer. If you print with an ordinary word processor, then you'll use the printer's built-in font. But if you use Signum or any desktop publishing program, then you'll bypass that printer font altogether. So, a cheap printer can print better than a good printer!

Salesmen know this. They also know that you don't know this. They print out a beautiful piece of text in graphics mode on a printer that is for the dogs, and you'll fall for it. Everyone stands around saying "wow!" when they see a printout; is it the DPI, the dot resolution, the built-in font, the program's fonts? Only your mother knows for sure. They don't.

What is the answer? Try the printer with your computer and your favourite word processor. The 100 page test checks the overheating problem, the page advance tractor, paper jamming, and the ribbon lifetime. If you use Signum or a DTP program, test it. If you intend to create your own fonts, make sure that the printer can "download" a font; this means that you can send a new font to the printer and override the printer's own font. Some printers can't do this. Don't believe any test reports in magazines. Again, the "famous printer" mentioned above has excellent test reports, but can't print more than thirty pages.

Nearly everyone who bought an ST in the beginning also has a nine pin printer. These people are now upgrading to 24 pin printers. You can save quite a bit of money and buy a used nine pin printer for less than £50. Nine pin printers together with Signum can print in an acceptable quality for university papers or business correspondence.

There are now lots of printing services which can laser print your material. Many PD services, such as the ST CLUB, will print out your text on their laser printer.

Tricks for Printing

A repeated question is how to make multiple copies with WordPlus. Just save your file, click on PRINT FILE, and there, in the window, is an option "Number of Copies". Just type in the number you want. Easy enough. For 1st Word there is a PD program called 1stDRIVER that allows you to make multiple copies of 1st Word .DOC files.

Don't Close That Window,

People also ask how to print page 47 out of a 64 page file. In the same window an option asks you whether to print pages 1 to 999. Just change this to read "47 to 47". No problem.

And the Big Question:

1½ line spacing. I just can't figure out why no word processor has this ability. This can be done, sort of. Open your printer driver .HEX file. Look around in your printer manual and find a page dealing with LINE FEED (It often helps to hold the manual upside down. Mine certainly makes more sense that way.) This page usually gives an example of properly spaced 1½ lines. Now in the .HEX file, you can find the line feed command. The last number is the value for the amount of line feed; this tells your printer how much to advance the paper after every line. Make a whole set of printer drivers with the following values: 8, 9, A, B, C, D, E, F,10, 11, 12. That is, if the line reads: 1B, 41, 7, change it to read: 1B, 41, 8 etc. You change the last value in the line. For an explanation of why there are alphabet characters, see the entry under ASCII in the glossary or read the article on "How to make a Printer Driver" in this chapter. Test print two lines with each of these. One of them should do the trick. Mine works best with the value 13. But this is just slightly off. After five pages, it begins to creep noticeably upwards. Wait until the printer has finished the fifth page and punch the OFF LINE button on your printer; adjust the paper and hit ON LINE again.

Print and Read

If your word processor won't allow a file to be open while it is being printed, just create a new file and use the READ file option; it makes a copy of the text into the new file.

Punch It Twice

In your printer manual and .HEX file, you can find the command for double strike mode. In PD collections, you can also find many printer initialization accessories which let you use double strike mode. This means that the pin head will place a second dot just a bit away from the first. This is useful if your ribbon is running low on ink; make a driver with double strike mode and use it. The ribbon will really be used up.

Spoolers

Your printer has its own memory chip, with at least 1.5 KB RAM, or enough to hold a third of a page. You'll notice that the printer will print

for a while and then the drive will make a few turns. More of the file is being fed into the printer's RAM. If you are printing 10 pages, you are going to wait for a long time before you can change the disk. The computer, at this point, is nothing more than a holding device for the printer. What's the answer? Use a spooler program. The average spooler sets up a 30 KB buffer space in the ST's RAM into which your files are sent from the word processor. This is a "second" printer buffer. From that "second" buffer, the file is given to the printer buffer. Since that second buffer is outside of your word processor, you can switch disks and do something else, once the WP has sent the entire file to the spooler (the PRINT FILE option will not longer have a check mark). Up to about ten pages will fit into a 30K spooler. You can quit your word processor and go on to another program; the printer will continue drawing the text from the spooler buffer. Just don't turn off the ST until it is finished printing.

Printer Control

There are printer initialization accessories for nearly every printer; from these accessories, you can tell the printer how to print a text.

Paper Jam

If your paper sometimes starts to roll up in the printer, as my Seikosha does every once in a while, then a long flat piece of wood, at least 3 inches wide, placed between the ingoing and outgoing paper will keep the outgoing paper from curling back into the printer.

Printer Ribbons

You can also buy coloured ribbons for your printer; it is interesting to print red text on light blue paper, or green onto yellow. It certainly gets attention.

I am convinced that there is a conspiracy about these. It is impossible to get the ribbon itself without the cassette. From wholesale office supply stores, you can buy 10 ribbons cheaply; get together with several friends. The prices have little to do with anything; my cassettes cost around £10; others cost a tenth of the price. It would be a possibility to buy a cheap cassette, open it, and transfer the ribbon into your expensive cassette. As long as it is the same material, width, and general length, it shouldn't be a problem. Don't go for any re-inking stories; the ink on the ribbon will end up on your printer head, not on the paper. The repair job can be 50% of the price of the printer. Most re-inking places actually just replace the ribbons.

Paper

Paper is not just paper. Many users live with what is actually cheap paper for computer departments; it is both poor quality, and the wrong size for private/business use. The computer stores usually sell a paper that is either 11 or 12 inches long (30 cm); DIN 4 typing paper is however 29.7 cm long. If your printer paper happens to be just a little bit longer and you are always using scissors to trim it, then you can avoid this problem by buying printer paper that is A4 size.

Paper is perforated in two qualities: awful and microperf. The first one is obvious: little tufts of paper all the way around along the edge. Microperf paper has very fine, small perforations; it is nearly unnoticeable. There is a very small price difference between the two types.

Paper comes in weights. You often hear of 50 gram paper, 100 gram, etc. A paper which weighs 50 grams means that one square meter of that paper will weigh 50 grams. (25 grams is about one ounce). The higher the weight, the stiffer the paper will feel.

Paper can also be in several qualities. A cheap paper is slick and light; this is fine for mass printing jobs for personal use. If you print out lots of source codes and long lists, this is a cheap solution. A good cotton paper is nicer for presentation. Recycled paper is also available for printers; this comes in either an off-grey or white. Buy paper in a professional office supply store; they have better quality.

You can always share the price of a box of 2000 sheets with several friends. Some paper supply store will sell you printer paper in smaller amounts. If you want to print out something special, for a final presentation, you can buy just the number of sheets of better quality printer paper which you need. A final presentation paper can be 100 gram paper on cotton; this looks and feels very expensive, but it doesn't cost much more than normal printer paper.

For Americans: DIN means Deutsch Industrie Norm (German Industrial Norm), DIN-A0 is one square meter in surface, measuring 84.1 cm wide and 118.9 cm tall. That piece of paper folded in half produces a DIN-A1 size. Folded again, you have A2. Once more makes A3 (29.7 X 42 cm). A4 makes a standard European typing sheet (21 X 29.7 cm). A5 (book size), A6 (postcard size), and A7 are also standards. American paper is 8.5 X 11 inches, or 21.4 X 27.8 cm.

Single Sheet Feeders

You can buy a single sheet feeder for most printers. This is a piece of plastic which goes

on top of the printer and feeds sheets one at a time into the printer. You don't need fan sheet if you have a single sheet feeder; it allows you to use nearly any kind of paper, including letter heads, engraved, etc. Single sheet feeders are however expensive, often costing about half the price of the printer.

Cellophane Windows

Printers rarely allow you to print on envelopes. It is a bother to have to address envelopes by hand. HS suggested the following, which is very easy to do. Buy envelopes with cellophane windows. Print a sheet with thirteen lines of X's and fold it into an envelope. With a ball-point, mark the edges of the window onto the paper. Remove the paper and note the size of the window box.

With a keymacro program, you can place the date, several carriage returns (press Control + M, a small ᶜ, shows up), and your name and address in bold underline superscript, two more carriage returns, and Mom's address. Now, when you start a letter, press your key-macro and the date, heading, address automatically fill up the top of the letter. I keep a small file of common addresses.

☆ ☆
☆ ✶ ☆
■■■■■■■ *How to Make...* **■■■■■■■**
☆ ☆

Tennessee Bar-B-Que Sauce

I promised this in various parts of this manual as an ointment for your fingers. This can also be used with chicken, ribs, hamburgers, or just about anything that'll sit still long enough. Despite what anyone tells you, there is no "original" BBQ sauce. Everywhere in the South, from Virginia to Texas, and stretching out to Nevada, everyone makes their own local sauce. But the main things are there underneath: lots of good food.

Eight tablespoons of apricot jam
1/2 cup of water
1/2 cup of lemon juice
3 tablespoons of brown sugar
1 tablespoon of butter
1 tablespoon of salad oil
1 tablespoon of salad vinegar
1/2 teaspoon of paprika
Add Worcester sauce, salt, and pepper to taste.

Mix all this together and let it simmer on the stove while you make the rest.

A lot of you want to know what Bar-B-Que ribs have to do with computers. Everything. Buy a whole lot of ribs. Pork, beef, alligator, whatever (I once was making some Thai food; there was a recipe for bat soup. The "bats" were little balls of rice dough. Our roommate, however, didn't know this. I looked in the fridge, and said out loud, "Oh, no! No more bats!" I told him to go to the corner grocery and pick up a bag of six; they were in the frozen foods section. He fell for it. He had to avoid the store afterwards; every time he showed up, the clerks burst out laughing). Two pounds of ribs for three people. Make potato salad, bread, whatever. Turn on the oven to 175 degrees Celsius, 350 Fahrenheit. If the ribs are meaty, then baste them and chuck them into the oven. If they are thin, it can help to boil them. Put them in a pot of boiling water (with enough water to cover them) and boil them for thirty minutes. Put them on a big flat pan, brush them with loads of the sauce, and into the hot oven. Every ten minutes, more basting. Use a big brush. Slop it on. On the third basting, turn them over and add more sauce. Five bastings should be enough, unless you want them well done. If you're doing a chicken, skip the boiling.

Drinks

If you live in a "wet" county in Tennessee, then it's beer. If you live in a "dry" county, it's iced tea (use Earl Grey tea). The Baptists always drink tea; us less chosen types used to call it "baptist beer". Yuppies drink wine. My father drinks white wine with ribs, a fact that makes my brother, who studied in France, very angry, which only amuses my father. If you avoid alcohol, but aren't certain about which soft drink to serve, the following guide is for you: Pepsi for red meat, 7-Up for white meat, Coca Cola for the kitchen help. Wild meat deserves Fanta.

☆

Make a Printer Driver.

Written for the Y2M by Heine Svendsen

When you buy a car, there is no nonsense about getting it to work. You just drive away. But a printer, oh, no! If you ask the salesman whether the printer can print Danish characters in your letters to Mom, he'll say yes. However, it is almost certain that YOU won't be able to get the printer to do this. The dip switches have to be set and the printer driver file has to be edited and configured. This can take days of frustrating trial and error with a system that does not make any sense. Nearly everyone has problems with their printers. Often, they can't get it to print special characters. Another problem is line spacing.

This should explain the principle of the thing. You'll be able to make your own printer drivers. Since WordPlus (WP) is the standard, for better or worse, we will use a WordPlus 2.14 printer driver for this example, but the principles are the same for other programs. KSpread 2 works in the same way, but it looks different; we'll talk about that too. Since Signum prints in graphics mode, it doesn't use drivers at all, which means fewer problems.

Printer Language

Let's take an example so you'll see what a printer driver is. When you print a document, the word processor sends a long string of characters to the printer. If the character is an "a", then it goes right on through because all printers know how to print an "a." But if you want to send a French "é", which is an "e" with an accent, then the problems start. Not all printers know how to print these. WordPlus could solve this problem by sending a group of commands, such as "first print an "e", and then backspace and print an accent "'". The result is an "é". So the printer driver converts the "é" on your screen into something that the printer can understand. A printer driver has a table of codes to which WordPlus refers. If it is necessary to use a special code, then WordPlus knows which command codes to send to the printer.

Signum! is different. It doesn't send a space (Ascii 32), nor does it use special codes. Instead, it sends a graphic picture of your entire page. The printer simply prints a collection of dots that makes up your page. A printer driver

sends codes for the individual characters, but Signum sends the dots which make up characters. Signum can print on nearly any printer without any changes. But with Wordplus, you need to adapt the program and the printer to each other through the printer driver. This is a big job, so roll up your sleeves.

Printer Driver

A printer driver looks somewhat like a document; its name can be MP_165.HEX. The "HEX" means that it is in hexadecimal notation. Start up Wordplus, open the HEX document. Make your changes. When you save your work, be sure that WP Mode is switched off; this saves the file in ASCII.

Next, the HEX file has to be installed by using the INSTALL.PRG. This strips away all of the comments and leaves the file in a form which is easier for Wordplus to understand. The resulting file is called MP_165.CFG. If you rename the file to PRINTER.CFG, then Wordplus will automatically use it. If you don't rename it, Wordplus won't be able to find it and will ask you every time to select a driver. To select it, click in the bar above the font table on screen. A file selector window appears and lets you select your MP_165.CFG printer driver.

Use a Ram Disk

It is strongly recommended that you use a RAM disk when installing a driver. You will need to hop in and out of Wordplus many times to use INSTALL.PRG. The installing, loading, and saving is much faster with a RAM disk. See the RAM disk chapter for more information.

More Theory: The ASCII Character Set

Printers with hex characters. In the back of your printer manual (and in appendix A of the Y2M), there is an ASCII Hex table: 256 boxes with a single character in each. Each character is identified by a coordinate system. The top line reads "0123456789ABCDEF". On the left side is the same. Go to the top line, number 4, and then to the left side, line D. Where these two meet, there is an "M". "M" is therefore code 4D in the ASCII table. (See chapter two

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		⇧	⇩	✖	■	▨	⊘	♣	♪	♭	♯				◀	▶
1	▯	┆	2	3	4	5	6	8	9	ə	⌐	◌	╳	▾		
2		!	"	#	&	%	'	(	)	+	*	,	-	.	,	/
3	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
4	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
6	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
7	p	q	r	s	t	u	v	w	x	y	z	{	|	}	~	△
8	Ç	ü	é	â	ä	à	ç	ê	ë	è	ï	î	ì	Ä	Å	
9	É	æ	Æ	ô	ö	ò	û	ù	ÿ	Ö	Ü	¢	£	¥	ß	ƒ
A	á	í	ó	ú	ñ	Ñ	ª	º	¿	⌐	¬	½	¼	«	»	
B	▒	▓	ß	ø	œ	Œ	Ê	Ë	Ë	¨	´	⌐	¶	©	®	™
C	ÿ	IJ	‰	¹	♪	Ⅱ	¹	¡	⅏	┘	┐	╮				⌐
D	▯		¥	⊐		∏	⌐	⌐	⌐	┌	█	▄	§	∧	∞	
E	∝	β	Γ	π	Σ	σ	µ	Ω	Θ	Ω	δ	∅	Φ	∈	∏	
F	≡	±	≥	≤	⌠	⌡	÷	≈	°	∙	·	√	ⁿ	²	■	

and the glossary for more about ASCII).

There are other ways to identify the letter "M". We can use our alphabet, or we can write it in numbers, using several notation systems: binary, decimals, hexadecimals.

There are four codes for M which mean the same:

M	is the character written in our alphabet system.
4D	is the ASCII value for "M" in the hexadecimal system.
77	is the ASCII value for "M" in the decimal system.
0100 1101	is the ASCII value for "M" in the binary system.

The Wordplus drivers always use hexadecimal notation.

With KSPREAD2, you use the characters themselves. To write an "â", you write: "a" BS "^" Just like above, with "e + backspace + accent". In Wordplus, "â" is written in its ASCII value like this: 61,08,5E.

Before we start with the driver, let's look at the sections into which the driver is divided:

1. Name of printer.
2. Six word processor parameter values which can be changed.
3. Printer characteristics: your commands for bold, underline, etc.
4. The translation table itself.

Notes to These:

1. The printer **name** space is 32 characters long. You can write your printer's name

here, or whatever you like. It's up to you.

2. The **parameter** values are general information to Wordplus about the printer. It is only parameters 3 and 4 which can cause problems; the rest are self explanatory.

Parameter 3 describes the line spacing in the printer's own measurements. The MP-165 printer uses 72 points per inch. Since there are 6 lines per inch in single spaced lines, there are 72/6 = 12 points per line. You should write a "12" as the third value in the configuration variable. But! Wordplus, which works with hexadecimals, doesn't understand "12", which is a decimal notation value. It wants the number in hexadecimals; "12" becomes "0C". Hexadecimals allow you to ignore the first zero, so it can be written as plain "C".

Parameter 4 is like parameter 3; this is the number of dots per inch which the printer can produce. The MP-165 uses 80 dots per inch, so we write "80", but in hexadecimals, this is "50".

Parameters 3 and 4 are used by Wordplus in graphics mode. If you have a picture on your screen, there is a stippled frame around it. This frame is made by using these parameters.

3. The printer **commands** or style commands are in this section of the HEX file. In sections 2, 3, and 4, each function had its own code or number. These are in an order. For example: in 3, style command, we see that the code to turn on bold printing is "06". "07" turns off bold. "1A" turns on underlining, and "1B" turns it off again. These commands are specific for Wordplus, but are different for each printer. Wordplus uses "06" to start printing in bold, but the MP-165 uses "1B,47". So, we must translate them.

06,1B,47   * Start printing in bold

When you want to print something in bold, Wordplus finds the 06 command and converts it into the 1B,47 command for the printer.

Note that "06" and "6" are the same. The zero is ignored. It doesn't matter whether you use capital or small letters; "B" and "b" both mean the same. We could have written "6,1b,47".

4. The **translation table** is similar to section 3. Instead of style commands, this translates the characters. With the same principle as above, Wordplus uses one set of
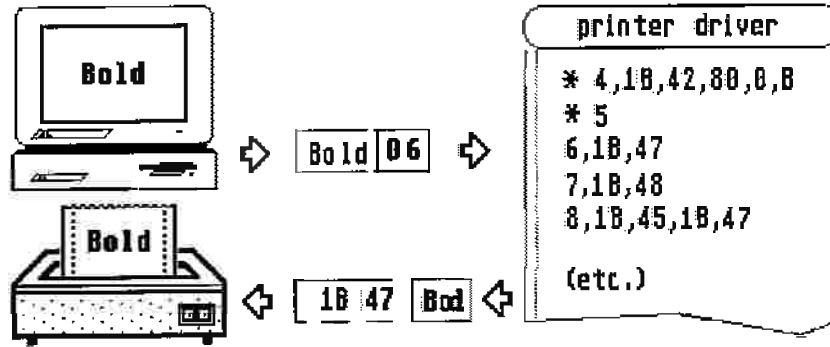
hexadecimals to define a character, but the printer uses another.

So! we are nearly there. The MP-165 is a Micro-peripherals nine pin printer which is Epson compatible. Epson, owned by Seiko, is a Japanese company, and like all things Japanese, is the world's largest producer of printers. They are the standard. Seiko makes watches as well, and, like all things Japanese, is the world's largest producer of digital watches. Seiko makes Seikosha printers as well. You may want to know why a Japanese company is called Epson. Back at the 1964 Olympics, Seiko was the official timekeeper. They wanted to be able to give the results instantly to the reporters so they needed a good, fast printer. But 1964 was still the American century, which meant lots of Cadillacs, but no printers. So, for the Olympics, Seiko made their own little electronic printer, which they called "The Electronic Printer", or "EP" for short. This became a big success; people had more need for printers than Cadillacs, so Seiko started a company to make printers. The new printers were based on that old EP, so they called them "Son of EP", or EPSON.

If you don't believe me, just ask them.

The printer driver for the MP-165. Everything after a star (*) is a comment. These comments are stripped away by the INSTALLPRG.

```
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
*                                                               *
*     MP 165 PRINTER CONFIGURATION. Set printer dip switches to USA set    *
*                                                               *
*     This is the configuration file for the MP-165 printer.    *
*     To change this file, you must:                            *
*                                                               *
*     1. Read the PRINTER CONFIGURATION information from your WordPlus manual    *
*     2. Edit this file with Wordplus. All values are in HEXADECIMAL.    *
*     3. Use INSTALL.PRG to install the new driver.             *
*                                                               *
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
*
*     Printer name
*
*     This name appears above the font table on your screen.
*     Use up to 32 characters to describe your printer.
*
MP 165, 9-pin, var. line spacing
*
*     Configuration variables
*
*     These six variables define certain printer
*     configuration details required by 1st Word Plus:
*
*     (1)   1 for microspacing daisywheel, else 0
*     (2)   Character width in printer units (daisy)
*     (3)   Linefeed height in printer units
*     (4)   Midcarriage (daisy) pixels/inch (matrix)
*     (5)   Bold offset in printer units (daisy)
*     (6)   1 to pause printing between pages, else 0
```

```
*
0, 0, C, 50, 0, 0
*
*   Printer characteristics
*
*   This table defines values to be sent to the
*   printer by 1st Word Plus to control its operation.
*
*   An entry consists of:
*
*   (1)  Function numbers (these must be kept in order)
*   (2)  Command bytes (hex commands and placeholders)
*
*   A placeholder has the top bit set and is substituted
*   by an actual value by 1st Word Plus when printing.
*
*   Lines preceded by an asterisk are "turned off". You can also simply
*   delete the line, but maybe some day you'll want it again...
*
* 0                           * Character width
1,D,A                         * Carriage return and line feed
* 2                           * Forward print
* 3                           * Reverse print
* 4,1B,42,80,0,B              * Vertical tab to line
* 5                           * Absolute horizontal tab
6,1B,47                       * Draft bold on
7,1B,48                       * Draft bold off
8,1B,45,1B,47                 * NLQ bold on
9,1B,46,1B,48                 * NLQ bold off
A,1B,34                       * Draft italic on
B,1B,35                       * Draft italic off
C,1B,34,1B,61,1               * NLQ italic on
D,1B,35                       * NLQ italic off
* E                           * Draft light on
* F                           * Draft light off
10,1B,61,0                    * NLQ light on
11,1B,61,1                    * NLQ light off
12,1B,53,0                    * Draft superscript on
13,1B,54                      * Draft superscript off
* 14,1B,53,0                  * NLQ superscript on
* 15,1B,54                    * NLQ superscript off
16,1B,53,1                    * Draft subscript on
17,1B,54                      * Draft subscript off
* 18,1B,53,1                  * NLQ subscript on
* 19,1B,54                    * NLQ subscript off
1A,1B,2D,1                    * Draft underline on
1B,1B,2D,0                    * Draft underline off
1C,1B,2D,1                    * NLQ underline on
1D,1B,2D,0                    * NLQ underline off
1E,C                          * Formfeed
1F,12                         * Horizontal initialization
* 20,1B,42,0,0,0,B            * Vertical initialization: USA font
*
*   Note that command line 20 starts with a star. This means
*   that it, and other lines preceded by a star are "turned off".
*   If line 20 were turned on (by removing the star), then it would
*   be the same as setting the printer to the USA character set by
*   using a software command instead of using the dip switches.
*   Command line 20 is sent to the printer at the beginning of
*   a document, and thus is active for the entire document.
*
21,1B,40                      * Termination: printer reset
```

```
22,8                             * Backspace
23,D                             * Carriage return
* 24,1B,43,80                    * Form length in lines, not installed, because
*                                * page length is installed by using DIP switches.
*                                * 80 (hex) otherwise uses the page length which
*                                * we set using the Page Layout option in Wordplus.
* 25,1B,41,80                    * Set line feed to N units.
*
* The placeholder 80 (hex) gets the value 12 (0C) from the parameters configuration.
*
26,1B,2A,5                       * Start graphics (mode 5)
* 27                             * Reserved
28,1B,61,0,12,1B,57,0,1B,50      * Draft Pica        (10 cpi)
29,12,1B,57,0,1B,50,1B,61,1      * NLQ Pica          (10 cpi)
2A,1B,61,0,12,1B,57,0,1B,4D      * Draft Elite       (12 cpi)
* 2B,12,1B,57,0,1B,4D,1B,61,1    * NLQ Elite         (12 cpi)
2C,1B,57,0,1B,50,F              * Draft Condensed   (15 cpi)
* 2D,1B,57,0,1B,50,F1B,61,1      * NLQ Condensed     (15 cpi)
* 2E,12,1B,4D,1B,57,1           * Draft Expanded    ( 6 cpi) (elite)
* 2F12,1B,4D,1B,57,1            * NLQ Expanded      ( 6 cpi) (elite)
2E,12,1B,50,1B,57,1,1B,61,0      * DRAFT Expanded    ( 5 cpi) (pica)
2F12.1B,50  1B,57,1,1B,61,t     * NLQ Expanded      ( 5 cpi) (pica)
* 30                            * Black ink
* 31                            * Magenta ink
* 32                            * Cyan ink
* 33                            * Yellow ink
34,1B,41,12                      * 1½ Line feed (18/72 inch)
35,1B,70,01                      * Proportional spacing ON
36,1B,70,00                      * Proportional spacing OFF
0                                * NULL termination byte
```

```
*    Translation Table
*
*    This table is used to translate the ST
*    character codes for output to the printer.
*
*    Each entry consists of:
*
*    (1) ST character code (these must be in order)
*    (2) The (possibly null) byte string to be output
*
*    ST character codes with a NULL translation
*    string are printed as spaces
*
*    ST character codes NOT in the table are sent
*    directly to the printer without translation.
*
* 21                            * ! - exclamation mark.
*
*    The rest of the characters up to 7F are deleted as lines.
*    The printer can print them directly, and therefore has no need
*    for translation. This is the same as setting a star (*) in front
*    of them, as with character 21 (hex) (an exclamation mark).
*
7F                               * Δ - N/A (not installed)
80,43,8,2C                       * Ç - C + backspace + comma
81,1B,52,2,7D,1B,52,0            * ü - Go to German set, print ü, go back to USA set
82,1B,52,1,7B,1B,52,0            * ê - French
83,61,8,1B,52,0,5E              * â - a backspace ^
84,1B,52,2,7B,1B,52,0           * ä - German
85,1B,52,1,40,1B,52,0           * à - French
86,1B,52,4,7D,1B,52,0           * å - Danish
```

```
*    1B,52,4 tells the printer that it should go to the Danish
*    character set (most printers have an international character
*    set. From the Danish collection, it should print character
*    number 7D (hex), which is an "å", and thereafter go BACK to
*    the USA character set.
*
```

Code		Char		Description
87,1B,52,1,5C,1B,52,0	*	ç	-	French
88,65,8,5E	*	ê	-	e BS ^
89,65,8,1B,52,1,7E,1B,52,0	*	ë	-	e BS French ¨
8A,1B,52,1,7D,1B,52,0	*	è	-	French
8B,69,8,1B,52,1,7E,1B,52,0	*	ï	-	i BS ¨
8C,69,8,5E	*	î	-	i BS ^
8D,1B,52,6,7E,1B,52,0	*	ì	-	Italian
8E,1B,52,2,5B,1B,52,0	*	Ä	-	German
8F,1B,52,4,5D,1B,52,0	*	Å	-	Danish
90,1B,52,5,40,1B,52,0	*	É	-	Norwegian
91,1B,52,4,7B,1B,52,0	*	æ	-	Danish
92,1B,52,4,5B,1B,52,0	*	Æ	-	Danish
93,6E,8,1B,52,0,5E	*	ô	-	o BS ^
94,1B,52,2,7C,1B,52,0	*	ö	-	German
95,1B,52,6,7C,1B,52,0	*	ò	-	Italian
96,75,8,1B,52,0,5E	*	û	-	u BS ^
97,1B,52,1,7C,1B,52,0	*	ù	-	French
98,79,8,1B,52,1,7E,1B,52,0	*	ÿ	-	y BS French ¨
99,1B,52,2,5C,1B,52,0	*	Ö	-	German
9A,1B,52,2,5D,1B,52,0	*	Ü	-	German
9B	*	¢	-	c backspace |, N/A
9C,1B,52,3,23,1B,52,0	*	£	-	UK
9D,59,8,2D	*	¥	-	Japanese
9E,1B,52,2,7E,1B,52,0	*	ß	-	German
9F	*	ƒ	-	N/A
A0,61,8,27	*	á	-	a BS accent
A1,69,8,27	*	í	-	i BS accent
A2,6E,8,27	*	ó	-	o Back Space accent
A3,75,8,27	*	ú	-	u BS accent
A4,1B,52,7,7C,1B,52,0	*	ñ	-	Spanish
A5,1B,52,7,5C,1B,52,0	*	Ñ	-	Spanish
A6,61,8,5F	*	a̱	-	a BS —
A7,6E,8,5F	*	o̱	-	o BS —
A8,1B,52,7,5D,1B,52,0	*	¿	-	Spanish
A9	*	⌐	-	N/A
AA	*	¬	-	N/A
AB	*	½	-	N/A
AC	*	¼		N/A
AD,1B,52,7,5B,1B,52,0	*	¡	-	Spanish
AE	*	«	-	N/A
AF	*	»	-	N/A
B0,61,8,7E	*	ã	-	a BS ~
B1,6E,8,7E	*	õ	-	o BS ~
B2,1B,52,4,5C,1B,52,0	*	Ø	-	Danish
B3,1B,52,4,7C,1B,52,0	*	ø	-	Danish
B4	*	œ	-	N/A
B5	*	Œ	-	N/A
B6	*	À	-	N/A
B7	*	Ã	-	N/A
B8	*	Õ	-	N/A
B9,1B,52,7,7B,1B,52,0	*	¨	-	Spanish
BA,27	*	´	-	trans. to apostrophe (hex 27)
BB	*	†	-	N/A
BC	*	¶	-	N/A
BD	*	©	-	N/A
BE	*	*	-	N/A

Code		Description
BF	* ʷ	- N/A
C0,1B,32	* jj	- Line space 1 = 12/72" = 1/6"
C1,1B,41,12	* ʊ	- line space 1¼ = 18/72" = 1/4"
C2,1B,41,18	* N	- line space 2 = 24/72" = 1/3"
C3	* ٦	- N/A
C4	* ٦	- N/A
C5	* ٦	- N/A
C6	* п	- N/A
C7	* ١	- N/A
C8	* ٢	- N/A
C9	* п	- N/A
CA	* ٥	- N/A
CB	* ˙	- N/A
CC	* ٥	- N/A
CD	* ٢	- N/A
CE	* п	- N/A
CF	* ٦	- N/A
D0	* □	- N/A
D1	* ‖	- N/A
D2	* ٥	- N/A
D3	* ٧	- N/A
D4	* п	- N/A
D5	* ٦	- N/A
D6	* ש	- N/A
D7	* п	- N/A
D8	* ١	- N/A
D9	* ٦	- N/A
DA	* п	- N/A
DB	* п	- N/A
DC	* ٦	- N/A
DD,1B,52,2,40,1B,52,0	* §	- German
DE	* ٨	- N/A
DF	* ∞	- N/A
E0	* ∝	- N/A
E1,1B,52,2,7E,1b,52,0	* β	- German
E2	* Γ	- N/A
E3	* π	- N/A
E4	* Σ	- N/A
E5	* σ	- N/A
E6	* μ	- N/A
E7	* τ	- N/A
E8	* Φ	- N/A
E9	* θ	- N/A
EA	* Ω	- N/A
EB	* δ	- N/A
EC	* φ	- N/A
ED	* φ	- N/A
EE	* ϵ	- N/A
EF	* ∏	- N/A
F0	* ≡	- N/A
F1,2B,8,5F	* ±	- - + B S —
F2,3E,8,5F	* ≥	- › BS —
F3,3C,8,5F	* ≤	- ‹ BS —
F4	* ʃ	- N/A
F5	* ʃ	- N/A
F6	* ÷	- N/A
F7	* ≈	- N/A
F8,1B,52,1,5B,1B,52,0	* °	- French
F9	* ·	- N/A
FA	* •	- N/A
FB	* √	- N/A
FC	* ⁿ	- N/A

FD		* 2	- N/A
FE		* 3	- N/A
FF		* ‾	- N/A
0			* NULL terminator

That's it! Isn't it just simplicity itself?

On your original Wordplus disk, there is a collection of drivers. Use INSTALL.PRG and turn them all into CFG files. Use the mouse to put all of the characters from the font table into a document and save it as 1_FONT.DOC. Now, double click on the bar above the font table, select the first driver, and print out 1_FONT.DOC. On the piece of paper, note which driver you used. Do this over and over again, for all of the drivers. If you are lucky, one of these will fit your printer perfectly. Note which one it is and throw the rest away. Print out this HEX file and compare it to the driver which we described here.

Line Spacing

In the new Wordplus V.3.14, there is room to write the command for 1½ line spacing. It is in the third section of the driver under the code number 34(hex). The line is:

34,1B,41,12   * 1½ line spacing

1B,41 is the code for line feed. This space is measured in n/72 inches, if you use 1B,41. But you can use n/216 inches, if you want to be more precise. The command for fine measurement is 1B,33.

The number 12 (hex) tells the printer how much it should turn the paper drum for every line. Remember that 12 is in HEX notation, and not in decimals (ordinary numbers).

The printer is normally set to 1/6 inch line spacing. This means six lines per inch.

1/6 inch per line is called "line spacing 1" (one). 1½ line spacing is therefore 1½ times 1/6. This becomes 3/2 times 1/6, which is the same as 3/12. 1½ line spacing is therefore 3/12 inches per line, but the printer works with 1/72 inches. Don't you wish you had paid more attention in school? We'll write the 3/12 in the printer's own units. 3/12 turns into 18/72.

We need to tell the printer that it should use a line spacing with the value of 18 in its own units, namely n/72. The printer does not understand a decimal notation 18, and needs it in hexadecimals.

If you look in the ASCII table and find decimal 18, you'll see that it is 12 in hexadecimal. This is the number which we used to set the line spacing to 1½, namely:

34,1B,41,12

If you don't have WordPlus V3.14, you can get your printer to use different line spaces anyway.

In the printer driver file, I selected three Greek characters which I never use and which my printer can't print anyway. These are C0, C1, and C2 (all in hex).

If I use a C2(it looks like a Greek X) in the middle of a document, all the lines which follow will be printed with double spacing. If the printer runs into a C1, then it hops back to printing in 1½ line spacing.

Using this method, you can make all sorts of commands for your printer, even if Wordplus can't. You can make a command to print in proportional spacing. This means that an "i" won't take up as much space as a "w". You must first make sure that your printer can print with proportional spacing.

To be able to change commands directly from the keyboard, instead of hunting around with the mouse in the font table, use a keyboard editor (see chapter 2) to place the Greek X in the numerical keypad on a shift+ number key.

Here are the commands for various line spacings:

1B,41,09 = 9/72 =1/8 = A bit less than single spacing.
1B,41,0C= 12/72 =1/6 = Single spacing.
1B,41,12 = 18/72 =1/4 = 1½ line spacing.
1B,41,18 = 24/72 = 1/3 = double spacing.

Notes on Danish Characters

The following is about problems with Danish characters. However, this information could be useful for those with other languages as well, so here it is. In the driver above, we assumed:

1. The printer driver above was set to the USA character set by using DIP switches.

2. Your computer has either a new Danish TOS in ROM or an English TOS. If you have an old Danish TOS, then there are problems.

Look at the file name at the top of an open window: if it is a new TOS, then it reads A:*. *I f it reads A: Ø**, then you have an old Danish TOS.

In the printer driver's character translation table, we left out six lines. These are used by programmers.

5B   * [From the USA character set.
5C   *\ USA
5D   *]USA
7B   *{USA
7C   *|USA
7D   *}USA

This is rather complicated, so pay attention! The old Danish TOS used these programmer's characters instead of the Danish ÆØÅ æøå. If you see a Danish Æ on screen, the computer actually thinks that it is a [. Your printer will print a [, not an Æ. When the first TOS were translated into Danish, the programmers used the parentheses, not the Danish characters. Now, why? Before the ASCII table was expanded from just the American characters to the current 256 characters, it was normal for programmers to redraw the character's shape on screen. The [which was otherwise unused was redrawn to look like an Æ. The computer still thinks it is a [, but you see its shape as an Æ. PC people still do this sort of nonsense; why make anything easy? The new Danish TOS and English TOS correctly use an Æ as an Æ. But if you have an old TOS, then you'll notice many problems with special characters, besides not being able to print. For example, in Wordplus, you try to find Æble (apple) in your document. You can see it on screen, you can type it into the search line, but Wordplus won't find it. The Æble on screen is actually [ble, and the Æble in the search line is an Æble. Therefore, no match. Two solutions: use Keyedit and place those unused characters onto your shift + numeric keyboard, so that you'll have two "sets" of Danish. Or have your TOS upgraded.

As for your printer, open the printer driver and translate those odd characters.

Write the following:

5B,1B,52,4,5B,1B,52,0   * Æ From Danish set.
                          * Back to the USA set.
5C,1B,52,4,5C,1B,52,0   * Ø Danish
5D,1B,52,4,5D,1B,52,0   * Å Danish

7B,1B,52,4,7B,1B,52,0   * æ Danish
7C,1B,52,4,7C,1B,52,0   * ø Danish
7D,1B,52,4,7D,1B,52,0   * å Danish

In the first line, the character is a 5B, which is the American square parenthesis. Afterwards, comes the Danish character definition - Æ. Lastly, the printer receives the command to revert to the USA set.

General Information about Installing a Printer

The paper length can usually be set with a DIP switch. Most fansheet paper is 12 inches, which is regrettably a bit longer than A4 paper. If you use a paper length which can't be installed by dip switches, then use the command line number 24(hex) in part three of the driver.

Even if you don't like President Wimp, it is best to set your printer to the USA character set. Nearly all printer drivers will assume that your printer is sitting somewhere in the USA.

The number of bits should be set to 8.

Don't use "skip over perforation". Many spreadsheets and database programs can't work with this option. "Spring over perforation" is actually used only if you often print a text directly from the desktop by double clicking on it. The printer then remembers the paper length (which you set at the dip switches) and hops over the perforations.

If you are having problems, there is a simple trick which can help you find the the little beastie.

All printers can be put into "HEX Dump mode". Do this at the dip switches. In this mode, it will print the hexadecimal codes instead of characters. Print a document which has the various style commands (bold, underline, etc), placing each in a different line. Now you'll have on paper the various style codes which the printer is receiving from the word processor. You can see if the wrong command is being sent or if it is in the wrong sequence.

Good luck!

Chapter Nine

Magazines for the ST

nce upon a time, in a far away kingdom, the Wicked Witch of the North had a publishing house which covered all computers, from Crays to calculators, in many different scrolls, all thinner than a rat's tinny tin tail. And there was much unhappiness in the land, for there was nothing else. And so it came to pass in those days that there went out a decree from a young prince, whose father owned a publishing company, that a new scroll for two sister computers, the Ester and the Cheri, was to be launched. Great was the rejoicing! The two rival camps partied all night, writers wrote, reviewers reviewed, subscribers subscribed. The day of first issue came. And went. And went some more. And in their despair, a nasty story began to spread on the wires at night. The craftsmen of the Cheri, it was rumoured, had given 250,000 baskets of grain if the Ester would not be mentioned in the scrolls. Suspicion bred like flies. The Society of the friends of the Cheri laughed unto scorn; the others were dismayed. The sound of sharpening knives began. And soon, a second story began to spread on the wires. The Wicked Witch of the North had promised one million baskets of grain, delivered on coal black chargers, over a period of a childhood, if the prince took a long holiday to Monte Carlo. The Wicked Witch thus kept her iron grip on the town market. And the Prince, alone in his castle, grinned an evil grin. Certainly he hadn't planned the whole thing! And so it was that the friends of Cheri and the Brothers of Ester fell back together into their pubs, without any scrolls whatsoever.

This story happened in a universe far, far away, and a long, long time ago.

Magazines have commercial interests. They have to; rents must be paid, stamps be bought, and so on. There's no such thing as a free lunch, unless you are a lawyer. In many cases, however, that's the only thing in some magazines. Not only do some magazines review an article because they get paid by the software producer, but some magazines will not review a product if they are paid by the competitor. Magazines will also tirelessly review lousy products if they also happen to be the distributor.

The "competition" between Atari and Commodore seems to be a product of magazines. (Guess who makes ST chips. Right! Guess which company would go under if it didn't have a competitor who buys lots and lots of chips. You bet.) Magazines have an interest in maintaining this "competition"; it fills up space and sells copies. In the early part of this century, William Randolf Hearst, America's newspaper king, sent Frederick Remington, the famous frontiers painter, to Cuba, to paint scenes from the then-on-going Spanish-American War, in which the imperialist US knocked imperialist Spain out of corrupt Cuba without a fight. Remington got to sleepy Cuba, looked around, and telegraphed to Hearst "No war here." Hearst sent a telegram right back, saying "You paint the pictures, and I'll write the war."

Magazines

Last month's magazine is today's outdated information; a major reason for the domination of magazines over books as a form of information distribution in computering. But you will eventually realize that today's hot magazine article is actually "cold news" which is about three months old; it takes time for the magazine to find the news, assign a writer, write the article, get it laid out, and printed. If you want hot news, get a modem and join the BBS's. That is where the action is.

Since the main thing in using a computer is to constantly upgrade and increase your understanding, magazines should provide that information. News of upcoming products, reviews, tests, comparisons. Editorials and essays about trends and directions. Courses, listings, and projects to learn about the computer. Advertising, lists of distributors, small ads to find products. Lists of user groups, BBS numbers, and contact ads to find other users. And, uniquely to computers, collections of public domain material.

Many of these magazines may be in languages which you can't read. This should not stop you, as much of the material is understandable. The keywords are nearly always in English. Listings can be read in any language. Ads for products always include addresses and prices. International contact ads can be interesting. After a while, you will be able to understand and work with any program, no matter what language it is in. The ideal GEM program can be used by anyone, regardless of language. English is the language of computers; 95% of all people working with computers can at least read English. If you write clear, direct sentences, anyone can understand you.

West Germany

West Germany is the major country for the ST. German is a very useful language to know. 80% of the 350,000 West German ST'ers have bought monochrome monitors, while the US and British users are the opposite, with 80% colour monitors. 30% of university students who have a computer have an ST. The Germans use the ST for applications while the others are playing games. The difference can be seen in the sort of programs used; American and British games are often spectacular, with whorehouse colours and loud pop music, just like Ronnie and Maggie state events. Starglider is about reconquering lost territory by shooting everything in sight.

West Germany has bought over 30% of all ST's in the world, making it a considerable market. They even once had a 130 and 260ST, smaller brothers of the 520ST. West Germany

has produced technical and professional hardware and software of a high standard. This is possible in part by the support and distribution of high quality information in their magazines.

ST Computer

The West German magazine ST COMPUTER is the major ST magazine. It dominates the German market; it's circulation, at 130,000 monthly, is four times larger than the next. It is probably responsible for the high level of ST work in Germany. New products and products in development are announced here. Authors are technically or professionally highly qualified. Products are reviewed not only from Germany, but from worldwide sources. The reviews are critical; the good and bad is carefully described. If the program is weak, they tell you. In-depth analysis of the industry, critical interviews, and essays about the direction of the development of the ST are standard. They often make proposals for projects. Articles and series explain how to build your own hardware (scanners, eprommers, etc). A five part series explained the hard disk in its entirety. There are complete courses for advanced programming. Long listings. Lists of user groups are often printed. There is a nine page list of ST businesses: distributors, suppliers, etc. Small ads for private exchange and contact.

ST COMPUTER is the major source of ST PD disks in the world. No other source has such a large, varied, original collection. They present only original PD's, sent in by readers. Practically every single other PD library in Europe takes the bulk of their disks from this source. In June, 1986, they had a handful; in September 87, they celebrated disk #50 with champagne, September 89 has 240 disks. Scientific, mathematical, and professional programs, including utilities and accessories, are the mainstay of the library. There are drawing and painting programs which are superior to commercial releases. 3-D LABYRINT is perhaps the only ST basic program which runs quickly and without error. Astrolabium, an astronomy program by Jürgen Rensen, Hamburg, is excellent. If you have written a PD program and want it to be well distributed, here is the place. The trend seems to be towards writing the program in English; at least the screen picture is mostly in English; often the documentation is in English as well. An updated list is in every issue. Their disks cost 10DM each. Order disks from Maxon GmbH, ST Computer Redaktion, PD Service, Box 5969, D-6236 Eschborn. Disk orders outside of Germany add 5 DM to the order. See the PD chapter for more information.

ST COMPUTER Redaktion, Schwalbacherstr. 64, 6236 Eschborn, West Germany. 11 issues/

year. 194 pages per issue (that's not a typo: one hundred and ninety four pages per issue). 70 DM in Germany, 90 DM (approx.£27) in the rest of Europe. 120 DM (£37) for airmail.

Atari Magazin

A second West German magazine is ATARI MAGAZIN. It covers all Ataris, both 8 and 16 bits. There are news, listings, reviews, personal ads, and contacts as well. 114 pages. 6 DM each, or 84 DM for one year. From Verlag Raetz-Eberle, Postfach 1640, Melanchthonstrasse 75/1, 7518 Bretten, West Germany. Tlf 07252/3058.

68000'er / ST Magazin

68000'er, the West German magazine, was written for the Macintosh, Amiga, ST, and Sinclair QL: all Motorola chip machines. The QL died, and so it was dropped. Mac people do not read anyone else's magazines (MACUSER is the best Mac magazine. MAC TIMES UK is a Mac user group magazine: Macintosh House, 11 South Parade, Summertown, Oxford, OX2 7JL, UK. Tel. 0865 58027) and so after a while, the Mac rarely appeared in the magazine. In March 88, the publisher announced that they would make a new magazine for the Amiga. The point was however that the magazine would continue as an ST magazine, not an Amiga magazine; they were casting off the Amiga. The market is appearing to settle out; the machines, which for a long time were nearly identical, are getting a profile. Amigas are either for kids, who just play games, or video studio work, with little in between. ST's are used mostly for small office applications and home office work (word processing, programming, business, university students, music, chess, and self taught programming). With a TV, it works fine as a games machine. One doesn't really care about Rambo in 4000 colours; red is enough, and explosions in stereo? just as long as there are lots of them. Amusingly enough, there are more games for the ST than that certified games machine, the Amiga. The magazine is now called 68000'er ST MAGAZIN. They use glossy paper, printed in colours, which means great illustrations. The magazine is up to date and informative. Regrettably, sometimes a reviewer will put down an item, especially if he happens to be the author of a similar commercial product. There is a personal ads and contacts section. There are listings. They have pretty much dropped PD's; ST COMPUTER completely dominates that aspect. The magazine has an obscure pricing system. As far as I can tell, a one year airmail subscription to the US is about 133 DM (approx.£40). Individual issues cost 7DM (approx.£2) each. Published 12 times

a year. 140 pages. 77 DM (approx.£23) in West Germany; add 18 DM (approx.£6) outside of Germany, add 38 DM (approx.£12) for airmail to the USA, add 50 DM (approx.£15) for airmail to Hong Kong, and add 68 DM (approx. £20) for airmail to Australia. (68000'er ST MAGAZIN, Redaktion Markt und Technik, Verlag Aktiengesellschaft. Hans Pinsel Strasse 2, 8013 Haar bei Muenchen. West Germany. There is an American office: M+T Publishing, 501 Galveston Drive, Redwood City, CA 940363, Tel. (415) 366-3600.)

ST Vision

From Frankfurt comes ST VISION: Das Atari Magazin von Usern für Usern ("By Users for Users"). This is a magazine produced by a user group; it is very impressive. An earlier issue had a heavy paper cover; the newest issue has a slick magazine cover, with a photograph, even. The most professional looking of the user group magazines. The magazine is distributed commercially as well. News, articles, reviews, book reviews, courses (hardware and languages), extensive PD library (plus reviews of PD programs). And advertising. This magazine is very close to being a commercial magazine, and is in fact better than many commercial magazines. Kai Uwe Wahl, Editor, ST Vision, Post Box 1651, 6070 Langen. West Germany. Tel. 06103/1866. In German. 78 pages, 6 issues per year.

Sonderheft

"Sonderheft" are special editions from established German magazines. These are usually collections of the best articles and listings. These special editions are sold in kiosks and newsstands. In order to offer these for several months, there are no dates on them. Sonderheft's are usually 150 to 200 pages large. Practically all of the magazine publishers have issued Sonderheft, usually yearly. CHIP, ST COMPUTER, C'T, etc. Since they appear irregularly, and then only in newsstands, it is difficult to find them.

Austria

The Austrian, Swiss, and Danish users are very dependant on Germany. From Austria, there is XE/ST, a magazine covering both 8 and 16 bit Ataris, but leaning heavily towards ST's; of 36 articles, 6 are for the XE. Enthusiastic workers, well thought out, well written reviews and comparisons. Lots of information. Courses. Listings. The appearance of the magazine is a good indication of what an ST can do; layout and printing are done with ST's and done well. They offer a substantial PD library: 160 PD's for the ST; 130 for the XE.

Austrians are making many good programs, both PD and commercial. There are small ads and contacts; lists of ST dealers. This is a magazine which goes the distance; they are very active as distributors and user supporters. Hotlines and open offices. 24 hour BBS (597/0590). One year, 12 issues, 80 pages. 540 Shillings. XE/ST, Webgasse 21, A-1060 Vienna, Austria. Tlf 597-3019.)

The United Kingdom

There are about 130,000 ST's in England; 80% of these either have colour monitors or no monitor at all; they use the television. These are mostly for playing games. About 30-40% of the market is considered to be serious users. The English market has split between professional users and games players; the magazines and marketing reflect that. A company goes for one or the other, but rarely both. As for the magazines, well, the titles of British magazines is a chapter in itself, and so...

Titles of British ST Magazines.

There was ATARI USER, which featured both 8 bit and 16 bit machines. It then separated into ATARI USER, for 8 bit machines, and ATARI ST USER, for the ST. ATARI ST USER concentrates on games to a large extent. There are reviews of other programs as well. They have been publishing a "Complete Atari ST Guide," a series of articles which can be put together to form a collective guide to the ST. 12 issues yearly, 106 pages. £29.95 in the UK, £34.95 in Europe, £49.95 for the rest of the world. ATARI ST USER, Database Publications, Europa House, 68 Chester Road, Hazel Grove, Stockport SK7 5NY, England). If you ever wonder why they are so keen on MICROLINK, well, guess who owns it.

ST User / ST World

A second British magazine was already called ST USER. When ATARI USER changed it name, the first ST USER was forced to change its name to ST USER INTERNATIONAL. The big fish push around the little fish. But then they discovered that there was already a Canadian magazine with that title. New title. ST WORLD. Not clear? Nobody was. It appeared on the news stands with three titles in three months. This did not ruin the magazine however. ST WORLD is a small family company, but they put out the best English language magazine. Sharp, critical reviews. Detailed descriptions of professional ST usage. They have quite a line up of writers for their magazine. Richard Seel writes excellently researched articles on a wide range of topics. News. Courses and listings. A series on MIDI is very

good (from March 88 up to at least July 88); a complete survey of the entire field. They have "Supertests" which are unique: every product in a certain category is tested and compared. In one article, you can read about the entire range: for example, databases under £100. If you're looking for something, it's required reading. There are lots of ads; a great place to look for new products. Gollner Publications, Latham House, Quarry Lane, Chichester, West Sussex PO19 2NY. Tel. 0243 532 828. Twelve issues yearly. 96 pages. £21 in the UK. The "European" (my mother always explained to me that if the English cross water, then it's a voyage) price is £31, which often includes several disks programs, chance for back issues, or rebates. £41 for the rest of the world. (Prices are due to change in late Fall, 1989.) Back issues can be ordered, they are still very readable and reasonably priced (oh, c'mon, they're incredibly cheap. Mega information for the money you spend on cat food. Let the cat hunt some birds for a while.)

ST ACTION

ST WORLD's games division grew and grew; it turned into its own magazine: ST ACTION, the games magazine. News, reviews, tests. Lots and lots of colour illustrations. For the serious gamer, 12 issues yearly, £18 UK, £30 Europe, £40 for the rest of the world. Same address as ST World.

Page 6

Another magazine is PAGE 6. This is an 8bit/16bit magazine; it covers both small XE's and ST's. The ST material is somewhat brief; 20 pages out of 74 in the issue I saw. Page 6 writes that all material, unless expressly reserved, may be published and distributed by user groups and nonprofit organizations as long as they get original credit. This is very generous of them; it is otherwise impossible to get such permission. Reviews and tests. Listings, programs on disk, back issues, PD's, small ads and contacts (free), user group lists (both ST and or XE's). The magazine is user supported; articles are written and submitted by users; writers are paid for good articles. Les Ellingham (Editor), Page 6 Magazine, PO Box 54, Stafford, ST16 1DR, England. Tlf. 0785/213928. Issued six times per year. 74 pages. £7 for one year; £11.50 in Europe and elsewhere; £17.50 airmail. Page Six has had some distribution difficulties - a recent issue was dropped from the news stands.

ST CLUB NEWSLETTER

A special magazine is THE ST CLUB NEWS-LETTER. It is a user group magazine, written by members, and edited by Paul Glover. Since it is not a commercial magazine, it can afford to be open and critical; users will directly state what problems a program has in actual application. The first issues were small, A5 (that's half page size to Americans), roughly written, but packed with information and addresses. The January 88 issue was large format, laser printed, desktop publishing layout. Every issue this Spring and Summer has improved as they've learned to work with the Atari Laser printer (a good example of practising what you preach). Paul Glover manages to produce a very informative, packed newsletter for an amazingly low price; a 12 issue subscription is £8 for Europe, overseas airmail subscriptions cost £14. Users write from all over Europe, not just the UK. ST Club Newsletter has often printed news items first. There are lots of tips and tricks on using the ST in totally different things. Lots of small ads and world wide contacts announcements; these are free to subscribers. The back page lists all known ST user groups. The ST Club also offers savings and discounts on hardware and software to subscribers. At this very low price, the magazine is definitely worth having. The ST CLUB NEWSLETTER, Editor, Paul Glover, 9 Sutton Place, 49 Stoney Street, Nottingham, NG1 1LX, England. Tlf. 0602/410241. Eight pounds for 12 issues (roughly monthly). A subscription for the magazine plus 6 disks of the best PD software collected over the preceding two months is also available for £22.50.

Floppy Shop News

And there is Floppyshop News, a small magazine from the Floppyshop user group of Aberdeen, Scotland. Floppyshop News and the ST Club Newsletter show that small user groups are often better than large, corporate efforts. Edited by Steve Delaney and published since August 1987, the magazine is packed from front to back with information; there is enough here to fill several American magazines. A four page article discusses hard disk problems and practical solutions. SAVED DESKTOP, a regular feature, is invaluable. It contains editorials and news, often directly from the major distributors as well as reviews, programming, mail, tips. Free "Help!" ads. The magazine is published with a 1040 ST and a 24 pin printer; it's not what they've got, but how they use it. £7 in the UK, and £10 for the rest of the world. It's worth it. 28 pages, A5 size, six issues yearly. Subscription includes membership in the user group. Floppyshop News, 50 Stewart Crescent, Northfield, Aberdeen, AB2 5SR, United Kingdom. Tlf. 0224/691824.

ST/AMIGA FORMAT

This was a magazine from England for both the ST and the Amiga. It was unique in that it offered a disk which could be used by both ST's and Amigas. Since most software that runs on both an ST and an Amiga is a game, then the magazine tended towards games. But there were well written reviews as well, critical and with a sense of humour. News, letters, tips and tricks. The magazine has now split into two separate publications for each machine, Amiga Format and ST Format. £2.95 per issue; 12 issues yearly, £35. 106 pages. ST/AMIGA, Avon Direct Mail Services, Units 12-14 Old Mill Road, Portishead, Bristol, BS20 9EG, United Kingdom. Tlf. 0272/842487.

France

France has moved away from the attitude that computers are only for accountants and scientists; this kept the home computer wave out of most homes. The ST has developed very quickly, with about 150,000 machines. The ST sells well; it is considered to be the cooler machine than the Macintosh. ST's are popular with doctors, lawyers, and other small office professionals. The newspaper Libération uses 25 STs for their journalists.

ST MAGAZINE

Also called ST MAG, this is considered to be the major French ST magazine. It is a magazine intended mostly for programmers and professional users; detailed reviews of programs, hardware and developments. Articles about principles and processes. Hardware projects. News and releases. There are separate columns for emulation: one for the Mac and one for the PC (two pages each). And then there are the "Special Listings"; these take up a major part of the magazine. Four pages for a mouse program, three in GFA, four in Lisp, four in Pascal, eight on GEM programming, nine on GFA sound, three on accessories, and eight on memory routines: 66 pages of listings and commands. Lots and lots of advertising: a good source for addresses, prices etc., in every area of France. Two page listing of distributors in France. Back issues are available for 25 Francs each. Half a page of small ads; these cost 50 Francs each. Curiously, no letters. France has invested an enormous amount to give them Europe's best telecommunication system; modems and computers are everywhere. There are articles on Videotext and Mintel. Seven pages for games: a screen picture and a brief description. All in all, a serious magazine with loads of information. Illustrated in that nutty French style; I often can't tell if the illustration is supposed to be serious or if it

is a joke. Published ten times a year; 250 Francs for one year (both in France and the rest of Europe); 166 pages, 310 Francs for airmail within Europe, 350 Francs outside Europe. ST MAGAZINE, Pressimage, 210 Rue de Faubourg St. Martin, 75010 Paris. Tlf. 1/42.49.56.29.

1ST

Another French magazine is 1ST. News, articles, reviews, games. The emphasis of material was on serious programs; the issue I saw had reviews of Superbase Professional, Signum II, and Compta III, plus articles on the RS232, GFA, Assembler, etc. Free small ads, contacts, letters page, and a list of dealers. Quite a few games and programs which I haven't seen before; Compta III is a large, professional finance package. Considering the quality of the few French programs we have seen, this magazine is a chance to be in contact with the French market. France, even with the large number of ST's, remains virtually unknown in the rest of Europe; it took me a long time to even find this magazine; I have not been able to get addresses of French user groups, BBS's, etc. Despite the fact that France has the most aggressive national telecommunications project of any European country, I have never seen any French users on the international BBS's. 275 Francs per year (approx. £26); 78 pages. (65 Francs - £6 extra for the rest of Europe, 100 Francs - £9 air mail). Published by Laser Presse, 5-7, Rue de l'Amiral Courbet, 94160 Saint-Mandé. Tlf. (1) 43.98.01.71.

Both magazines offer back issues for a reasonable price. Order the most recent one of each and decide for yourself.

It is amusing; the British dropped the spelling of "programme" in favour of the American spelling. But the French, who have a right to spell "programme", write "logiciel" instead. A hard disk is a "disque dur". Germans have dropped the silly "Festplatte" (solid plate) in favour of "hard disk".

Holland

Holland, a major ST country, with about 60,000 ST's, is very similar to Germany. At the same time, the British influence (read: gamers) is there. If you can read German, or think you can, then look at these magazines.

ST

A very cleverly named magazine: ST, with the subtitle "Onafhankelijk Tijdschrift van en voor Gebruikers van Atari ST Computers"

(The Independent Magazine By And For ST Users). The magazine is packed; pages are filled with text from top to bottom. There is so much in this magazine. Articles, reviews, courses. A program is taken apart and analysed every which way. How to change the hardware. Screendumps, circuit layouts, etc. Projects. Very complete PD collection. Not only a list of all Dutch user groups, but also a monthly update of what each user group is doing. This magazine really supports user groups. Write to: Stichting ST, Bakkersteeg 9a, 2311 Leiden. The post address is: Stichting ST, Post Box 11129, 3201 EC Leiden, Holland. Tlf. 071/130045. Bimonthly. One year costs 30 Guilders. Average issue = 70 pages. They print 11,000 issues per month.

STNieuws

Which makes the following more impressive. ATARI ST NIEUWS. A user group magazine in newspaper form (DIN A3 size). They publish 20,000 issues monthly. Long, complete articles with information. They often have news before anyone else. Before anyone anywhere even published the first review of GFA Basic 3.0, ST Nieuws not only had described it the month before, but also published a listing to fix the bugs in it! There are lots of ads. ST NIEUWS has a very large PD collection. They also have a large collection of Macintosh PD's on Aladin disks and PC PD's. Atari ST Nieuws. Post box 5011, 2000 CA Haarlem, The Netherlands. Tlf. 023/311131. Monthly. 50 pages. 39.50 Guilders. BRD = 68 DM, UK = £24, France= 240 Franc, USA = 48 dollars.

If either ST Nieuws or ST were in English or German, they would certainly be major magazines. In any case, they are part of the amazingly strong ST scene in Holland: scores of user groups, a huge BBS network, activities, etc.

Belgium

EMC Atari ST NEWS is the UG magazine of the EMC UG of Belgium. It will take sharper eyes than mine to find out what EMC stands for; it is on every page, but never in full. According to the editor, it is not only the user group magazine for the ST in Belgium, but also the only magazine. There are apparently no commercial ones there. News, reviews, articles, translations from the major English and German magazines. They are well informed. (And have a sense of humour: a question asks "True or false: GEM = George et Mike?") (BIT is defined as British Travellers). They included an eight page listing for a program to convert ST Basic to GFA Basic. If you are looking for a contact to developments in the French speaking world, here is an active user group. EMC is in French. Christian Poels,

EMC, 10 Rue des Bas-Sarts, B-4100 Scraing, Belgique. Tel. (0)41/371606. Six issues per year, 46 pages. 1000 Belgian Francs (FB) for one year; 1100 FB for Common Market, 1300 FB for the rest of the world.

Denmark

First, let me say that Denmark is not a city in Holland. No one really knows how many ST's there are in Denmark. The first two importers did such a whacky job that people took the "butter boats" to England and Germany to get their own ST's. There are at least three different Danish TOS here, plus German, English, and Swedish ST's. Keyboard editors and printer filters are a necessity. We guess that there are about 10,000 ST's here. Danish ST'ers are similar to Germany; 90% monochrome and mostly students and professionals.

ST/ART

Peter Pedersen, of ST/OP User Group in Copenhagen, Denmark, edits START, the monthly user group magazine (STOP is the UG, START is the magazine). Written in Danish, it is the only Danish magazine for the ST. Reviews, articles, letters, small ads. Listings, discussions, letters, free small ads. Lots of news. Large PD collection (see PD chapter). List of dealers and Danish UG's. Contact the magazine at START, Peter Pedersen, Strandvaenget 44, 6710 Esbjerg, Denmark. Write in English, German, or Danish. 12 issues, 40 pages, for 250 Danish Kroner.

Sweden

The Swedish ST is very much like the British: 80% colour screens. The magazines are mostly about games. There are about 30,000 ST's in Sweden. Quite a few persons are developing programs and hardware for the ST.

Ataristen

Published by Selda Media, which also publishes Hemdator Nyt, Ataristen is the only commercial Swedish magazine. News, articles, reviews, tips, listings, interviews, and construction plans. There is quite a bit here about games, but it is trying to be serious. There is a listing of Swedish dealers and user groups, plus BBS numbers. Don't worry about the corny covers; as with many games magazines, games distributors paid to have their game on the cover. 30 pages. Six issues yearly for 60 Swedish Kroner. Ataristen, Box 49, 448 01 Floda, Sweden. Tel. 0302-354 50. Giro 470 50 43-0.

Atari Världen

This is a user group magazine from the 1ST Club. The UG has good connections to Atari Sweden; it has over 3,000 members, ST news, programming tips, reviews, games. PD catalogue (five pages). List of Swedish UG's, including UG news. Mailbox. Colour cover, good layout, advertising. 1ST Club, Östgötagaten 23, 116 25 Stockholm, Sweden. 150 Swedish Kroner. Four issues yearly. 30 pages.

Italy

The ST has taken a long time to establish itself in Italy. After a bit of a slowdown, it is being developed again. There are about 10-15,000 ST's in Italy; most of these are colour screen users. The Italian market is typical of the ST in Southern Europe; piracy is widespread; stores openly sell pirate copies of programs. German companies told me that they don't want to distribute programs to Italy, France, or Holland because of the piracy. But the ST does exist in Italy; CAT_PAINT is an Italian paint program for the ST. From SP, Venezia, I received photocopies of three Italian magazines. Two serious magazines have a monthly column for the ST; MC MICROCOMPUTER covers desktop systems (Macs, ST's, Archimedes, PC's, Amigas, etc). 13 pages for the ST. Regrettably, no address. A second magazine is MICRO & PERSONAL COMPUTER. It is for professional and student users. Again, it covers all computers, with a monthly column for the ST. 8 pages. Micro & Personal Computer, Via Capo Peloro 30, 00141 Roma, Italy. Tlf. 06/897257. 12 issues for 45,000 Lira; outside of Italy, 80,000 Lira. One issue for 7,500 Lira. They can be contacted in the USA: Pergiorgio Saluti, Wayne Green International, Peterborough, New Hampshire, 03458 USA. 190 pages. La Rivista di Atari appeared bimonthly and has stopped. It covered 8 bit and 16 bit machines.

Atari & Musica

This winter, Atari & Musica began publication. Supported by Atari Italy, it will be mostly a midi magazine. General material for the ST will be included as well. Contact Il Punto Rosso, Via Borsa 10, I-20151 Milano, Italy. Tel. 2/353-5258.

Spain

Spain has a fast growing ST market; there are about 12,000 ST's there. 80% are monochrome users: students and professionals. Atari Spain is divided into various regions. There are two ST magazines, both of which are professional and serious.

Atari User

This magazine is distributed in newsstands and costs 325 pesetas. Well written, with articles on products, news, interviews, and international information. There are articels on the basics of computers. Lists of dealers and lots of advertising. User Groups are listed, along with letters. Published by CBC Press, Plaza Conde de Toreno, 2-5 E 28015 Madrid, Spain. Tel. 91/542 94 97. One year of twelve issues cost 3000 pesetas. 44 pages.

STandard

This magazine is published as a service by Software Center, which is the regional Atari representative for Catalonia. The magazine is distributed free to users through computer shops. They report on international ST news with articles, essays, listings. The magazine is wriotten for serious users and is well informed. Jordi Maria Pau i Blasco, editor. STandard, Tamarit 115, 08015 Barcelona, Spain. Tel. 3/425 20 07. Software Center is also the distributor for Application Systems in Spain. If you are trying to distribute a product in Spain, they will be happy to help you.

Elsewhere...

Of the rest of Europe, not much to say. There are rumours of ST magazines in Poland, but I haven't yet been able to get an issue.

Australia

Queensland Atari Computer Enthusiasts (QACE), a UG for 8 bit and 16 bit machines. puts out QACE, a 33 page magazine which is already up to its 44th issue. It leans very heavily towards the ST. Articles about developments, programming tips, games, etc. Free small ads, letters, PDs, advertising. They loan PDs for 1 Aus$. 25 Australian dollars per year for new member/subscribers, 20 Aus$ thereafter. Contact: QACE, Box 10026, Brisbane, Queensland 4000, Australia.

The Paragon Report is a newsletter which is fast growing into a magazine. Edited by Phil and Rodney Reeves of Paragon Computers, Perth. News, information, programming, advertising. Free. Monthly. 25 pages. Paragon Report, Shop 17a, 5 Short Street, Perth, Western Australia, 6000.

Tlf. 09/221-3216. BBS Tlf. 09/325-5160.

There are a number of magazines in Australia; I regret that I have no further information other than addresses (hey! Jason and Rita and

ACE, send me a copy!). Thanks to Phil for the addresses.

Adelaide Atari Computer Club puts out a magazine: FEEDBACK. Contact Neil Patterson, Box 333, Norwood 5067, South Australia, Tlf. 08/276-6057, or Jason Bond, Sysop, on their BBS Tlf. 08/214-0384.

Atari Computer Enthusiasts (NSW), GPO Box 4514, Sydney, NSW 2001. Their magazine is called INSIDE INFO. BBS Tlf. PRACS 02/529-2059.

Melbourne Atari Computer Enthusiasts. Rita Plukss, Box 340, Rosanna, Victoria, 3084. Australia. They publish a user group magazine called the AUSTRALIAN ATARI GAZETTE. BBS Tlf. 03/899-6203.

The USA

The following is going to be a shock for many people. We all think that the computer scene must be much better in the USA. That's where computers come from, right? I certainly thought so and spent a lot of time in the beginning trying to get in contact with American user groups, magazines, etc.

Then I got issues of the various magazines; seeing is believing. I also went to the US and found that the ST hardly exists there. I could not find a single store which sells them in Manhattan. There are stores which sell even Chinese computers (I'm not kidding: Great Wall PC's). But ST's? One salesman simply said in that NYC sarcastic way "We don't touch Atari." In four weeks, in five major cities, I found nothing. I called Atari Corp in California; they gave me the number of a dealer which turned out to have closed nine months earlier. ST's are sold in toy stores and supermarkets. Atari Corp doesn't bother to . waste money advertising. I found only one newsstand that sold ST magazines; the owner told me that he sold only a handful of issues, and that was in a city of several million people.

The PC dominates totally; PC people usually didn't know that there were computers which didn't use MS-DOS. The alternative is the Mac. The Amiga is for games (Amiga users are called "Commies") and ST's are unknown. There are no major programs for the ST which were developed in the USA. Software houses mostly translate proven successes to the ST: Flight Simulator, WordPerfect, etc. GFA Basic is not well known; Signum is totally unknown; persons with whom I correspond had never heard of it. Serious users of the ST despair loudly. The attacks and criticisms of Atari Corp are long and bitter: no information, no support, no advertising, no marketing policy,

no direction, poor management in Atari USA. Anyone can see this for themselves on the CompuServe or USENET networks. Users complain that Europeans have much greater access to information; indeed, new products are announced and released first in Europe. How ironic! The ST has become the Macintosh of Europe; a widespread, useful computer with a tremendous amount of independent producers of hardware and software. ST's are used here in every possible area, with all sorts of modifications, additions, expansions, and so on. In the US, the ST is used for MIDI, games, and games, in that order.

ANTIC

There is firstly ANTIC, which means a frivolous or ridiculous act. This magazine lives up to its name. Very thin articles and very long reviews of the latest joysticks. The magazine is for 8 and 16 bit machines, with emphasis on the 8 bit machines; the ST is just a bigger game machine. ANTIC is primarily a software publishing house with a large number of programs; the magazine apparently exists in order to advertise their products. This advertising takes up at least 16 pages. Small ads cost 45 dollars for three lines. Waste your money by sending 28 dollars (or 40$ outside of the US) to ANTIC, 544 Second Street, San Francisco, California, 94107 USA. Tlf (614) 383-3141). 98 pages. 12 issues. 68000'er ST Magazin, of Germany, has entered into a cooperation with Antic, and has began translating and printing their articles. Some of this stuff is rather old.

ST/ART

ST/ART is a spinoff magazine. ANTIC split up their magazine and now publishes ST/ART, dedicated only to the ST. From a poor start, it has improved in quality. MIDI is the main, if only, use of the ST in the US, so there are articles on that. Six pages of news and update which cover the British scene. START is usually published with a disk; there is an article for each program, explaining how to use it. The magazine is rather pointless without the disk. Nice, colourful layout. ST/ART is apparently the major American ST magazine. Published twelve times a year, with disk, for 80 dollars; outside of the US it's 92 dollars. It is very expensive; it often sells in the UK for around £12.50 per issue! 104 pages. ST/ART, 544 Second St, San Francisco, California. USA

Analog

Analog also covers 8 and 16 bit machines. It too has broken up to form an ST magazine: ST-LOG. Analog is only a bit better than STart. Uncritical. Lots of games. Some articles are simply dopey. They do print lists of User Groups. 28$ in the USA for 12 issues (84 pages); 39 dollars outside. ST-LOG, 565 Main Street, Cherry Valley, Maine, 01611 USA.

ST-LOG

The ST spin-off from Analog was poorly written in the beginning. It then had publishing troubles last year and stopped for a while. A new publisher bought it and improved it considerably. Their "C-manship" series on C programming is noteworthy. ST-LOG, Box 16928, North Hollywood, California. 91615 USA. Tel. (818) 760-8983. Subscriptions are 28 US$ for one year inside the USA or 35 US$ for outside the USA. Disk subscriptions are available.

Atari Explorer

Another American magazine is ATARI EXPLORER. This is more serious than the others. It makes an effort to publish competent articles on the ST, although the biting criticism and in depth reportage of ST WORLD (England) or ST COMPUTER (West Germany) is missing. Atari Corporation has also bought a large share of the magazine. (I suppose Atari Corp intends well; they have bought up to 20% of the shares of most of the ST magazines on the market. This is done in nonvoting shares. Is it a way of supporting the magazines with needed cash?) Many of the top people from Atari write regularly in the magazine. Perhaps this prevents it from criticizing ATARI USA. They are also very poorly informed about things outside of the US; they are vaguely (uncomfortably) aware that the ST is sold in Europe, but they know nothing about it, since they apparently can't read any other languages.

ATARI EXPLORER, 7 Hilltop Road, Mendham, New Jersey, 07945 USA. Tlf. 201-543-6007. 18$ a year, plus 10$ more outside of the US, (but people have ordered it, at US prices, and received 6 or more issues, without ever paying anything. I tell them that most Americans think Europe is somewhere in Oregon.) British shouldn't laugh. American friends of mine think that London is in New Jersey, and considering how parts of it look, I often think it is. (And I was once asked if West Germany has the same political structure as the People's Republic of China). The magazine is having difficulties with its publication schedule; they tried to go from four times a year to six times a year, but don't have enough material to print or money to print it. So instead of appearing bimonthly, it is skipping occasional months.

ST World

This magazine has nothing to do with the British ST World. In large format, and only 30 pages, it is a newsletter sort of magazine. Articles, essays, etc, mostly critical of Atari Corp. They are fast with the news; they reported the handheld games console and details of the STE and 6 MB ST's before the official presentation in Germany. You'll recognize many of the names; the magazine is actively involved in the American ST scene. David Small, who wrote the Magic Sac and Spectre emulators, is an editor for ST World. The magazine tends towards games. One year subscriptions are 18 USS and 32 US$ outside of the USA. ST World, 1385 Cleveland Loop Drive, Roseburg, Oregon. 97470-9622 USA. Tel. 503 673-2259.

Current Notes

Current Notes is possibly the only Atari magazine in the world which doesn't have either "Atari" or "ST" in its title. It covers both 8 bit and 16 bit Ataris. It is produced on an Atari DTP system. Although its appearance is a bit rough, the magazine is openess and honest. Mac-emulating is a big part of the American ST scene. Dave Small, who has made the Mac emulators, writes here. There are reviews of Mac books and programs. Games are big in the USA, these are reviewed in detail. CURRENT NOTES is very close to the BBS activity. There is a list of user groups. There are plenty of ST PD's, plus Mac PD's for the Magic Sac and Spectre emulators. Letters and tips-and-tricks. Current Notes. 10 issues yearly. 24 US$. 122 N Johnson Road, Sterling, Virginia. 22170, USA. Tlf. 703/450-4761. Back issues available for 2.50 $US. If you want an American magazine, this one is worth checking out.

ST Applications

Last American magazine is ST APPLICATIONS. The magazine is very interested in programming, especially C and Modula 2 (at least, the issue I saw), with lots and lots of listings. Advertising, new products, etc. If you want an American magazine, this is it. ST APPLICATIONS, Box 980, Forestville, California, 95436 USA. Tlf. (707) 887-7879. 40$ Foreign, 78$ Airmail. 78 dollars! Americans think that all foreigners are millionaires.

Computer Shopper

If you are going to the USA, get a copy of "COMPUTER SHOPPER: The Computer Magazine for Direct Buyers". This has become a major source in the USA for anything that has to do with computers. It is published monthly; there are thousands of mail order companies here; everything for every computer ever made can be found. Computer Shopper is six hundred pages, 30x25 cm, and looks like the Yellow Pages. The articles generally cover "What is the best printer?" or "How to build your own Mac". There are a handful of articles, but that's not the point. Absolute bottom price bargains on everything that can be sent by mail. The Atari is "under represented", but there are plenty of offerings for printers, ribbons, disks, hard disks, chips, etc. For PC and Macs, plus main frames, there are thousands of offers. There are also ten pages of listings for BBS's; only systems with 24 hour service and 10MB are covered. There are ten pages of user groups as well. Only UG's and BBS's which send in an update every three months are listed; this gives you a list of active groups. These lists are however not very useful to anyone living outside the North American continent. The larger mail order companies accept all major credit cards. COMPUTER SHOPPER, 29,97 USS 12 issues. 31$ foreign. 600 pages. 12 issues. Computer Shopper, PO Box 51020, Boulder, Colorado, 80321-1020 USA. It is sold in most newsstands.

If you have difficulties in buying anything by mail from the USA, there are several organizations which can help. The Microcomputer Marketing Council (MMC) has set up the Mail Order Action Line, c/o DMA, 6E 43rd Street, New York, New York, 10017 USA. For dealers who advertise in COMPUTER SHOPPER, there is a special service: Ms. Sherry Stevens, Customer Relations Representative, Computer Shopper, 5211 S. Washington Ave., Titusville, Florida. 32780 USA.

Micro Computer Mart

The British equivalent of COMPUTER SHOPPER is MICRO COMPUTER MART. Printed on re-re-recycled paper, it is 145 pages of advertising. There are about ten pages of article, and even one page for the Atari. But it is mostly interesting for the post order bargains. Thousands of personal ads too. And there are plenty of contact ads as well; these tend to sound like those other kind of contact ads: Wanted, Amiga exchange, Fast. 100% reliable. Discreet. Let me see yours and I'll show you mine. All welcomed! MICRO COMPUTER MART costs 50 pence and is published fortnightly. Contact them at 24 Richmond Road, Solihull, West Midlands, B92 7RP, United Kingdom. Tel. 021/ 707 9124.

The American market has the best thing: a very low dollar. When Quayle takes over from President What's-his-name, it will be even

lower. Ordering from the US is easy and safe; practically every company accepts all major credit cards. A GIRO CHEQUE (Postal transfer) can be made out in dollars to the American address; the post office will convert that to a cheque which is then sent to the US. Never send cash; employees pocket the money and lose the letter (this happens not just in the USA, but everywhere). Overnight service is, to put it mildly, an advertising trick. Remember, the ST is a low priority machine there. No company is going to stockpile items which sell slower than beaver traps. You order it from them, they order it from the producer, who sends it to them, who sends it to you. Overnight in two weeks. Be sure to order things with air mail; Americans tend to think that air mail is a luxury and don't realize that ship mail can take 3-4 months. Also make it very clear that you are using an Atari ST; I was sent Flight Simulator first for the PC, and then for the Atari XL. The whole saga lasted eleven months.

Diskzines

ST News Diskzine

And now we come to magazines on disk: diskzines. You may have given up on Holland because both of those magazines were in Dutch. Not so for ST NEWS Diskzine, a very well written, well distributed magazine on disk from Holland, all in English. Richard Karsmaker, who has written many good PD programs, started the ST NEWS diskzine in July, 1986. It appears roughly every two to three months: 14 issues up to April 1988, totalling 393 articles. The ST NEWS Compendium 2 contains the "Best Of"; there are eight part Assembler courses and 6 part Forth courses. Lots of reviews and articles. I have learned quite a bit by reading the ST NEWS diskzine.

The most important thing about a diskzine is that you can do things on the disk which are not possible elsewhere. We all use computers; magazines should be on disk. Instead of just talking about a program, as magazines do, a diskzine can discuss the program and then let you run it as well. Games can be played. ST NEWS has music as well; each disk has its own soundtrack (which can be turned off too). Full screen graphics. ST NEWS contains its own magazine program so that you use menus to select the articles. Very easy to use commands to scroll through articles. Articles can be turned into 1st Word format for printing. Diskzines are easy to distribute, being quick to copy, (and perhaps it is for this reason that there are no commercial diskzines). Richard Karsmaker, called by his studies, has passed the editorship to Stefan Posthuma. Stefan Post-

huma, Editor, ST NEWS, Negende Donk 4, NL-5233 PJ, Den Bosch, The Netherlands. The magazine is public domain; it appears every two to three months. It is free (or a service fee from various PD services) (those marked by an asterisk * charge a service fee)(to the others, send a blank disk, international response coupons, a self-addressed envelope, and an occasional donation, blank disks, for example)

To order ST NEWS on disk:

*Les Ellingham, Page 6, Box 54, Stafford, ST16 1DR, UK.

Gerardo Greco, Via Roma, 75, I-80055 Portici-na, ITALY.

Ewe Haakansson, Pilspetsv. 4, S-291 65 Kristianstad, SWEDEN.

Guido Stumpe, Kessenicher Str. 1, D-5300 Bonn 1, WEST GERMANY.

Norman Pearce, Box 564, Mt. Gambier, South AUSTRALIA 5290.

Thierry Foulkes, 2 Rue Piemontesi, 75018 Paris, FRANCE.

David Meile, Box 13038, Minneapolis, Minnesota 55414, USA.

Ronny Hatlemark, Bjoerkevegen 19, 6150 Oersta, NORWAY.

Franz G. Szabo, Sechshauserstr. 59/3/19, 1150 Vienna, AUSTRIA.

*Jeremy White (WACE), Box 2777/CPO, Wellington, NEW ZEALAND.

*ST Club Eindhoven, Postbus 1424, 5602 BK Eindhoven, THE NETHERLANDS.

Ivo van Vlaenderen, Lostraat 23, B-3100 Heist-op-den-Berg, BELGIUM.

ST Klubben Diskzine

This diskzine, from Norway, developed from the Dutch ST NEWS diskzine. It is the only Norwegian publication for the ST. Reviews, articles, tips and tricks. Published by Ronny Hatlemark, ST Klubben, Bjørkenvn 19, N-6150 Ørsta. Tlf. 070 66 462.

Faster

FASTER, the diskzine from Canada, has stopped publication (September 88) owing to difficulties in meeting their production deadlines.

It was produced by the people who wrote TINY _TOOLS.ACC, the wide-spread memory editor. Back issues are available for £5.95 each from Page 6 at the address shown above.

ST Report Weekly

From the USA, there is an electronic magazine which appears on the GENIE network: ST REPORT WEEKLY ONLINE MAGAZINE. Lots of discussions, comments, information, etc. The magazine is edited by Rex Reade, who is well informed about the ST, both as a computer and a product on the market, in the USA. Issues 39 to 43, June and July 1988, were downloaded from the USA to Australia by Paragon Computers (thanks!) who sent them to me in Denmark; I have sent copies to various distributors. ST REPORT can be contacted either at APE Inc., PO Box 74, Middlesex, NJ 08846-0074 USA, or by writing to the editor, who appreciates information and comments: Thomas Rex Reade, Box 6672, Jacksonville, Florida, 32236, USA. They can also be contacted on BBS systems: 201-968-8148, 216-784-0574, 904-786-4176 (all in the USA).

NutWorks

NutWorks must be mentioned. It's not for the ST, nor really for any computer at all, it's just there. It is created, distributed, and read on networks. It is passed around electronically between large computer systems all over the world. The craziest, funniest, whackiest, nuttiest, most bizarre, offbeat, after midnight, when the teacher's left the room, illegal, perverted, sexy, goofy, iconoclastic, sophisticated, total computer user's magazine. Completely off the wall. CCJ Britton edits this "thing". Songs, jokes, stories, attacks; it's all here. NutWorks, the network magazine. Don't let your mother see this. 20 issues are collected on to two disks; these are available from many PD services.

NutWorks is the computer user's version of The Wormrunner's Digest, The Journal of Irreproducible Results, or The Journal of Polymorphous Perversity. These are all underground journals of the various academic professions. Literary people read David Lodge, a leading British literary theorist by day, and author of "Changing Places" and "Small World" by night. His latest book, "Nice Work," mentions a certain computer... If you really know music, you know your P.D.Q. Bach. Anyone who knows about molecules will enjoy Thomas Pynchon, the major writer today; especially recommended for users is "The Crying of Lot 49". W.A.S.T.E. has been spotted around the globe. Arthur Dent has written letters, appeared in BBS's and systems, and has even written programs and documentation; all found everywhere. Bob Dobbs is known to many users - the smiling man with the pipe who appears as a cursor.

And so there was the BERLIN ST/OP diskzine; they issued 3 disks. But lack of time/lack of contributions lead to its end. Those three issues can be found in many PD services. BERLIN STOP was in German and English.

ST Digital

Germany has a commercial diskzine: ST DIGITAL. It is designed to look like a magazine at the newsstands. Each disk comes in a magazine sized colour cardboard cover displaying the contents, and including the magazine usage instructions. Insert the disk, turn on the ST, and the magazine comes on to screen. Page back and forth, start programs, etc. The diskzine is somewhat thin; the free program was MASTERPAINTER, which is a good painting program, but is PD and available nearly everywhere for much less. Perhaps the diskzine will improve. Editor: Christian Geltenpoth. ST DIGITAL, published by COMPUTEC Verlag, Innere Cramer-Klett-Straße 6, 8500 Nürnberg 1, West Germany. Tlf. 0911/53250. 145 DM for one year. 12 issues per year. 14.50 DM at the newsstand. Each disk is double sided and filled up (800 KB) with text, programs, and illustrations.

STUFFED

This is a diskzine from Scotland. Edited by Marc Young, the first issue is PD, but further issues are £3.50. New issues are announced in ST WORLD. STUFFED is stuffed with information; 50 to 100 A4 pages of material: reviews, essays, news, crosswords, etc. Programs, listings, help. They don't fool around; the disk is formatted to 400 KB. For colour screens only. Write to STUFFED, Marc Young, 50 Stewart Crescent, Northfield, Aberdeen, AB2 5SR, United Kingdom. Tlf. 0224/691824.

Do it yourself

If you or your user group are interested in starting your own diskzine, there is a diskzine program (NEWSDISK) which creates the menus, title bars, allows graphics, etc. The program is very well documented. It is public

If you are the editor of a commercial or UG magazine/diskzine for the ST which wasn't covered here, send me a recent issue. I'll include it in future editions of this manual. I am especially interested in material in non-European languages.

Newsletters

ST computing is getting more diversified, specialized, and concrete in the various areas. A sign of this is the special interest newsletters.

For FAST Basic, there is FaST ST Basic Newsletter: courses, information, source codes, Simon Rush, FaST, 42 York Road, Rayleigh, Essex, SS6 8SB, England. Prices are £6 inside the UK, £8 for the rest of Europe, and £12 for the rest of the world.

GFA also has its newsletter: 186 Holland Street, Crewe, Cheshire, CW1 3FJ, England.

And Signum has a newsletter: contact Application Systems Heidelberg, Englerstrasse 3, D-6900 Heidelberg, West Germany, 06221/300002. In the UK, contact Signa Publishing Systems, Trevenen House, Cricket Hill Lane, Yately, Camberley, Surrey, GU17 7BA, England. Tlf. 0252/875031.

For ST'ers on shortwave radio: contact Michel D Geeraert, W Elsschotiaan 21, B-8460 Koksijde, Belgium. Hotline on Thursday, 19 to 21 GMT, Belgium, 058/51/39/40.

The Moving Finger Company, a software house, has started a newsletter for professional users: tips, tricks, information, not only for their products, but others as well. The first two issues were free, and the response was so good that they made it into a regular newsletter. Written and published using an ST, laser printed. Professional newsletter quality. £30 for one year, six issues yearly, 16 pages. The Moving Finger Company, Building 2, Shamrock Quay, Southampton SO1 1QL, England. Tel. 0703/229041.

Many publishers of major programs offer a newsletter to their registered users. Contact the publisher and ask about a newsletter. Ask as well about any possible user groups.

Books for the ST

It would be impossible to review all books for the ST; there are several hundred by now. Most publishers bring out at least one or two every month. Again, most ST books are in German; the German market is large enough and serious enough to support this. Nearly all of the publishers with which I have spoken intend to translate and distribute their books in English.

One book can be mentioned: The Atari ST Book: Tips, Instructions, Secrets, and Hints for the 520, 1040, and Mega STs, by Ralph C. Turner. This book from the USA is a good introduction to the ST for new users. It carefully and clearly introduces the desktop and window system. The beauty of ST windows being the file management; without much theory, you can deal with a large amount of files by using folders and disks. Ralph Turner also introduces word processors, modems, and other ST subjects. There is a list of ST producers. The Atari ST Book is available from Index Legalis Publishing, P.O. Box 1822-3, Fairfield, Indianna, 52556, USA. Tlf. 515/472-2293. 160 pages. About 17 US$, plus 2 US$ for postage.

There are several major publishing houses for computers. These publishers offer books on nearly every topic, type of machine, or application. If you are looking for a guide to using Lotus 123, or learning to work with COBAL, these publishers have books for you.

IWT Verlag has a very complete line of books in German for all areas of computers. There are guides to using professional programs such as LOTUS 123, Ventura, Wordperfect, DBASE III and DBASE IV (choose among ten books!), or operating systems, such as MS-DOS (twelve different books), OS2, Unix, or all the different languages. The LOTUS books can be used for working with VIP on the ST. Get a 63 page catalogue at: IWT Verlag, Wendelsteinstrasse 3, Vaterstetten, West Germany. Tlf. 08106/31017.

DataBecker Verlag also has a large offering of books on all areas of computers. They offer guides to nearly all the major programs on the PC, ST, Macintosh, and the Amiga. A free 40 page catalogue is available from: DataBecker Verlag, Merowingerstrasse 30, 4 Düsseldorf, West Germany. Tlf. 02113/310010.

SYBEX (rhymes with "side text") is an American publisher which has a division in Germany as well. There are about 200 titles in English and German. Contact them for a 30 page catalogue. SYBEX Verlag, Vogelsanger Weg 11, D-4000 Düsseldorf 30, West Germany. Tlf. 0211/618200.

More Magazines

We can also look at other magazines which are not written specifically for the ST or ATARI. Of non-specialized magazines (not specifically ST or Atari) the American magazine BYTE is the most professional, most respected, and serious magazine to all small systems computers. Truly critical and forward looking. Articles on new advances in computering, both hardware and software. If you see something anywhere, it was printed in BYTE several months before. BYTE chose the ST as computer of the year in 86 (which is why I bought mine). But since the ST has had a bad showing in the US, BYTE rarely mentions it any more. BYTE even dropped the ST from the BIX listings in the magazine (and the Amiga as well).

PERSONAL COMPUTER WORLD, normally just called PCW: it could be said to be the British equivalent of BYTE; professional audience, essays, excellent reviews, lots of advertising for all machines. The sheer number of ads make this the mail shopper's hunting grounds. About 250 pages. (£15 year, £33 for the rest of the world, as they put it). PERSONAL COMPUTER WORLD, Subscription department, Freepost 25, 32-34 Broadwick Street, London, W1E 6EZ, United Kingdom.

COMPUTE! is another general American magazine worth mentioning. Good articles on trends, developments, the industry, the mechanics of the computer. Every issue has something for the ST. I regret that I don't read this one more often. Compute!, PO Box 10955, Des Moines, Indianna, 50347-0955 USA. 24$US for one year, 12 issues, 92 pages per issue. They usually have subscription offers of 14.40$US per year. COMPUTE!'s "Atari ST disk and magazine" has stopped production with the June/July 1988 issue. Lack of ST sales in the USA is their reason. They refunded the remainder of subscriptions to readers.

DR. DOBBS JOURNAL is another respected professional programmer's magazine. This can be found at any technical library. Dr. Dobb's is one of the industry standards. Box 27809, San Diego, California. 92128 USA. A year's subscription costs 25 US$.

c't, a West German magazine, is a professional hardware/programmers magazine, with projects and listings. Recent articles explained how to adapt an IBM hard disk on to an ST and how to add a 68020 processor. c't, Magazin Für ComputerTechnik, Helstorfer Strasse 7, Post Box 61 04 07, 3000 Hannover 61, West Germany. Tlf. 0511/53520. Hotline Monday to Friday, 1 to 2 PM. 77 DM for one year, 12 issues, 230 pages per issue. 89 DM outside of Germany. 110 DM with airmail.

c't occasionally publishes special issues for the ST: ATARI ST SONDERHEFT FÜR ANWENDER. In order to sell this for several months, it has no date. Very annoying. Not even a year. It is compendium of all of their major articles for the ST; this is a goldmine for technicians and professional programmers. 60 pages of technical information about TOS, GEM, data storage, system variables and interrupts, and objects. Circuit layouts. Listings. All 68000 commands. OS/9 multiuser/multitasking. Three articles on how to upgrade: 520 to 1040, a 260 to 2 Megabytes, and a 520 to 2.5 MB. Very detailed. Eproming. Clocks. ROM. Reset proof RAM disks. And a 22 page summary of the best programs. A major publication. It is all in German. 16DM, 162 pages of text (perhaps 7 pages of ads all in all)

The SCIENTIFIC AMERICAN has an excellent monthly column on advanced computing. The October 1987 issue was entirely dedicated to computering: excellent articles from leading professionals on the state of the art and the future of computering. Read about computer systems in the year 2000. Martin Gardner, the long time mathematical columnist for the Scientific American, introduced John Conway's Game of Life in 1972, one of the classical pursuits on a computer.

MIDI Magazines

The ST is perhaps most widely used in the music industry; it is the workhorse of nearly every music studio. It is very ironic that most ST users are nearly totally unaware of what is the largest single application of the ST: MIDI. In the music industry more money, professionals, and people depend on the ST than in any other application area. A studio can have hundreds of thousands of dollars of equipment being controlled by an ST. This is a field which develops at a staggering pace; music is now unthinkable without the sound manipulation that is possible. Most people therefore need professional information as quickly as possible and as detailed as possible. Most computer magazines can't provide this. The two major magazines in this field are:

KEYBOARD: This is a big American magazine; the ST, which otherwise doesn't appear in the USA, gets lots of double page advertising. Computers, programs, add-ons, whole systems, etc. The magazine is written completely by professionals, for professionals. It is a major

magazine in the music field. It even contains a record in each issue: a pull out record of music samples and courses on sound manipulation etc. All MIDI programs are reviewed and compared by professional musicians. Lots of articles on how to use equipment in new ways. There are classified ads as well, with used equipment, etc. Lots of advertising. MUSIC SOLUTIONS of California carries practically every MIDI program for every computer, including those for the ST. (MUSIC SOLUTIONS, 14760 Ventura Boulevard, Sherman Oaks, California 91403, USA. Write for a catalogue.) KEYBOARD magazine subscriptions department, 20085 Stevens Creek, Cupertino, California 95014, USA, Tlf. 408/446-1105. Monthly, 186 pages, US$30.95 inside the USA. Outside the USA, US$53.95 (US$24 for the subscription and the rest for airmail, 5 to 10 days delivery.) Pay with Visa, Master Card/Access, or International Money Order.

SOUND ON SOUND, called SOS, is from the United Kingdom, and is considered to be better than Keyboard magazine. They are in the thick of the action; they don't cover something after it appears; they cover it before it appears; something which is important if you are going to make expensive investments. SOS covers the entire field of studio and sound production. If it is any indication as to the quality, I know nothing about music, and nothing in the articles makes any sense to me. Purely for professionals. All programs are reviewed and compared in depth. STEINBERG and Dr. T have their own columns, written by experts from these companies, which discuss programs, talk about new ways of using the programs, work on problems, and answer questions. The ST is very well covered: programs, add-ons, uses, etc. SOS even has PD software: all are demos (demonstration copies) of the major sound programs (these function fully, except that you are not able to save your work). You can try eight different Steinberg programs, for example. PD disks are £7 each. (The Mac, the Amiga, and the PC also work with Midi. Looking at the PD page, there are five PC programs, one for the Amiga, three for the BBC, and twentynine for the ST! The list is updated with each issue.) Back issues (from November 1985) are available. Free classified ads for used equipment, programs, jobs and services. SOUND ON SOUND, PO Box 30, St Ives, Cambridgeshire, PE17 4QX, United Kingdom. Tlf. 0480-61244. £12 in the UK, £20 in Europe, £30 World. Airmail is available. 12 issues per annum, 80 pages.

DTP Magazines

Publish!

And lastly: PUBLISH!: The How To Magazine of Desktop Publishing, which is precisely for that. From the USA and aiming for the corporate/professional market. Desktop publishing is most attractive for the office newsletter and small "untraditional" publishers. As you would expect from a magazine which is written for layout people, this is a beautiful magazine. You can learn just by flipping through the pages. Articles on how to start in desktop publishing, how to do layout, making newsletters, and reviews of systems and software. Atari, as some of us may remember, announced that it was going to take over the DTP market. Atari is not mentioned once, either in passing or whatever. Oh, well. The magazine is evenly divided between Macs and PC's. Anyone who is seriously working with desktop publishing should read the magazine; it is the standard. PUBLISH!, Subscription Department, Box 51966, Boulder, Colorado, 80321-1966 USA. 39.90$US for one year/12 issues (but introductory rates of 24$ are usual).

Personal Publishing

And there is also Personal Publishing. This is often considered better than Publish! (and having an exclamation mark in the name, as well as mixed capitals, such as WordPlus, is also getting old fashioned.) Personal Publishing is done entirely on Mac's. Yes, quite a few Atari magazines, if the secret must be told, are done on Macs. But... if you go into the basement of your local Mac Center, you'll find that they do their finances on... no! that can't be true! Anyway. A very practical, how to do magazine by professional enthusiasts. Hitchcock Publishing, 25W 550 Geneva Road, Wheaton, Illinois. 60188-2292 USA. Tel. 312 / 665-1000, 24 US$ for one year.

Most of these magazines can be found in public libraries, university libraries, or computer science departments at universities. Technical college libraries and computer science libraries also have computer magazines; these tend to be serious programmers' or developers' magazines and journals.

By the Way....

In the "Oh, by the way, Department" I have to mention the latest edition of the Essential Whole Earth Catalogue (1986). This must be a headache for librarians; the Whole Earth Catalogue, which started as a whole earth/back to nature/save the whales/etc. sort of thing back in the 70's, has developed, through that uniquely American tradition of better living through applied technology, into the book of information. About 350 subjects, ranging from Astronomy, Cybernetics, Bioregions, Farming, Biohazards, Sailing, and Yoga; yes, all that and computers: Computer Graphics, Computer Writing, Computer Networking, Desktop Publishing, Buying a Computer, Software, and Hardware. All of these 350 or so subjects have a several page article, written by someone knowledgeable in the field, who names the most important products and information sources. The whole book is extremely useful. A sort of Your Second Manual for the Planet Earth (not to be confused with Georges Perec's "Life: A User's Manual"). Tons of illustrations. Great fun to read. They have their own BBS (415) 332-6106, about 3$ per hour. This is perhaps a good starting place in the US to get information about computers. Edited by Steward Brand and J. Baldwin. The Essential Whole Earth Catalogue (1986, USA). If you can't get this at a bookstore, then order it from the Whole Earth Access (they are a separate company), 2990 Seventh Street, Berkeley, California, 94710 USA. Tlf. 415/845-3000 (in the USA, use 800/845-2000).

Signal

The same people recently cleaned out their hard disks and published the output. SIGNAL: Communication Tools for the Information Age. Edited by Kevin Kelly. Everything that has to do with information. Lingual, visual, networks, etc. And lots about computers. There are years of information sources here. As with the Whole Earth Catalog, each section was put together by an expert and has a short introductory essay, followed by several hundred books, films, addresses, etc. Published by Harmony Books, Crown Publishers, 225 Park Avenue South, New York, New York. 10003 USA.

Whole Earth Review

This is quarterly update to the above. 144 pages of pure information. Whole Earth Review. Box 38. Sausalito, California. 94965 USA. Tel. 415/332-1716. 20 US$ per year for four issues; add 4 US$ outside of the USA.

By now you must be wondering whether I have an enormous magazine collection. Not really.

Our user group subscribes to magazines; we donate the subscription to the local public library. The magazine is sent there, and everyone, members and general public, can read it. It is always available there. When we approached the library with this idea, they were in the process of reducing their collection because of budget cuts. We now support six different magazines. If your user group wants to make magazines available and share the costs, this is a good way to do it.

Chapter Ten

PD's; Public Domain Programs

PD or not PD, that is the question, for whether 'tis nobler to suffer the slings and arrows of thankless users or, perchance, to get rich...

From "The Collected Works of Phil Bridges" (Penguin, ISBN 37-87303-34-0)

There exists a large number of free programs for all computers. These are called PUBLIC DOMAIN programs (usually just "PD's").

Public Domain programs are written and distributed outside of the commercial distribution system. You can find them either from PD services, where there is often a small fee, or from BBS networks, where they can be downloaded for free.

About the Legal Aspects of PD's, and All Programs in General

There's a great deal of confusion about the legal nature of programs. Most people think that public domain programs don't belong to anyone. That's not true. There are various legal concepts about copyrights which should be made clear. Copyright law comes from property law and that comes from land law. The main principle in land law is *"First is Right"*. (The real principle is however "Money talks". But that's another issue.) Whoever got there first, or came up with it first, owns it. *Everything belongs to somebody.*

The question then is: which and what kind of somebody owns it, and which and what kind of somebody can use it. All "intellectual material": books, plays, films, computer programs, databases, numbering systems, etc. has a legal nature. These all have a copyright.

That copyright defines:

a) who owns the title to the program
b) who can use it and
c) who can collect a fee for its use.

The original author has a natural right to his material for a specific amount of time, usually 75 years or so, depending on that country's laws. He or she may sell or rent or give away that copyright, either for a fixed amount, or for a percentage, or for nothing. If he or she still has the copyright at death, then the copyright passes along, with the house, the toaster, and the cat, to the family or whoever is in the will. After being dead for seventy five years (again, depending on countries), the author automatically loses those rights and the material passes into the PUBLIC DOMAIN. (This is not spelled "domaine".) The phrase "public domain" comes from land law: "domain" means "property". There's private domain, government domain, the King's domain, etc. That just means who owns the title to it. When a piece of land is used by everyone, like a park, then it is public domain; anybody can go there. Books are good examples of public domain. Gunther Grass is still alive and owns copyrights to his books. Anyone who performs a play by Tennessee Williams, who died in the 60's, must send part of the money to his family (and his family can sell those rights). But if you use a play by Shakespeare, who is very dead, you don't have to send money to anyone, because "all of us" own Shakespeare's plays; all of his plays are public domain. Everything, even the Moon, has a legal status.

A Simple Sample:

John writes a program and thus automatically owns it. He has the legal title to it. John can give this right of ownership to Jane, either by selling it or just giving it to her. John can also give the title to all French women, or to the world.

If John, the author, wrote the program while he was working for someone else, then that employer owns the program. If John writes the program during company hours, his boss gets rich. But if John writes a program in his lunch break to help him deal with his boss's stupid computers, then the lawyers get rich. This is a very complicated area; the main complication is the huge amounts of money which can be involved.

Jane, who bought the title to the program, is the OWNER. John can either sell the title entirely to her, so that he only gets money and not even a Christmas card. Or John can lease the title to her, so that after ten years or whatever conditions he puts into the contract, it goes back to him. The owner can be one person, a corporation, whatever.

Part of the rights of owners is to decide who may use the property. The owner may define the USER. That can be either one person (only Karen) or a large group of persons, whom Jane can define (all of her friends, but no boys; if boys use it, they are illegal users) or even everyone in the world.

Lastly, Jane can decide what users have to pay for that use: she can set the FEE (either money or things). The amount of the fee can be large, small, or zero. A zero fee is just that, no charge, but it is still a fee. Jane can also decide who gets the money. That can be herself or her friends or even Amnesty International.

A program then is written by John, who sells the title, but not the film rights, to Jane, who then sells its use, but not the title, to users. When Jane dies, her testament (the will) gives the fee, but not the title, to Amnesty International (they now get big checks in the mail); her testament gives the title to her cat. The cat's lawyer then leases the the title to Paul McCartney, who writes a silly song about it. Paul, being a nice guy, announces in his next record that his fans can use the program for free. John then leases the film rights to a film company owned by Silvester Stallone. See? You can use a program for free, but that doesn't mean that someone doesn't own it, or has the rights to it.

These are the type of questions you get in law school. You have five minutes answer: May Amnesty sue the cat to force Paul to raise the fee? May Paul prevent Gitte, who divorced Silvester, from wiggling her breasts to the song's tune in her next video? If you have time remaining, you can answer a bonus question: does California or Danish divorce law control Silvester's rights to husband/wife property? If he paid for her breast "improvements", can he argue for a copyright interest and a share of the money on the grounds that they are artistic (an intellectual product?). Does the surgeon have an artistic copyright to his work, or is he performing "work for hire"?

With computers, users tend to use the word "public domain" to mean "free" and "copyright" to mean "commercial". You can see that this leads to confusion. Everything has a copyright. Some things are expensive copyright and some things are cheap copyright.

Programs got their legal status in 1981. Until then, codes were these obscure things that programmers did on large systems. Programmers, being a bunch of cowboys, traded codes with each other (on corporate time, of course). The corporations tried to get either a patent or a copyright. The patent office refused, on the grounds that a program is a mathematical algorithm and no one can "own" a mathematical function. So the large corporations went crying to Congress, saying that they were not making the billions to which they had a right. Congress, made up mostly of lawyers, agreed, and programs became "intellectual property" (this is what we call a "legal fiction"). It became illegal to distribute programs without permission.

We are seeing the same thing again today: genetic engineering companies are trying to get patents on life forms. The courts and the patent office are disgusted; the lawyers are drooling. Some American scientist has the nerve to try and copyright his research on the human gene; if he succeeds, he will hold the copyright to the human race.

Apple is now suing IBM and Hewlett Packard for piracy: Mac claims that the whole desktop image is copyrighted. This is going a bit too far: Edgar Allen Poe invented the detective novel. Can he have a copyright to all detective novels?

The PD scene is not just for computers and dusty books. Punk musicians, to the total outrage of music corporations (especially the lawyers), released records as public domain. This caused a shock in the industry; what is music all about, anyway?

When radio stations run out of advertisers, they play lots of early jazz; it has all passed into the public domain and they can play it for free.

PD's for the ST

So, enough theory. What is there for the ST? Everything. Some 3,000 programs, in nearly every area you can imagine. The ST is a user's machine, and therefore has programs for everything. Since public domain software is so cheap, it is a great way to look around and learn how to use things.

The number of PD's grows quickly. In July, 1986, there were about nine disks of PD's for the ST. By February, 1987, there were thirty. February 1988, there were over 400 disks. In March, 1989, there are at least 700 disks. To go through the major areas:

Programming: There are advanced programming languages such as LISP, PROLOG, ICON, and SMALLTALK, written by computer science professors and released as PD. There are hundreds and hundreds of source codes, in all languages, so you can learn to program. Libraries of routines which you can use in your own programs. Debuggers, sprite editors, resource file editors, memory monitors, language shells, to make it easier, compilers, listers.

Utilities and tools: Disk copiers, formatters, editors, recovery programs, RAM disks, disk listers, disk label makers, tools and utilities for hard disks (TURBO.DOS, FOLDERXXX, SPLIT), hard disk backup programs (TURTLE), clocks, accessories, networks. Virus killers. (VDOS).

Communications: Terminal programs (UNITERM), BBS programs (STARNET), compressors, encrypters, and Kermit, for file transfer.

Word processing: Wordprocessors, text editors, guides, tutorials, printer drivers. There are utilities to convert from one format to another. Programs to create fonts, plus lots of fonts (for Signum, there are about 150 PD fonts). Spelling checkers.

Spreadsheets and Databases: Programs to make graphs and function plotters.

Graphics: Drawing programs, painting programs, picture manipulation, screen grabbers, picture format converters and compressors. Plus loads of pictures, especially CLIP ART.

Sciences: Astronomy (ASTROLABIUM), mathematics, physics, chemistry (make molecules, learn chemistry, sample analysis), Life games, fractal generators, Mandelbrot generators.

Information: There are about 45 disks of text available: guides and tutorials to all aspects of the computer such as BIOS, GEM, hard disks, DB_Man. Programs to make your own newsletter. Diskzines. How to upgrade your ST. Downloads from networks, BBS's, etc. And even the King James Bible! This is very useful,

not just for electronic Mormons, but for programmers who want to make an English spelling checker. Here is one of the richest collections of English words available. Useful for literature, theology, classics, and philosophy students.

Games: Whilst only a few can compare with commercial games, these few compare well. There is a PD version of BOLO; there is BALLERBURG, a great little cannon game, Pacman, labyrinths, Othello, Risk, battleship, card games, casinos, guides to Flight Simulator II and situations, and funny desktops for the ST.

Demos: (Demonstration disks) for Signum, Calamus, Tempus, VIP, etc.

And of course there are are silly and funny programs which put little crabs into your computer which munch up your screen, cause screen meltdowns, bugs to crawl down the screen, robots to chase the rubbish bin, and so on.

Contact any PD service and ask for a catalogue. The IBM scene is impressive. Standard catalogues fill up two double sided disks; there's about 500 disks in most services. On a CD disk (that's right. An IBM PC PD CD) from the California Personal Computer Special Interest Group (PC SIG) (yep: the CA PC SIG IBM PC PD CD) some 40,000 PD's are collected. This costs about 200$, which comes out to two programs for a penny. Macs have a large collection of PD's as well. The Amiga, with its enormously complicated screen and operating system, tends to have many text files and source codes to help programmers deal with the machine; there are also lots of picture and sound programs. Fred Fish from California has been the major person in the Amiga collection; he has catalogued, documented, and distributed about 180 megabytes of programs: ask any Amiga user about Fish Disks. ST PD's are mostly organized by ST COMPUTER of West Germany. Most of our ST PD's tend towards accessories and utilities, with some large applications programs in various areas. Of course, all machines have a great number of games.

How to get PD's

The small ads sections in magazines give addresses of services. These can charge anywhere from one to ten pounds. Advice for buying from the small ads services: send in a small first order, one or two disks. See how long it takes to respond. A good service is prompt and professional. Paying a bit more is better than waiting several months.

Several magazines have their own PD collections, sent in by the readers.

Check with your local store. Stores often have PD's available on their hard disks for copying; if you copy yourself, it can be very cheap (one pound or so); it is usually free if you buy something.

User groups are a good place as well. Many user groups have their own libraries of disks: collections of programs which members can get either for a small fee or even for free. There is usually a PD librarian: he or she collects programs and publishes regular updates of the library.

And there are BBS's: they often have on line collections which you can download, (again either for a nominal charge or for free). For example, our UG has about five or six hundred public domain programs on line, which everyone can download free.

Be careful about "commercial" user groups: you pay £35 for the privilege of buying disks for £10.

Form your own group. Meet a couple of users, put your money together, buy your own disks and start your own collection.

PD Books and Magazines

PD's have become such a big business that there are several books and magazines now which only cover this.

There is a good introduction to PD's: Alfred Glossbrenner's "How to Get Free Software" 1984, 432 pages. It is somewhat out of date; there isn't much for the ST but it is a complete guide shareware and public domain on the PC and other machines. There are lots of sources, addresses, etc.

"PD Fibel" was the first German book for ST PD's. It is a summary of the best programs from two collections: the ST COMPUTER PD collection and the IDL PD collection. The programs were sorted into twenty categories. Along with a screen grab, the program is briefly described in two or three sentences and its positive and negative points are noted. It is an ambitious project, but the fast growth of the PD scene makes it questionable if a book can cover it adequately. Magazines are better suited. The book is expensive as well, which seems strange, in that one is basically buying a catalogue to IDL's PD collection. "PD Fibel" By Sylvia Dettlef, Rolf Kruse, and Klaus Schultheis (who are also the owners of the IDL PD Service). Heim Verlag. Darmstadt, West Germany. 1988. ISBN 3-923250-64-9. 59 DM.

For the ST, there is a book in German by Robert Tolksdorf which is documentation to 10 major PD programs in the various application areas: PROED, the text editor, PROFF a page layout program, NICELIST, to make listings, SBASE, a database, SIMPLEDRAW for graphics, STCALC as a spreadsheet, and UNITERM and ARC for communications. The book is very well written; each command is clearly described. There are at least 10 pages of text for each program. If you need a good introduction to the principles of the program and a well written documentation, this book is worth having. For example, the documentation to UNITERM 2.0b is detailed and clear. Even after having used Uniterm for two years, I learned quite a bit more from Tolksdorf's documentation. Robert Tolksdorf. Public Domain Software für den Atari ST: Anwenderprogramme. 126 pages. Heise Verlag, Hannover, 1988. ISBN 3-88229-155-9. 29.80 DM. Heise Verlag can be contacted at: Postfach 610407, 3000 Hannover 61. They publish other books for the ST as well.

First of all, there is quite a battle between PD magazines. ST COMPUTER publishes "PD News: Das Public Domain Magazine". 56 pages are articles, mostly by the original authors of the programs such as Claus Brod on Hyperformat or Henrik Alt on SAKROTAN. The remaining 35 page contain a full listing of the ST Computer collection, lots of screen dumps, plus descriptions and comments of each program. Since ST COMPUTER is the German distributor of PC Ditto, there are PC programs as well. PD News started out as an A5 format booklet, but is now in A4 size: well printed and illustrated. The PD NEWS is rather popular; they distribute over 20,000 copies a month now. 82 pages. 5 DM. Six times a year. Same address as ST COMPUTER magazine.

"Die PD: Public Domain Journal für Atari User" is a second PD magazine from Heim Verlag. Like "PD News", "Die PD" is actually a PD catalogue, with six pages of articles, mostly comments or guides to various programs. The remainder is a PD catalogue. The list up to disk 202 is identical to that of the magazine ST COMPUTER. Published four times yearly. 3 DM. 40 pages. Heim Verlag, Heidelberger Landstrasse 194, 6100 Darmstadt, West Germany. Tlf. 06151/56057.

Heim Verlag has a large number of books and programs for the ST. Contact them for a catalogue.

There is a third German magazine: PUBLIC DOMAIN SOFTWARE. This covers all computers (PC, Mac, Amiga, ST, etc) which makes it of limited use for ST people. It started in the autumn of 1988. Published by Tronic Verlag, GmbH. Information, articles, addresses. Tronic Verlagsgesellschaft mbH, Postfach 870, D-3440 Eschwege, West Germany. Tel. 05651/30011. 45 DM for one year; 58.50 DM outside of West Germany.

PD's in the UK

I can equally recommend Andrew Bishop (ST/UK), Paul Glover's ST CLUB, Steve Delaney's Floppy Shop, and Goodman's PD Service. They have large collections, actively updated, and well organized. I recommend these because I know them; purely for reasons of time, I haven't dealt with the others.

All of the PD programs mentioned in the Y2M are available from both sources.

The ST/UK. Run by Andrew Bishop, an enthusiastic supporter of the ST, with far away the best PD service in England. He got fed up with the high prices and started his own service: you sent in the disk plus 50 pence for a copy. This grew and grew; he now sends out regular monthly commented updates, nicely printed. If you send in the disk yourself, it's a quid for a copy; otherwise it's £2.25 for a disk. Contact ST/UK for more information. Andrew Bishop, 1 Bartholomew Road, Bishops Stortford, Hertfordshire, CM23 3TP United Kingdom. Tlf. 0992/22234.

The ST CLUB. Large, organized PD collection. Newest programs are listed in the ST CLUB NEWSLETTER. 9 Sutton Place, 49 Stoney Street, Nottingham, NG1 1LX. Tlf. 0602/410241.

Goodman PDL, 16 Conrad Close, Meir Hay Estate, Longton, Stoke-on-Trent, Staffordshire, ST3 1SW, United Kingdom. Tlf. 0782/335650. Large collection, well organized. All programs are described.

The Floppyshop user group has a large, active PD library. A nicely done 32 page catalogue, with over 400 disks and descriptions of each program, are available. Contact them for more details. Floppyshop UG, 50 Stewart Crescent, Northfield, Aberdeen, AB2 5SR, United Kingdom. Tlf. 0224/691824.

Lisa Skeet, Anglo American Media. Large collection, actively updated. 24 Crown Street, Ipswich, Suffolk. IP1 3LD, England.

Les Ellingham, Page 6. Box 54, Stafford, ST16 1DR, England.

Softville PD Library, Rod Gearing, 55 Highfield Avenue, Waterlooville, Hampshire, PO7 7PY, England.

The South West Software Library. This is a large collection, one of the oldest, and very well organized. Their prices started very high, at £10, in the beginning, but have continued to drop. Disks are now £3 each. South West Software Library, Box 562, Wimborne, Dorset, BH21 2YD, England.

There are many more. Look in magazine small ads, etc for more services. If you know of a PD service which isn't mentioned here, let me know.

Outside of the U.K.

ST COMPUTER magazine, West Germany. Updated list in every issue. See the magazine chapter for more information.

ATARI DEUTSCHLAND BBS (00949/614221161). Atari Germany's BBS. Lots of PD's on line.

XE/ST, Austria. Updated list in every issue. See the magazine chapter for more information.

ST NEWS, Box 5011, 2000 CA Haarlem, Holland. ALMERE BBS, Tlf. 00931324016491. Over 200 PD's, plus over 40 Aladin Mac/ST PD's.

Paragon Computers BBS, sysoped by Phil Reeves and his brother, is a free, 24 hour BBS with the newest public domain and information for unlimited downloading. Australia, BBS Tlf. 09/3255160. Phil Reeves is the source of the ST REPORT disk magazines which are available in Europe; he downloads them in Australia from Florida, USA and sends the disk to me in Denmark, from where I send copies to the main European PD distributors. All of the excellent Australian PD's were sent up by him and Gerry McCaughey. Thanks, mates!

Koondoola UG. Growing PD collection. Gerry McCaughey, Koondoola UG, 22 Furness Way, Koondoola, W.A. Australia, 6064.

And last, but not least: the ST/OP UG in Copenhagen. Andreas Sorensen, ST PD Distributor, STOP User Group, Skovbovej 11, 2800 Lyngby / Denmark. You can write in English or German. There are also PD's on the 68000 UG BBS: 009/45/6/202016. 24 hours, All Weather, 1200 and 2400 Baud.

IBM PC: Shareware, Freeware, and PD

The availability of the PC and Mac emulators has created an interest in PC and Mac PD's. (You must have an emulator program, such as PC SPEED or SUPER CHARGER to emulate a PC. To emulate a Mac, you must have either Aladin or Spectre.) PC's and Macs are All American machines; anything for these happens first in the USA. The PC Sig of California is the major source.

The largest, most professional PC user group in the world is the PC SIG. Write to them at PC SIG, 1030D E. Duane Avenue, Sunnyvale, California, 94086 USA, Tlf. 800/245-6717 or 800/222-2996 The largest, most complete, most professional PC public domain library in the USA is the Public (Software) Library in Texas. They also publish a newsletter. Nelson Ford, The Public (Software) Library, PO BOX 35705, Houston, Texas, 77235-5705 USA, Tlf. 713/721-5205 From these, you can get a great deal of information on PC programs, both shareware and PD.

Most PC PD services offer disks on both 5.25 and 3.5 inch disks. The ST can easily read PC disks.

Andrew Bishop's ST/UK PD service in England offers PC PD programs as well.

With a modem, you have excellent access to PC programs. PC BBS's have selected the best of the PC programs; since there are literally 50 times as many PC boards as any other, this represents an enormous on line collection of programs. You do not need a PC terminal program. Use any ST terminal program, call a PC BBS, download whatever you like, and de-arc it with the ST's ARC.TTP. It's fully compatible with PC arcs. The ST can read PC formatted disks, so simply start up the PC emulator program, insert the ST disk with the decompressed PC programs, and Bob's your uncle! Maybe it was good move after all that Atari copied the PC disk format.

Very strongly recommended PC shareware programs (many of these are the best available in their category) are: PC_WRITE 2.71 (50,000 registered users), Galaxy 3.0. (word processor) and New York Word 2.21. (word processor). PC_FILE (the most widespread database program in the world), WAMPUM 3.1 (database, similar to DBASE III, but better, and more user-friendly. Supported by a 14 person company). QUBECALC 3.01 (three dimensional spreadsheet, very professional. Express-Calc 3.0 and PC Calc+ are two other spreadsheets). PROCOMM 2.42 (The best PC communications (terminal) program). TELIX 2.12 (communications program. Considered

easier to use). Boyan D3 and Qmodem SST are also recommended terminal programs.

All of these can be found in any PC user group or disk service. All of these are shareware: distribution is free, you can get them either free from BBS's or for a small fee from Disk Libraries (see the addresses above). If you use the program and like it, then you pay a fee to the author. Again, there are some shareware authors who dislike European users; because of poor response, many American shareware programs are not shareware in Europe.

Macintosh: Shareware, Freeware, and PD's

The Macintosh poses a few more problems as the ST can't normally read Mac disks. To get programs from a Mac, you need to connect the ST and a Mac together with a cable. That is a lot of trouble. Someone has to sit down and transfer the programs over one-by-one. ST Nieuws, of Holland, has a large number of Macintosh PD's on Aladin-formatted disks (see the magazine chapter for ST NIEUWS' address). A second possibility is to get a Mac terminal program on an Aladin disk. You can then call up the Mac BBS's and download. BBS's usually have a collection of the best programs available. Red Ryder is the standard Mac terminal program; it is available on an Aladin-formatted disk from many PD services. If you can't find it in your country, contact the ST CLUB in England.

Mac BBS's can be found by calling your national Apple representative. News, information, and more Mac PD's can be found in MacUser, the major Macintosh magazine. If you buy original Mac software, a Mac BBS can be used to transport it onto your Aladin disks. The sysop can compress it, put it on the BBS, download it to you, and then delete the copy from the BBS. Mac sysops are often curious about Mac emulation on the ST. Don't mention to the Apple dealer that you have a Mac emulator. They are not in the least curious; they are downright suspicious.

Please note that an Aladin disk requires that you have the Aladin Macintosh emulator. It will not run, nor can you even open it, if you do not have Aladin. Aladin disks can easily be copied with any ordinary ST copy program.

For information on BBS's, or how to find them, see the next chapter.

Chapter 11

Communications

As you progress with your computer, you will often begin to hear about Bulletin Boards, or BBS's. These are often called "databases" as well. People use "modems" to send and copy programs over the telephone.

Information moves very quickly on BBS's. It takes only a few days for a new tip, trick, note, comment, information, or program to move around the world.

If you want contact with "professional" or "serious" users, then get a modem. Practically all of them have modems; they can be contacted on the main BBS's in any country. They are the ones who can spot a problem or solve a problem first; they also have a great amount of information.

About a BBS, the Software, the System

A Bulletin Board System (BBS) is a system made up of several components, both software and hardware.

The HOST Computer

This is the central computer which has a BBS program running on it. This host computer is connected with a modem to a telephone line; it can answer the telephone by itself. This host computer also has one or more disk drives (either normal drives or hard disks) connected to it. On those drives is the mail that people send to each other and perhaps programs which the users can copy via telephone. Such a host computer is often a small computer with a modem and a hard disk attached. The BBS of the 68000 UG, for example, is a 520 ST, using a 2400 baud modem and a SH-205 hard disk. Since the computer runs continuously by itself, it has a small cheap TV as a monitor which is usually turned off. The hard disk is self booting. The computer has its own telephone line (and is even in the telephone book).

The GUEST Computer

Your computer at home is called the guest computer; it gains access to the host computer. You need a modem, a cable, a terminal program, and a telephone line. (Yes, people have asked if they needed a telephone to use a modem). You don't need a special telephone line; you use the ordinary telephone line.

MODEMS

For your computer to communicate with the host computer, you need a modem; it connects your computer to the telephone line. It is a little box full of electronics that has a wire going in from the computer and a wire going out to the telephone plug. If you think that you need to put the headset of your telephone into a box, then you have been watching too many James Bond movies. There are two kinds of modems:

1) **Acoustic** (the James Bond type); there are two rubber cups which fit over the telephone.

2) **Direct** (the little black box); your computer connects directly to it with a cable, and it plugs directly into the telephone plug in the wall.

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* 29) Gaming SIG
* 30) World BBS InterUser
* 31) IBM PC Stuff
* 32) Pascal SIG
* 33) 'C' Programming SIG
* 34) dBase SIG
* 35) Chaos Computer Club News
* 36) Data Communication SIG
* 37) Music SIG
* 38) Binkley SIG
* 39) Politics/Philosophy
* 84) Mainframe SIG
* 85) Hewlet Packard SIG
* 86) IBM PS/2 SIG
* 87) Local Area Network SIG
* 88) Programmers SIG

Opus is a worldwide BBS, with SIG's that cover many areas and computers, with participants from the entire world. Discussions which are not hardware specific can cover anything. It was on Opus, for example, that I learned that the science fiction writer Robert Heinlein had died.

A BBS keeps a record of each user. On this record is his name, password, perhaps his address and telephone, and his access status. The SYSOP can change this access status, which allows the user to enter different areas. The SYSOP can also change the user's access time limit: anywhere from one minute to 24 hours per day. It is actually better to have a low access time; you spend less time on-line and have lower phone bills. I usually ask the SYSOP to set my time limit for twelve minutes.

Data files can also be transferred to and from the board. You can send programs or long texts to the board (uploading) for other persons who will then copy it onto their systems (downloading).

All material that is uploaded into the board goes into a special section. A SYSOP will look in there and check whether the material is copyrighted or not. When cleared, it will be transferred into the open board where others can find it. Since it is not possible to ensure that copyright material will not be distributed to persons who are not entitled to receive it, most BBS generally do not allow the posting of copyright data on the board. There are of course many "pirate" boards: BBS's which post commercial programs. These are usually run by kids. In San Francisco, there were an estimated 1000 pirate boards; all it takes is a Commodore 64, a little ten dollar modem, and Dad's phone line. Public domain programs (PD's) however may be freely copied and distributed. And there is the BBS BBS, a BBS about BBS's, in the USA at 301/251-9206.

BBS Security

It must be clear that private data which is posted on a BBS is not secure from third persons. The Sysop has the ability to read private mail in order to be able to control misuse of the system. Most Sysops are honest fellows and don't read private messages. But it is possible. Worse, hackers can enter a BBS or network unknown to the Sysop and read your private mail. This has happened. Don't place anything on a BBS or network which must remain private. Business material and love letters should be encrypted. This is in theory very safe. Do not use names of girls, computers, or dogs as passwords. You can also set up your own closed-group BBS. Again, it is possible to hack into a BBS without a password.

If you want to set up a BBS, you will have to deal with hackers at some point. There's nothing to do about this. The telephone company is just as helpless about this. Most hackers come in, look around, and read the private mail. Electronic peeping toms. Others will change things or even delete things or even delete the entire harddisk. It is easy to bypass any registration system; you will never know that someone has been in the system. To protect yourself, make frequent backups. Change the status of files to "read o d y. Do not leave anything on the system which you don't want to share with unknown persons. Keep your BBS system physically separated from your other computers.

So, paying extra to have an unlisted number for your company BBS only makes it more sporting. It is easy to write a program which scans telephone lines; it simply calls up every number between, say, 687-0000 and 687-9999, one by one, and makes a note of which are attached to computers. Set this up at night and in the morning, there is a list of hidden computers. As for the other 9,986 people who got up in the middle of the night to answer the phone...

How to Find a BBS

It's like Palestinians: you meet one and suddenly you get to know a whole crowd of them. Call a user group and ask for the telephone number of one, regardless of computer type (you can usually find an office of the Personal Computing Society (PCS) in the major cities). Log onto the board, and leave a message asking for others. This is the best way to find the active boards. The BBS scene changes very quickly; boards go up and down. Just like SoHo art galleries - one is popular for several months, and then everyone moves to another. There are always a handful which are stable; these have a dedicated crew of users and an active program collection. There are plenty of

lists; one, by Jorgen Bak, Denmark, is 27 pages long and contains BBS's from many countries (available as a PD file from any PD service; ask for the WORLDBBS.TXT). A list of ST BBS's in the USA is seven pages long with 85 boards per page. If you call a BBS, you can usually find a list of current or relevant BBS's. Most lists are quickly outdated, however. It is for these reasons - too many numbers and constant changes - that I only give several numbers here. Call these to find others.

Fox's Den UK	010/44/689/27085
68000 UG Denmark	010/45/6/202016
1ST Klub, Stockholm	010/46/8/7129922
Atari Net Holland	010/31/347377584
EMC Belgium	010/32/41/37/41/42
ATARI West Germany	010/49/6142/21161
GFA West Germany	010/49/211/555075
Maus Netz West Germany	010/49/25183086
Atari Italy	010/39/261/93757
Atari Spain	010/34/(9)16520287
Paragon Australia	010/61/9/325/5160
Atari Canada	010/1/416/579/2169
Atari USA	010/1/408/745/5308

All are 24 hours, 300/1200/2400 Baud. 010 is the UK "dial out" code for international calls; outside the UK substitute your local dial out code. To dial the UK numbers from within the UK replace the 010/44 with a 0.

Networks

Many BBS systems are connected together in networks. Each part of the network is a node. The computers run this by themselves; messages created on one node are collected and passed onto the others, automatically, at 4 o'clock in the morning or so. Each node calls the next one which is closest; in this way, messages move around the world. You only have to call your closest node, or access point, to get onto the network. The best known amateur network is OPUS; it runs on PC systems, but practically all sorts of computers use it; there are SIG's for each computer. You can read and send messages to Europe, Africa, Australia, Japan, the USA. In Germany, Maus Netz is a popular student's network. USENET is the largest, most professional network. This connects main frames at universities, research centres, and corporate offices around the world. Computer science students use it to talk about everything that has to do with computers. The Atari ST sig is enormous; there are megabytes of text weekly. Until this year, access was only at major systems and cost £50,000. There have been several public access points opened lately; you can read messages, but not write. Contact a large BBS in your country and ask if anyone knows of a local access point. In Germany, USENET can be accessed at +49/40/2512372 or +49/40/6940145.

NASA BBS

Try calling the NASA SPACELINK BBS. This was set up in the beginning of 1989 as a public service. There is not only news about NASA, but also information and updates on the space shuttle, astronaut training, satellites, planetary spaceships, spacelab, future plans, US/USSR cooperation, NASA computers, and SETI (Search for Extraterrestrial Intelligence). There is plenty of material for teachers. SPACELINK 205/895-0029. 24 hours. 300, 1200, 2400 baud.

Databases

There are other things to call apart from BBS's. You can call a database. Universities, research institutes, and companies have computer databases which can be accessed by modem. You can search for information there. The database system is extremely well developed worldwide; there is a major database for practically anything. There are around 20,000 major databases. (See the entry under DATABASE in the glossary at the end of this manual.)

Telephone Directory

Many telephone companies allow you to use their telephone directory service via a modem. Simply call and you're on line. Type in a surname, a city, or a partial telephone number, and within a second, the person's full name, address, telephone, occupation, etc shows on screen. If you have your file capture option switched on, you can save this as an ASCII file. This is very useful to find someone's address if you only know the telephone number. This service is however very expensive; it can cost up to £1 per minute. The Billy-the-Kid method: put the name on a keymacro, turn on the file capture, log in, punch the macro, get the answer, and pull the plug out of the wall. That is a very quick way to log out. You only pay for several seconds. Check the telephone rates (they are printed in the front of the telephone book) to see if you are obliged to pay for a full minute or fractions of a minute.

Games

There are also games which you can play. These are called MUGs (Multi User Games). A host computer will have a game program, into which you can enter and play. Many are role fantasy games; entire universes are built up with very special rules of magic and science fiction. There are also social games and other kinds of interactive games. These are widespread in the US; thousands of persons will be involved in a universe at one time: dealing, fighting, organizing, whatever they like.

Save Set-Up

Now, so you don't have to re-enter all of these settings, go to the FILE menu and click the SAVE SETUP option. Write UNITERM.SET and press RETURN. You can create other * .SET files, one for example with the 7E1 settings, and save this with a different name (such as 7E1.SET). To save the telephone list, use option SAVE NUMBERS and save as UNITERM.TEL. You can save further numbers by creating a second * .TEL file. By using the UNITERM name, the files are loaded automatically when you start the program.

Alles klar! (That's "c'est tout!" in German.) Press Q or click anywhere in the screen to exit the configuration mode and return to the terminal screen.

To Dial

Press the right mouse button. A menu appears, with the names of your numbers. You can also choose here other options, such as file transfer, etc. Select a BBS by clicking on it with the left mouse button. At the bottom of the screen, a status line reports that it is dialling; the modem should start beeping. To abort, press the space bar or Control+ C. If you used the ATS11=55 in the F-keys, then press Shift + F10 before dialling; your modem replies "O.K." When the BBS replies with a CONNECT and the BBS asks for your name, press F10. Your name rolls out. When it asks for your password, press F1.

Further Commands

Alternate + C means "file capture"; this makes a copy of everything that happens and saves it on disk. You can scroll through a whole bunch of mail, save it on disk, and then go to your favourite word processor to read it later. Press Alternate + C and then click in "start" to start the "capture". A selector window appears; give the file any name. When you have finished scrolling, press Alt+C again, and stop the capture. These files take up space, so have a blank disk in the drive. File capture is very useful if you call a database; you scroll through all the information, log out, save, and then it is on disk. No need to write things down from the screen. Alt+F2 and Alt+F10 put more lines on screen. Alt+F7 restores the default values. If everything goes wrong, try this. Alt+P makes a screen dump onto disk; Alt+R replays a file capture, and Alt+T transfers a file (to and from). Alt+H hangs up the telephone.

Letters

A very handy ability of a communications program is to send your text files in ASCII. It is expensive to write a message while you are on the telephone. It is easier to write it off line. Write the message in your word processor. The number of characters doesn't matter, but some BBS's have a limit of 60 or 100 lines per message. Other BBS's, such as OPUS on PC's, do not allow blank lines; many do not allow three blank lines. If so, place a full stop in a line and then go on to the next line. Save the message in Ascii mode (WP mode off). Back to Uniterm. Press HELP, go to TRANSFER, and select ASCII. Go back to the terminal mode, call the BBS, and start the message in the usual manner. When the first line shows up, press Alt+T, file transfer, select SEND, and select the file. It then begins to appear in the message. If you usually send messages, but rarely programs, then set the TRANSFER option to Ascii and save as UNITERM.SET. To download a file: select the file, press Alt+T, file transfer, and click on Receive. Have a formatted blank disk in the drive.

Many BBS's use Control + C to break or abort a process. Control + S stops the scrolling, and Control + Z resumes the scrolling.

There are many terminal programs, of all levels of complexity. All work on the same general principles. I am certain that other people may prefer different setups or other programs, but this program and setup will work. I recommend that you learn to use Uniterm and then, if you want more (or less), look around at other programs. Uniterm is widespread; if you have problems, you can always leave a message on a BBS and get help. If you use pirate copies of commercial programs, you don't have a manual and it really is too much to expect that a registered owner is going to teach you how to use your pirate copy.

Come to Think of..

Some screen savers will cause problems with Uniterm. For example, if UNITERM is in the act of transmitting an ASCII file and the screen suddenly blinks off, the transfer is aborted. Furthermore, the history file in Uniterm disappears as well.

Uniterm 2.0d is by Simon Poole. It is freeware and available from many PD sources. There is a large document file on disk; it is however rather long and complex to read. If you have comments or suggestions about the program, write to Simon Poole, Bahnhofstrasse 5b, CH-Wettingen, Switzerland.

What's Next? Let's Call a BBS.

The best way to learn is to do it. In the following pages, I called our BBS and let the computer make a copy of the session. What scrolls on screen is shown so, with my comments below. (The following is specific to one BBS program (Michtron V2.0); however, most BBS systems work on the same general principles.)

What you see on the screen and what you do are in **bold**. *Comments are written in italic.*

You start the modem program. You must first configure it to your system; this means setting an option to your modem's top baud speed (click on 1200 baud, for example). The BBS's modem will automatically find out what kind of modem you are using and adjust itself.

Let's assume you will call our BBS; the telephone number is +45/86/202016.

atdt4586202016 (Press return)
(AT means "attention"; the computer tells the modem that a command is about to be given. DT is the command; the modem should dial. And then telephone number follows (45 is the international code for Denmark). Pressing Return starts it . Some commercial Comms packages will save you the bother of typing this and will let you call the number by clicking on it.) (You'll hear the modem beeping, and then the host telephone ringing. It answers, and you hear a long beep; at this point, the modem switches off its loudspeaker so you won't have to listen to the twittering that goes on between the two computers.)

CONNECT
(Your modem's "carrier detect" light goes on; this means that a carrier signal has been established. You're on line.)

Press RETURN

MichTron's Multi-User BBS. Version 2.10
Copyright (c) 1985,1986,1987 MichTron Inc.
Program By Timothy Purves

68000 BBS: The User Supported ST/Amiga BBS in Denmark
24 Hours All Weather 300/1200/2400 20MB Hard disk
(the opening screen. Michtron is available in version 3.0 now.)

Logged on to Modem 1

Username: Andreas Ramos
(You're asked to write your name. If you like, you can type your name onto a macro key (or an F key); pressing this will send your name. The BBS will check its records; if it doesn't know your name, it will ask you to register. You'll be given several questions: name, address, telephone number, describe system, and create a password.

Password: ########
(Everyone assumes that they need a password before they call the first time. Again, too much James Bond. Major systems, in order to keep kids out (or at least make it more challenging to the little snakes), have identification systems. You must know the right word or you are out. BBS systems let you define your own password. You write in whatever you like; the next time you call, it will ask you what the word was. You write it again, and you can then skip the whole registration stuff. Your password lets you have access to your private mail. If the SYSOP gives you a higher status, then you can download as well. Do not use the name of girls, dogs, or computers. Make it a nice, long, obscure word (for example, Dictionary839, King67Kong, Plato30 or even random words, such as 5as_fh4q (underlines are especially effective)(hackers have communications programs which can contain the 1000 most frequently used passwords, which are mostly girls names and computer words). Write your password down. You

can always change your password, name, address, etc. Just log on and ask for a EDIT PROFILE menu; this lets you change all of this information. If you forgot your password, log on again as Ronald Reagan Junior. (Password = Dummy too) and leave a message to the SYSOP to delete your name. You must start all over again; you lose all the messages addressed to you, etc. Your password never appears on screen; you only see nonsense. This prevents someone from looking over your shoulder).

Welcome to the 68000 USER GROUP

205 call(s), last time was on Friday, July 29, 1988 at 18:21
Your account has 0 hour(s) 12 minute(s) remaining today.
(This tells me my time limit)

28 new message(s) 199 new download(s)
(This reports on the number of new messages and new programs to download. We recently moved a large number of Amiga files onto the BBS. Normally, there can be five to ten new programs per week.)

Enter Sig selection (RETURN for list, (ESC) for no change):
(At this point, you are asked to select a SIG. Press ENTER for a full list...)

(*) = Cleared Sigs (D) = Your default

1(*) Welcome to General Public!   2(*)68000 User Group
3 (D) ST User   4(*) Amiga User
5 (*) ST Programming   6 (*) Amiga Programming
7 (*) ST Games   8 (*) Amiga Games

(*) = the SIG's to which you have access. D is the default SIG; when you enter, you start up in that SIG. There are three kinds of users: 1) non-registered callers, who usually have a limited access level, 2) registered callers, who have various levels of access, and 3) SYSOPS, who program and organize the board.)

Enter Sig selection (RETURN for list, (ESC) for no change):
(SIG 3, ST User, is chosen by pressing 3)

(00:00 - 00:12) 3, ST User: Main Menu Command? ENTER
(The 00:00 -00:12 is a timer; we have 12 minutes left for this call. From within SIG 3, you can get a list of options - the Main Menu - by pressing ENTER.)

Main Menu

(W)elcome message   (L)ast callers
(I)nformation   (N)ews file
(M)ail   (F)ile (programs)
(S)ig change   (E)dit profile
(B)ye (log off)

(00:00 - 00:12) 3, ST User: Main Menu Command? = M
(The prompt asks for a decision. We go to the Mail Option by pressing M)

(00:00 - 00:12) 3, ST User: Mail. Command? = ENTER
(ENTER gives us the Mail menu)

(C)heck mail.   (N)ew mail only.
(R)ead mail.   (L)eave mail.
(S)ig change.   (B)ye (log off).

(00:00 - 00:12) 3, ST User: Mail. Command? = C
(Press C for Check gives us a scan for any new mail)

```
Scanning for mail...,
SIG  Area:          1   2   3   4   5   6   7   8  13  Total
-----------------------------------------------------------------
New Mail:           3   1  14  10   0   0   0   0   1   28
To You :            0   1   4   0   0   0   0   0   0    5
To ALL :            1   0   1   1   0   0   0   0   0    3
```

(00:00 - 00:11) 3. ST User: Mail. Command? R
(Pressing R lets us Read the mail)

Last message read: 2082
(The last message we read)
Messages range from 1085 to 2110.
(All the messages on the BBS)
Start at what number?
(Where to start reading?)
Show mail in which Sig(s) (? for list) (1-16):
(Pressing ENTER gives us all open messages in SIG's to which we have access).
Showing mail in Sig(s) 1-16
Pause between messages (Y,N,Q) (Y) ? Yes
(An option to stop between each message. To save time (i.e. telephone bills), you can use a file capture option from the communications program; a full record of everything that passes over the screen is sent to disk. You can then log out and read the messages off-line. This file was made by starting the file capture, calling the BBS, and then going through the menus. I typed these comments afterwards)
Show only mail addressed to you (Y,N,Q) (N) ? No
(Notice that N is in parenthesis. This is a default option; by pressing ENTER, you can choose this option instead of searching for it on the keyboard.)
(And so the mail starts to pass over the screen...)

Message : 2088 (Open) 07/24/88 23:48
(This gives us the number of the message, its status (open or private) and date and time.)

From :   Steen Norby
To :   Klaus H. Sorensen
Subject :   #1087 NONE
Sig(s):   4 (Amiga User: Lets get serious.)
(A message can be placed in any SIG).

There are 2 replies *(Replies are noted)*

Regarding PC ditto: It looks like it works fine. The programs which I have tested work as they should. The speed is not too good. I ran a CPU program which showed that my "clone" was running at about 2.2 hz. Another program which makes more specific tests (1 se/write to memory/register etc.) shows a speed of up to 20% of an IBM PC! not too good, but useful, nevertheless. Yours, Steen Norby

(P)rev (N)ext (J)ump (R)eply (A)gain (Q)uit Next
(The message closes with a list of options. Pressing ENTER brings on the next message)

Message: 1106 (Open) 02/28/88 11:16
From: Soren Voigt
To :   All
Subject :   GDOS prerequisites
Sig(s):   3 (ST User: The place to be.)
There is 1 reply

I have obtained the GDOS program, but am missing fontfiles and a suitable

version of the ASSIGN.SYS file. Can anyone help me on this? Thanks in advance! Soren

(P)rev (N)ext (J)ump (R)eply (A)gain (D)elete (Q)uit Next
(Press ENTER again for the next message. You can almost always press Control+C or ESC to quit an action or area.)

Message :   1104 (Open) 02/27/88 22:20
From: Thomas Nielsen
To :   Steen Norby
Subject :   #1088 NONE
Sig(s) :   4 (Amiga User: Lets get serious.)

You must have a very old version of PC ditto; the new one operates as a 4.77 MHz PC.

(P)rev (N)ext (J)ump (R)eply (A)gain (Q)uit Next

End of Messages.
(After we read the messages posted, we can see if there are new programs to download.)

(00:08 - 00:04) 3. ST User: Mail Command ? m
(We go to the Mail menu. Notice that the timer shows that eight minutes have passed and four are left.)

(00:08 - 00:04) 3. ST User: Main Menu Command ? f
(Here we chose F; this puts us in the File transfer menu. We press Enter for a list of the menu options.)

(00:08 - 00:04) 3. ST User: File transfer V0.1 Command ? ENTER
(The File transfer menu)

(L)ist and download (Q)uick list
(U)pload file   (M)ain menu
(S)ig change   (B)ye (Quit)

(00:08 - 00:04) 3. ST User: File transfer Command ? Q
(We chose Q, for a quick list of programs)

Search mask: (* . *)
(If used, this lets us look for a specific program)
Show by (N)ame (D)ate (C)ount: (N) Name
(This lets us list the files alphabetically, by date of posting, or by count (number of times downloaded). We chose to see them alphabetically).

Directory of C:\DW3*. *

Filename	size	date	count
GDOS_FNT.ARC	21K	07-20-88	3
GEMTERM.ARC	7K	07-18-88	5
GEM_AUTO.ARC	3K	07-10-88	7

204 file(s) listed
(The actual list is several pages long. Here you see three files: the name, kilobyte size, date posted, and count = number of times downloaded.)

(00:09 - 00:03) 3. ST User: File transfer Command ? L
(Another way to see files is to use List and Download; this shows us the files one by one, with a description, and lets us choose to download it or not.)

Last download read: 213
Downloads range from 1 to 412.

Start at what number? (214)
Show files in which Sig(s) (? for list) (1-16) : 3,5,7
(We chose to see only programs in the ST SIG's: 3,5,7.
Showing files in Sig(s) 3,5,7
Show files in short form (Y,N,Q) (N) ?
Pause between files (Y,N,Q) (Y) ? Yes

File :   214 TURBO.DOS 15875 bytes 07/20/88 00:14
Uploader :   68000 User Group
Desc :   New routines for ST TOS. Works well.
Sig(s) :   3 (ST User: The Place to Be)
Downloaded :   12 time(s)

Download this file (Y,N,Q) (N)? Y
(By pressing Y, this file begins to be sent to us).

Desired transfer protocol: (A)scii (X)modem (Q)uit XMODEM
(We are asked to choose a protocol; I have never had problems with X modem,
so I use that):

This file has 16 KB.
Approximately 4 minutes to download.
Go to File Transfer:
(I then select the file transfer option in my communications program. Uniterm
is put into transfer mode by pressing Alt+T. A window appears, which then
counts down the kilobytes as they are transferred. A transfer can be aborted at
any time by pressing Control + C. I set my egg timer and play with the cat
until it is finished.)

Successful download!
(To upload a file, that is, send one to the BBS, I use the Upload option).

(00:09 - 00:03) 3. ST User: File transfer Command? ENTER
(The File transfer menu once again)
(L)ist and download   (Q)uick list
(U)pload file   (S)ig change
(M)ain menu   (B)ye (log off)

(00:09 - 00:03) 3. ST User: File transfer Command ? u
Desired transfer protocol: (A)scii (X)modem (Q)uit XMODEM
(I am then asked by the BBS computer to describe the file I will send.)

Filename for upload : BITTEBIT.ARC
Description : New copy accessory for the ST.

Please go to XMODEM to transmit BITTEBIT.ARC
(I use my communication program's file transfer options again. After several
minutes...)

Transfer complete! Thank you.

Command? B
(That's it. Press B for Bye!)

Do you want to log off? (Y,N,Q) (Y)? Y
Do you want to leave a message to the SYSOP? (Y,N) (N)? N

Goodbye and thank you for calling the 68000 BBS!
No carrier.

(And the modem reports that there is no carrier line. The contact is over.)

How to Use...

ARC

A File Compressor Program by Harvey Johnson

To reduce the size of files for transmission (time is money)(your telephone time is the telephone company's money), files are compressed. Since the standard compressor is ARC.TTP, this is called ARC'ing. Many files on disks are often ARC'ed as well; especially source codes; PD services do this in order to put more on disk. ARC'ing is a standard; you'll learn to arc and de-arc files at some point. All of this is done with a small program called ARC. ARC compresses and decompresses files; it goes through a file, finds all the character strings which are similar, and replaces them with a single character. This makes the file shorter, so that it takes up less space on disk or on the telephone.

Think of an ARC file (archive) as a folder. All sorts of files are jammed, packed, crunched, and squeezed together into one single file which has the ending .ARC. To this ARC "folder", you can add new files or take out files. You can also open the whole ARC "folder".

Shells for ARC

ARC.TTP is the program which does the compression/decompression; it also contains a number of single line commands. ARC-SHEL2.PRG is a shell for ARC.TTP. It calls up ARC.TTP and allows you to use all of the ARC.TTP commands by just clicking with the

```
Open Program

    Name:  ARC      .TTP
 Parameter :
mh new.arc *.doc|_____

        [ OK ]          [ One 1 ]
```

mouse; this is much easier. Furthermore, ARC-SHEL2 allows you to work within folders. Do not use ARCSHELL.PRG; that was an early version which often crashed. Since ARC-SHELL2 is the shell for ARC.TTP, both of them must be together in the same disk or folder. When you start up ARCSHEL2, you see the following (see illustration below):

To Compress a File

Click on the option ADD TO ARC. If you choose MOVE TO ARC, then the file will be deleted after it has been moved to the ARC file. In the beginning, just use ADD. Press RETURN.

You'll then be given a first file selector window. Here, you are being asked for a name for the new arc file. Write anything, but remember that the extender must be .ARC.

Press RETURN. Now you are given a new file selector window. this lets you select which files

```
 ADD to Archive    EXTRACT from Arc      Retain Backup
 MOVE to Archive    RUN from Arc      Suppress Compression
 UPDATE Archive     COPY to StdOut      Suppress Messages
 FRESHEN Archive       LIST            Suppress Notes
 DELETE from Arc    VERBOSE LIST          Hold Screen
 Test Archive      Convert Archive      Encrypt / Decrypt

                                         Code: _____
    List Device
                      ARC Drive: A    Overwrite Existing Files
 Screen Printer Disk                    + Require ARC 5.21 +
                      DATA Drive: A     Crunch      Squash

 ARC Shell v1.97
 (c) 1988 Charles F. Johnson    Info  ARC  Disk  Config  Exit
```

will be compressed into that .ARC file you just created. Select the items to compress. You can also use a mask; write * .DOC; all the files ending with DOC will be arc'ed. Or just press RETURN, this gives a * . * default; everything in the file selector window will be compressed. It is often best to place mixed files into a new folder and compress the entire contents of the folder.

This second window tends to confuse many users; the first selector window lets you choose (or create) an ARC "folder", the second selector window selects the files which will go into that ARC "folder".

To Decompress

It is mostly the same process. First click on EXTRACT (take out). You are given a window where you see only .ARC files. Select the ARC file you want to decompress. Press RETURN. Now you have a second window which is blank. If you press RETURN, this gives a * . * default; everything in the ARC file will be decompressed.

You can also choose to decompress only individual items from that ARC file. If you know the name of the item, then write that in the file selection line. If you don't know what is in the ARC, or just want to see the README file, or can't remember the exact spelling, then ask for LIST in the main menu screen; this displays a list of the contents.

Checking ARC's

ARC files should be checked for INTEGRITY. Sometimes, a file will not compress correctly; it reports a BAD HEADER; the file is destroyed. Apparently, one can't recover these. Keep a backup of important ARC files. Bad ARC's are rare; for the BBS we compress hundreds of files; perhaps 1% compress incorrectly. Just delete the .ARC file and recompress until you get a good ARC.

Remember to have enough room on disk for decompression. Text files usually grow about 50%, programs only about 30%. Pictures will increase about 80% to 90% in size. Use a RAM disk. It is faster. Just make a huge RAM disk (up to 90% of your available RAM).

There are several versions of ARC:

1) ARCA.TTP is a compressor-only.

2) ARCX.TTP is a decompressor-only. Small and easy to use. Double click on it; write the name of the ARC file, press ENTER.

3) ARC.TTP is the full version. It does everything. Compresses, decompresses, makes lists, tests compression, and encrypts / decrypts. ARC.TTP has been updated to version 5.21 by Howard Chu. It is faster and less error-prone. To find the version number of your ARC, start the program and type ?h. This produces a screen of help, along with the ARC version number. (? for help, and h to hold screen.) ARC.TTP is fully compatible with the PC ARC.

4) ARCSHEL2.PRG is the shell for ARC.TTP; instead of typing in commands such as "ATH C:\ARCSAVE\BAK.ARC D:\TEXT\Y2M.TXT", ARC SHEL2.PRG lets you pick and click. ARCSHEL2.PRG also allows you to work within folders. ARCSHEL2.PRG needs to have ARC.TTP along with it on disk. As I said before, ARCSHEL.PRG, an earlier version, should not be used as it tends to crash.

5) ARCSHL197.PRG is a further upgrade. (Arc Shell 1.97). Yes, 2.0 is higher, but 1.97 is better. It allows you to select which items can be extracted, allows configuration, etc. It can squash, crunch, or squeeze.

6) DEARC11.PRG (De-Arc Version 1.1) is a useful de-arcing utility. Place this on a disk along with ARCX.TTP. Add the ARC'ed files. Now start De-ARC. It creates a folder for an ARC file, decompresses it, places the result into the folder, and then goes on to the next ARC file. Painless, organized de-arcing.

ARC.TTP is constantly being updated: faster and better. It is always downwards compatible, but often not upwards compatible; old ARC programs sometimes can't decompress new ARC'ed files. You can always get ARC.TTP and ARCSHEL2 from any BBS or PD service. There are many other programs which can compress: Squash, Crunch, Mash, and EZ Squeeze, to name the best known. I have tested all of these; ARC is still the best. Arc is by Harvey Johnson, 2398 Oaklyn St NE, Palm Bay, Florida, 32907, USA. He can be contacted at the QUILL BBS 305-724-2303.

More Tips

You can also use ARC to store programs. For backup storage, I create one single ARC file, which allows maximum compression, this fills an entire hyperformatted disk. I remove only single items from it. In this way, I store about 1.6 or 1.7 Megabytes on a single disk.

UUE:

Encode and Decode

When looking at discussions from BITNET and USENET, one often finds large blocks of code. These are ASCII versions of programs. The program has been converted into ASCII characters. A program is used to do this; it is called UUE and has two parts: UUEncode.TTP and UUDecode.TTP. The encoding version converts the program into ASCII; this ASCII version can then be converted back into a program by using the decoding version.

A UUE encoded program is easier to send; simply transfer it as a message. No bother or trouble with special sections or methods of uploading or downloading files. Large systems don't have "File SIG's" or collections of programs to download; the programs exist as messages, along with all the other messages. You can use any text editor to search/cut/copy such blocks.

Below is an example of a file which has been UUE'd: EXAMPLE.TOS. The file was first compressed using ARC.TTP; this reduced it from 416 bytes as a .TOS program to 360 bytes as an .ARC file. UUENCODE.TTP was then started; I write EXAMPLE.TOS in the window; it is then converted to EXAMPLE.UUE; this file is 619 bytes large. It was originally smaller! But it is now in ASCII form and can be sent anywhere as a message; I can even print it on paper. Sending such a file takes only 15 seconds or so; transferring a program by the normal method requires that you enter the file transfer, start the process, describe the program, choose

the protocol, send the thing, hope that the checksums were correct; the SYSOP has to then check the program and change its status to downloadable; this can take several days. UUE saves all that work.

Looking on a network, you see a message from someone; it starts off with a hello and then possibly a brief description of what the problem is and how this program solves that problem. It sounds just like the program for which you've been waiting; you save the entire message onto a disk and then use any text editor (for example, TEMPUS, or a word processor in non-WP mode) to "cut" out the UUE text. You start a block at "begin 644 EXAMPLE.ARC" and end the block at "end" (simple enough, no?). Open a new file; put the UUE text into it; save this with any name; run the UUDE-CODE.TTP. The file is then converted into an ARC file. From there, you decompress and voilà! a program.

You can even type this into your text editor, directly from this page, and then follow the same process; this results in the EXAMPLE.TOS.

If the file wasn't compressed with ARC, it would be 704 bytes large; the extra step with ARC saves several bytes. In larger programs, this is usually about 25%. The amount of compression / expansion will depend on the material; pictures compress nearly 90%; text about 60%, and programs about 40%.

EXAMPLE.TOS is a file which have been processed by UUENCODE.TTP

-------------------------- clip here--------------------------

```
begin 644 EXAMPLE.ARC
M&~Q1$E23S5&&5"Y43U, 20$ $1\)63F*! ,8#0 !# " ( V-'&#AzMH ,AIW[P #"21 N3UX D$·QS$
O%C&:40+GWY)V "( 22B·HH·9O")0Z31yM(P!K6)Z X#,PXL$'!.SU,F3()·?08=R%+ #429/0L'Y
85/8P".3*;R,X&'xM·#P5:R·R6.- "0 /:"0$T'O' --,9P8148%%UBH &,S(·P/ 29T((#(4&,FA%wMGP
#&0P1UD' 1+%!·(\!N!'P4$.2/0 )#TXA,X ?E">/F!!T08]"4&,;,&vM!!'TTx: L%~&SIPT;]R'&,,&!)
4G4QI8#F*OIQX0&·D X= 1(·T";". #LuM3'> __],Z·N2'&".A"2B\6‹H!XS]H1D'#$ 1?&>,?D&8‹,
&,3&·T0‹]B\H2.,·tM31DS=+·' #"""8=$&.J·]E·‹(Y2Q(IUO·% &.'·BZ·-" D!1 P3"·(" 91H sr
end
```

-------------------------- clip here --------------------------

Chapter 12

Games

There is not much on games here. You don't need to know much to use the ST for games beyond a few notes.

Starting Games

How to start a game? If you only use the ST for playing games, then you can mostly get along by just putting the disk in and turning the machine off and on. Many games start themselves automatically.

However, some games must be started by clicking on them. You put the game in the drive and turn on the ST. An icon appears that looks like a filing cabinet. With the mouse, click on this once; it turns black. Now move the mouse to the top of the screen; a list of options will pop down. Click on the one that says OPEN FILE. This opens a window. In that window, you will see many different icons; one of those ends with .PRG (for example, GAME.PRG). Click on it (it turns black) and then click on OPEN FILE again. The game will start.

If you read chapter six, you can learn how to start a program by putting it in an AUTO folder. If it won't start that way, then try using a GEM_START.PRG or GEMAUTO.PRG; you can get this from any PD service.

You can always quit a game by pressing the reset button or just turn off the computer.

Games don't need to break your wallet. There are quite a few freeware/PD games which are lots of fun. BOLO, a breakout game, is one of the best and is available in a demonstration version which is fully playable. PACMAN, a

classic computer game, is available in a good version for the ST as MACPAN. BALLER-BURG is one of the best games ever: two castles at war both have a cannon shooting at each other. You can collect taxes, repair the castle, buy supplies etc. This is one of the best "couples" games; girlfriends who otherwise stay away from the computer like to play this. Kids can play this for hours against six different computer opponents. Mikkel Mogensen, our in-house games specialist, gives this one ten points. MAZIACS is a maze game: fight spiders, get food, find a treasure. Nice animation. PENTIMO is a puzzle: place the chips into a pattern. This can take hours. GO_UP is Loderunner for the ST: if you go into any computer science department, they are all sitting there playing LODERUNNER on their Macs. NAPOLEON is the "Risk" war board game and SPACEWARS is a nicely done space combat game for two. All of these are available from the ST COMPUTER collection or any PD service for very little money.

Colour and Monochrome Screens

From ROBTEK, a monochrome emulator is available for £50. You can use monochrome programs on your colour monitor or TV. Contact ROBTEK at Unit 4, Isleworth Business Complex, St. John's Road, Isleworth, Middlesex, TW7 6NL, England. Or Tlf. 01/847-4457 or 01/847-4458. GFA, West Germany, not only has a monochrome emulator, but also a colour emulator; colour programs can be used on monochrome screens. However, most games use special routines; the emulator can't work with these. The best solution is to convert your

monochrome monitor into a multisync monitor.

An emulator for monochrome programs onto a colour screen is available as PD (free or cheap), contact any PD service and ask for MONO-WARE.PRG.

RAM Disks and Games

Most games will run faster from a RAM disk. Flight Simulator II (FSII), with all of its silly disk operations, runs very well from a RAM disk. Just copy the whole thing over and doubleclick on FSII.PRG. Much faster. Painting programs, such as Degas, also run much faster (see the chapter on RAM disks).

Virus and Games

And a last word: Do not run a virus tester or virus killer on a game disk! If the game is self booting (just put in drive and start), then the virus killer will also kill the game. Gamers are the most hit by the virus; they trade disks and

don't understand enough about the computer to avoid infection. Read the entry on the virus in chapter one. Don't play one game and then play another without turning the ST off fully for at least five seconds. Just do this between each game and you will never have any problems.

Chess

Another ST area. 70 of the world's 100 or so grand masters have ST's and a huge collection of chess games on disks. A user group called the CHESS SERVICE HAMBURG has built up around CHESSBASE, a large database of chess games. Chess Service can be contacted at: Maacksgasse 6, D-2000 Hamburg 60, West Germany.

More information on chess and computers can be obtained from a magazine with the very appropriate name: Chess Computer Magazine, Editor, Bryan Whitby. 16 Mansefield Rd., Kingsley, Warrington, Cheshire, WA6 8BZ, United Kingdom. Tlf. 0928/88942.

Tips'n Tricks

Flight Simulator (FSII)

A program by Bruce Artwick, SubLOGIC

Here are several tips and suggestions to flying FSII. Since FSII is a commercially distributed program, I am not going to supply a "substitute" manual here. I strongly recommend that you get a registered copy of the program.

Flying FSII without the manuals or charts is nearly worthless if you do not learn air navigation. It is like children playing chess, shoving the pieces around without understanding what they are doing.

Ram Disk

FSII flies best from a RAM disk; no pauses for disk scenery access. Copy the entire disk into the RAM disk (MAXIDISK works best) and double click on FSII.PRG.

Manoeuvers, Acrobatics, and Stunts

Flying inverted is flying upside down. Nose up to go down. Neither your gravity fed fuel pump nor the oil pump function upside down. A loop is a vertical circle made by pulling up all the way around. A barrel roll is a circle made by rolling over. An inverted loop... well, guess... You are a proficient pilot only if you can keep the same heading and altitude during your manoeuvre. Starting a loop in New York and ending up in Chicago is poor airmanship. An Immelmann (named after the man who first did one) is a half loop developed into a half roll. You are flying north, drop a bit to pick up speed, do a half loop, and, at the top of the loop, when you are upside down, roll over, to level off the aircraft. The result is that you're flying south, in the opposite direction, at a higher altitude. There are very few enemy which can follow such a turn. Immelmann shot down many Allies in WWI with that

trick. The counterpart of this is a half roll followed by a dive into a downwards half loop and then levelling off. A clever way to do loops is to dive, then climb, and when the horizon disappears, press H to look over the right hand window. You can then see the angle of the aircraft to the ground. It helps a lot when doing rolls if you watch the artificial horizon; keep the horizon at the centre dot. The problem in rolling is that when you start to turn, the wing's lift will push the aircraft to the side upwards. You correct this by diving into the turn. But when the aircraft is sideways, it begins to fall sideways; you need to "turn upwards" to stay even. As you go through the roll, the amount of turning will increase and decrease. Grandmothers can fly under bridges; only Snoopy does it inverted.

I start off at 3,000 feet over Alcatraz and dive, snapping the wings over in a half barrelroll, aiming at the underside of the bridge. Just as I pass under the bridge, I "dive for the sky" and roll over. No problem! Try doing this sometime while talking on the telephone. I'm working on an inverted loop around the Bay Bridge. I am also practising on a barrelroll along the length of the Bay Bridge; fly parallel along the bridge and then roll over, under, and around the bridge. Curiously, only the Bay Bridge, which connects San Francisco to Berkeley, can be flown under (it is 400 feet high)(near the point where it reaches San Francisco, there is a burger bar in the door of which Dirty Harry said "Make my day." Great burgers. Another dockworker's bar is under there: Red's; everything on the menu costs 1S and includes a beer. If you order a salad, the dock workers'll throw you into the harbour. Great place). All the other bridges are actually flat on the water. Try flying between the towers of the World Trade Center in New York City. Try flying at 500 feet in downtown San Francisco. Try flying the jet through the hanger in the WWI landscape.

Challenges

When you think you are good, then try flying with wind and turbulence (even numbers of turbulence produce drafts, odd numbers include up and down drafts. 1 is easy, 9 is a hurricane). Try to land with a head wind of 70+ miles an hour. Try flying with clouds. Place a ten meter thick cloud at 500 meters and then fly by instruments to an airport.

World War One Ace (WWI)

By creating clouds at, say, 6,000 feet, the enemy aeroplanes above or below the clouds (which you can't see) will appear on monochrome's radar. Enemy also appears on the map. It is in WWI Ace that flying with uncoordinated controls is useful. Click co-

ordination off in the menus. Use the arrows (on the comma and full stop keys from the keyboard) to control the tail. In level flight, you can give full left tail rudder; the aeroplane skids around. Fly over the enemy, machinegun their runway, and dive for home. Click B to look backwards; when all of them are behind you, hit full tail rudder, whip around, and machine gun them out of the sky. If you can't get five in one burst, you just aren't trying. In an aeroplane, such a stunt would both destroy the aeroplane and knock the pilot unconscious.

Extras

Select WWI, write down the Position Coordinates, and switch to Prop or Jet. Then use Position Set in the menu NAV to bring the Cessna or the Lear jet to the WWI country. The grid helps in learning to fly, making manoeuvres and landing.

There's no need to "click close and press P to restart" when you've crashed; click open REPLAY, replay the last five seconds, press pause, open REPLAY again, and click the close box. Now you're flying along where you were before the crash. Or switch Crash Detect off; you now just bounce.

For maximum view, drag the instrument panel down and then resize the main window to full screen. Press F9 to get a wide angle. Double clicking on the gyroscope will bring the panel back to proper size.

The "world" is a flat surface, corrected for ground level but not the curvature of the earth. The Bay Area, with Oakland, San Francisco, extending eastward to Lake Tahoe in Nevada, is very accurate; in San Francisco, the individual buildings are recognizable and in their correct places. The "pyramid" in San Francisco is the TransAmerica building; they own everything from insurance to Hollywood movie companies. The large building near it is the Bank of America (the B.o.A.); the BoA holds much of the third world at ransom with foreign loans; it makes an excellent target for machine gun practice. Major streets in the cities and highways in the countryside are recognizable. These were positioned by using satellite photos of the USA. It is standard VFR (visual flying rules) to fly by following along a highway. New York/Chicago is a good flight. Longer flights are not possible. One needs disks with the airfields between distant points.

To get machine guns into your Cessna, start in the WWI landscape and then use "POSITION" to change your position. You can enter the San Francisco coordinates, for example.

A challenging landing is on to Alcatraz, the island just north of San Francisco. This is the famous prison from which no one ever escaped; not because of sharks, but because of

the strong tide current going out of the Bay. Alcatraz (a Spanish word meaning "pelican") has not been used for many years. Back in the 70's, Marlon Brando and a bunch of Indians recaptured it; they wanted to take it away from the silly European tourists. You can well imagine what happened; ten times as many tourists wanted to see Marlon Brando and a bunch of Indians. He now has a string of private islands in Tahiti.

Try flying at night (just turn the clock back or ahead); there are airport landing lights and large search beacons rotate. Since there is less scenery to update, the screen moves much faster. An instrument landing at night is quite a job.

Someone may figure out some day why there are large arrows on the ground about 200 miles east and south of San Francisco. These are very large, easy to recognize from the air and point towards the city. There are other peculiar things as well. A user has seen other aeroplanes in the simulator. If you fly west from NYC in the Cessna (heading 52 degrees), several jets will fly by. Ask for Chicago. Sit on the field, don't move. Turn the clock back to 6:30 AM. In the distance, to the left of the Sears Tower (the world's largest building), the lights of an aeroplane can be seen. Another pilot has reported red triangles floating on the water. Aircraft have been reported on maps (not visible in the air). One user saw birds. South of San Francisco, in Palo Alto (Silicon Valley), where there are five square buildings, three aeroplanes occasionally appear. Flying over one of the Great Lakes out of Chicago, a hot air balloon will drift by. All of these things appear randomly.

Interesting Locations

There is Silicon Valley, with its five buildings, at the southern end of the Bay. Fly 180 degrees south of the starting runway (Oakland) and, at the first runway (Hayward Air Terminal), fly east 90 degrees. You'll pass a few hills. Between two towns is Livermore Municipal Airport (Livermore is a nuclear weapons development site). Land there. It has a hanger and an interesting control tower. South of Los Angeles is Orange County, home of American conservatives. Quite naturally, the airport is named John Wayne Airport. There's a giant portrait of the Duke in the lobby. JW airport is the last one as you fly south from the LA area. If you fly west from it, out over the Pacific, then you'll get to Catalina Island. When you fly to the USA from Europe on holiday, your airliner flies along the coast of Newfoundland and then Maine. It passes over Boston

(17900/21800/ 40,000) and then crosses over Long Island, approaching John F Kennedy International Airport, which is at the southern end of Long Island. NYC can be seen over the right wing.

More Extras

With modems or connecting cables, aircraft can fly together and communicate. It is very frustrating to fly together; it is hard to find the other aeroplane and keep up with them. You can lock onto the second aeroplane. It is not much fun to fly WWI together; each pilot gets his own enemies; they can't shoot at each other or each other's enemy.

FSIII, or JET, is a F-16 jet; it is not very challenging to fly. Although it runs much faster on screen, it is basically a "blast-em-up" game with no flying ability required, and is rather boring.

The lack of a multiple file selector window means that the collection of situations (FSII_SIT) is a bit of a problem. FSII_SIT is a collection of interesting, challenging situations; there are about eight F7 files (F7_001, F7_002, etc), with about 10 situations per file. Fly at night; land at unmarked airports; fly through hazardous passes etc. To use these, place each of these on eight different disks. Rename each to F7. Start up FSII. Insert the first F7 disk. Use "Load RAM from disk". Check out the situations. Now insert the second F7 disk. That erases the first F7 from memory. And so on. The various F7 files can be kept on any disk, including ones which are used for other things. Just write "F7_001" etc. on each disk. These situation files are public domain and can be obtained from many PD services.

Chapter 13

Graphics

It is strange that graphics programs sell so well on computers, almost in direct inverse proportion to the understanding of graphics. Imagine if word processors, no, say, desktop publishing programs, sold like hot cakes to a land of illiterates! It is cruel irony that the best known ST graphics program, Degas, is named after a painter who was nearly blind, had no known sex life, and was considered a crashing bore.

Perhaps it is the seductive idea of a computer "doing all the work" and letting the "true artist within us be expressed" that is the clue. Who knows?

It is curious as well that there are so many porno disks available. Non-computer people are always amazed when they hear about this. Practically one of the first PD's, indeed, practically one of the first programs for the ST, was Bananas, a silly porno program. On second thought, it's not too strange; new technology is always instantly perverted. The first photograph was made in July, 1839, and four days later, the first porno snapshots were being sold in the street.

Anyway. There are two major kinds of programs: drawing vs. painting. These are not similar, although many people mix the names.

Painting Programs

A painting program is also called a pixel based program or a bit map program. A painting program treats the entire screen as a single "sheet" of graph paper with a small grid of pixels. Painting programs work by converting the individual grids, or pixels, from one state to another, namely black to white or vice versa.

You can make a "swab" on a painting program, a group of pixels becomes black. The swab is a collection of neighbouring pixels; they are not a unit. If you try to expand the image (make it larger on screen), blank pixels will appear in between the pixels; the ST is not going to know what to put there. In the same way, when you shrink a picture, distortions and strange patterns appear. Furthermore, the collection of pixels exist only on the grid. If part of the image is moved off of the grid, then it is no longer part of the grid, and when you move it back, that part is missing. The grid is stored as a whole and therefore takes up a lot of space: 32,000 bits.

Drawing Programs

A drawing program is also called object based graphics or a vector graphics program; instead of a grid of pixels which are individually inverted, you work with the whole object. An object based circle, for example, is defined as a mathematical formula. If you increase its size, the ST recalculates the circle, inserts black pixels between the holes, and you get a larger, perfect circle.

Try this with a drawing and a painting program; make a small circle and fill it with a pattern, such as the cannonballs or weaved pattern. Make a block and expand the patch to
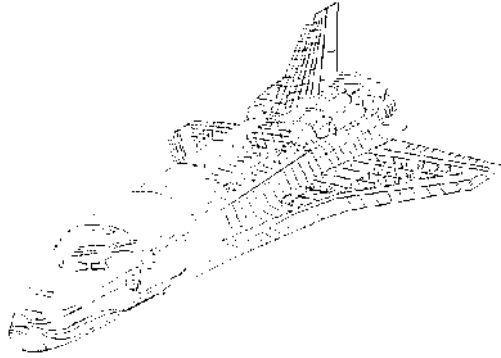
full screen size. The drawing circle will not be distorted. The little patch of pattern fills up the entire circle; the little cannonballs stay small, and there are now more of them. But a painting program circle will be heavily distorted; the patch of cannonballs becomes huge blocky circles. If you shrink and expand the patch several times, the original pattern is unrecognisable.

Which should you use? Drawing programs often have libraries of objects; these can be easily expanded and shrunk to fit your work. Drawing programs tend however to be blocky; objects are made up of circles, squares, and triangles. Painting programs allow you to scan pictures, which can easily be stored as bitmaps. If you are going to work with graphics, try both.

Learning to Draw

If you can't draw on paper, you can't draw on the computer. Any art supply store has books for beginners on how to draw.

A simple way to transfer a picture from paper to screen is to trace the picture onto cellophane or a plastic sheet, tape this over your screen, and then trace it with the mouse. Thanks to JSH.

Scanners

Scanners use a light sensitive element to recognize dark/light patterns and send them to the computer. With a scanner, you can move just about anything onto your screen and then edit it with any drawing program. The quality of the scanned picture depends on the amount of contrast; high contrast (ink line drawings) will reproduce better than shadings. The quality of scanned pictures is not very high; scanners aren't that good, nor can printers reproduce that well. Professional work will often have a blank space for the insertion of a photograph. Scanning pictures is O.K. if you want to make an image record of objects, or illustrate a newsletter.

A hand scanner is about the size of an overgrown mouse; just run this across the picture.

It scans strips about ten centimetres wide; you can join the strips together on screen. The hand scanners can be rolled over many different things; you can scan the keyboard, a fish, your hand, your face, or other bodily parts (don't get too many ideas. The screen is only nine inches wide).

A flat scanner or desktop scanner is a sort of photocopy machine; the image however is sent to the computer, where you can save it onto a disk. This is less fun; only flat images can be scanned.

Magazines frequently publish articles on how to build your own scanner by adapting the printer. A small photocell is mounted on the printer head, a program lets the head pass back and forth as the printer advances the image, thus scanning it.

Fax machines can also scan pictures. If you are shopping for a fax, then see if it can be connected to your ST.

If you need to scan a picture, but can't afford a scanner, talk to your dealer. They'll usually let you scan several pictures.

About Graphics

The best way is to see what other people are doing. The magazines ZOOM, The FACE, and ID are strong on graphics. The FACE is considered one of the major layout magazines of the decade. There is really only one rule in graphics: do whatever looks good to you. Any book which begans to teach you a system of objective rules can be quietly put away. There's no such rules. To learn more about visual images, several books can be recommended.

M. Langford's "Master Guide to Photography" clearly explains the concepts of picture composition with the use of appropriate examples. If nothing else, you'll learn to take better pictures and not waste so much film.

To understand more about the perception of images, you must start with E. H. Gombrich's "Art and Illusion: A Study in the Psychology of Pictoral Representation". A major book in art theory and very readable. Gombrich shows how our perceived weight of objects distorts the actual image; we see what we will see. His simple description of the "spreading effect" in colour shows how little any Amiga user with their 5,000 colours knows about colour. Available from practically any library. 1962, Phaidon Press, London. Originally printed in 1959.

"Computer Graphics User's Guide", by Andrew S. Glassner. An excellent technical guide to the principles of computer graphics by a leading figure in the field. Rather expensive, beautifully illustrated. Often available from

technical libraries. Sams and Co, 1984, ISBN 0-672-22064-4. 4300 West 62nd Street, Indiannapolis, Indianna, 46268 USA.

Clip Art and Pictures

Public libraries have copies of Penguin books of clip art; all of these are public domain drawings. Look in books and magazines that are over 50 years old; the rights have expired and the material can be used. Make it a habit to clip out any picture you like and keep these in folders. Graphics people borrow shamelessly from each other.

Clip Art and Graphics on Disk

Be careful with Clip Art and PD graphics disks. Much of this stuff is not public domain. Someone somewhere with a scanner put a bunch of images onto a disk and handed it out. As we learned in the PD chapter, all images are copyrighted. Commercial artists' and photographers' livelihood depends on collecting for any use of their work. Micky Mouse and Miss September are copyrighted images. If you use these for personal letters, no one will mind, but if these start appearing in your newsletters or magazines, a bill may show up; the usual method is to charge ten times the original. None of the "music demos" are PD; Jean-Michel Jarre and Mike Oldfield certainly did not release their material as public domain. Again, someone with a CD connected to a computer moved this over on to a disk and handed it out.

Images are starting to become available for the ST; most pictures until now were garbage. With the spreading of desktop publishing, there are more and more collections of images. Many PD services have disks of illustrations. If you need professional sources, contact the IMAGE BANK. They collect, classify, and offer literally millions and millions of images: drawings, paintings, photographs, etc. A CD disk is now available; it has about 50,000 images. The Image Bank is the world's largest graphics service; it is a major source for professional graphics and design people. The Image Bank has offices around the world. Call: New York City 212/5296700, London 441/2409621, Munich 49894702068, Paris 33/14/5088698, Bogota 571/257-9674, Capetown 2721/244830, Sydney 61/2/927158. There are at least 30 offices; I have given just the main ones in various continents. It's not free.

If you want pictures of aviation, the National Air and Space Museum, USA, is reproducing its entire photographic archive on to videodiscs. Two disks are already available; disk one has one hundred thousand photographs, in colour and black and white, of US and foreign aeroplanes. Disk two has a further one hundred thousand pictures of balloons, airships, commercial airliners, and more aeroplanes. Each disk costs 35 US dollars (and that is very cheap). Smithonian Institute Press, Box 1579, Washinton, DC. 20013 Tlf. 202/357-1743. Many national libraries are copying their archives onto videodiscs. Contact your national library for more information.

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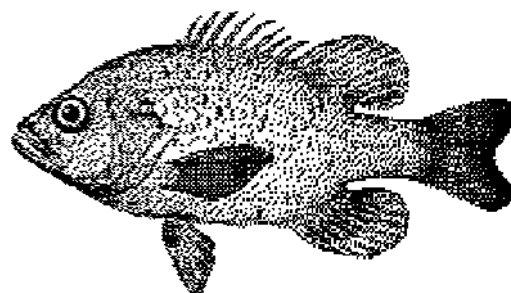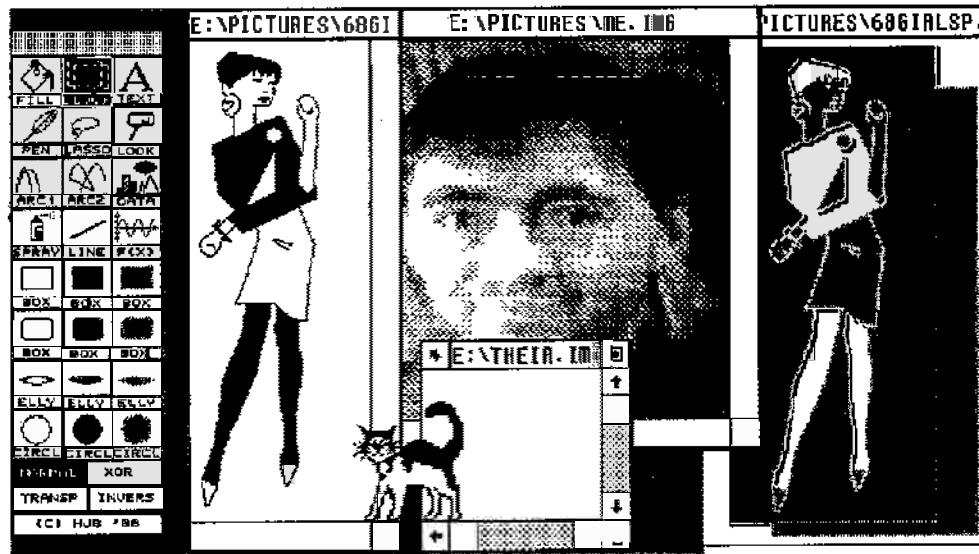
Public Painter

Public Painter is a 76 KB large painting program (pixel based), written by HJB, who gives only his initials and a telephone number. If you want to hear an angry voice, call. He moved a long time ago and lots of people still call. In any case, this is one of the best designed programs for the ST. There is so much attention to detail. Public Painter has abilities which are fully worked out which no other program has. One of the ST's first desk surface menus, a form of pop-up menu, is here. You can move it around. Click inside the option to use it; double click to define it.

Blocks. Use blocks to manipulate objects. To manipulate a block, drag the centre squares vertically or horizontally to expand/compress. Drag the corner squares to distort. Blocks can use the BENDING option; create a block and click on BENDING in the block menu. Drag the left mouse to bend; double click the right mouse to exit. Through Bending, you can use up to eight GEM windows. Try moving a block from one window to another. Every GEM program should work like this. Blocks can be printed out without saving.

Lasso: This lets you make copies of objects. Make a circle around an object; be sure that the circle is complete.

Convert is in the Options menu and lets you convert colour pictures into monochrome.

Set Bend allows you to change the bending parameters. This can let you make special effects.

Hints

Try double clicking on the other options. There are lots of surprises in the program. The CAT.ACC is very useful with Public Painter; you can place the menu commands on the keyboard. Use SNAPSHOT.ACC and save every once in a while. The drop down menus sometimes add themselves to the picture and can't be removed. SCRDUMP.TOS is a good screen saver; you can then import the screens into Public Painter.

HJB has updated the program and released it commercially: Public Painter V0.47. It has complete word processor ability. We often think of having a graphics ability in a word processor; the updated version is a graphics program with word processing ability. You can easily change the point size of the characters and, with bending, flip, and mirror, to make signs and posters. It uses GEM fonts; 65 fonts are included, plus symbols. Proportional spacing and kerning can be done. Paragraphs can be centred and justified. The 70 page manual was written and printed with the program. There is a functions plotter and a pie chart table creator. Since it prints in three different qualities, this program comes close to being a flexible desktop publishing program. It is available in English or German from BRAUKMANN, Am Sportplatz 51, 4005 Meerbusch 2, West Germany, Tlf. 02159/1899. 89 DM.

Chapter 14

User Groups

There has been much talk in this manual about User Groups (UG's). There are many different kinds of UG's, with many different structures, purposes, and activities.

A UG is a group of people who work with a computer. Some UG's are general; the Boston Computer Society covers everything and has thousands of members. Our UG is for both ST's and Amigas. Other UG's are specific; they work only with one type of computer, or they work in a specific area: electronics or medicine, for example.

UG's can be made up of professionals only, such as legal UG's in the USA, or they can be open to everyone.

UG's usually have a small membership fee; the money goes to pay for meeting rooms, UG office expenses, perhaps a newsletter, magazine, or BBS, and perhaps buying PD's for the UG collection

UG's are independent of Atari Corp. There is no such thing as an "Official Atari UG"; Atari does not and will not recognize any UG as official. Anyone can register a UG with Atari; it only costs a postage stamp. Atari puts them on a list, along with all the other 600 or so UG's in the world which have bothered to register. There are no benefits from registering; Atari does not support UG's in any way. Too bad.

Therefore, you must be careful. There have been examples of UG's which were nothing more than getting people to pay a "membership fee" for the privilege of receiving advertising or buying at "special" prices. These are business operations. If you find the offers to be worth the "membership fee", then fine, go ahead. But these are not user groups.

Talk to the UG. Ask about their relation to local distributors. Talk to other members. Ask for, and get in writing, a description of what services and offers you will receive for your membership. You needn't worry; practically all UG's work out fine; they are made up of enthusiasts who like the ST and enjoy talking to others about the ST.

When you begin to write a program, other UG people can help you to get it finished and sold. Many UG members have their own experience in selling programs, either custom-made or to distributors.

You can also find out about new programs, meet others who work in your area, learn to use programs. By meeting someone who does the same thing as you - finance, writing, mathematics, programming, or whatever - you can learn. If you don't program, you can always find programmers who can help you either by changing your program or writing a new program for you.

UG's can help you with finding hardware, software, and even changing your ST. Many UG's buy disks in large quantities and share the price; this is cheaper. You can always find others to share the cost of hardware or books. Members often sell used programs. UG's have experience, both good and bad, with distributors; they can warn you and they can help you find a reputable dealer.

UG's often have their own PD libraries of PD disks which members can buy for a small fee or copy for free.

To find UG's

I have tried to note in the magazines chapter whether UG's were listed in magazines. Try calling or writing to the magazine; even if they don't list UG's, they may know of one. Other possibilities are to contact the local distributor; UG's and distributors often know each other. Contact the offices of Atari Corp in your country.

I can't recommend strongly enough that you take part in a UG. You will learn to use the computer only by sitting around and talking with other people. A UG forms a loose network of contacts which can help you with problems and find information.

Many large, complex programs have user groups which have built up around them, often in close cooperation with the program's publisher. Contact the publisher and ask about a user group or newsletter.

In the United Kingdom

User Groups in the UK can be found by contacting the Association of User Groups. This is an umbrella for ST UG's. Contact Ken Ward, AAUG, 45 Coleburn Road, Lakenham, Norwich, NR1 2NZ, England.

An updated list of User Groups in the UK, Ireland, Portugal, Italy, Holland, Malta, Denmark, Cyprus, and Greece can be found on the back page of the ST Club Newsletter. ST CLUB NEWSLETTER, 9 Sutton Place, 49 Stoney Street, Nottingham, NG1 1LX England. Tlf. 0602/410241.

Based in Scotland, the **Floppyshop User Group**, is internationally oriented. Over 500 members, ranging from Australia to Qatar and all over Europe. One year's membership is £7 in the UK, and £10 for the rest of the world. Membership includes a well written bi-monthly newsletter. Floppyshop News, 50 Stewart Crescent, Northfield, Aberdeen, AB2 5SR, United Kingdom. Tlf. 0224/691824.

The Rest of the World

UG's outside of the UK can be found by writing to a magazine in the different countries or to the national Atari representative (see appendix B).

Daniel Muller, ST NEWS, Box 5011, 2000 CA Haarlem, Holland. ALMERE BS, 0093124016491.

Christian Poels, EMC UG. Rue des Bas-Sarts 10, B-4100 Seraing, Belgium. Tlf. 009/32/41/371606. BBS 009/32/41/374142.

Franz Szabo. **Vienna ST Group**. Sechhauserstrasse 59/3/19, A-1150 Vienna, Austria. Tlf. 0222/873996.

Australian UG's can be found by contacting Phil Reeves, Paragon Computers, Shop 17a, 5 Short Street, Perth, Western Australia, 6000. Tlf. 09/221-3216, BBS Tlf. 09/325-5160. They will be happy to help you find a UG.

ATARI Germany BBS (+49/614221161). An excellent place to look for German UG's.

In Denmark: Georg Galster, ST/OP UG. Amalievej 7 st, 1875 Frederiksberg C, DK-2800 Lyngby, Denmark.

In Norway, there is Ronny Hatlemark's Ronny Hatlemark, ST Klubben, Bjørkenvn 19, N-6150 Ørsta. Tlf. 070 66 462. They publish ST NEWS diskzine.

There are a number of Swedish UG's. Several of the best known ones are:

1ST Club, Östgötag. 23, S-116 25 Stockholm. BBS 08 712 99 22.

**STRIKE**, Andreas Lund, Tel. 046 13 95 39.

Atari Användarnas Stockholms Klubb (ASK). Anders Holmberg, Capellav 12, S-181 32 Lidingö. BBS 08 667 52 87.

And if this doesn't help, then write a letter to your local Atari Corporation, or to Atari Corp in the USA, and ask for the address of a local UG. Atari Corporation, 1196 Borregas Avenue, Sunnyvale, California, 94088-3427 USA. They have a User Group Representative, although not much happens there. The last we heard from them was in April, 1986.

Glossary

Even if you've read the Y2M, there are still concepts, words, and ideas which haven't been explained. Instead of an index, I wrote this glossary as a sort of dictionary/continuation of the Y2M.

If English isn't your natural language, don't worry, most Americans and British don't understand much of this either. Computer English is just as artificial, false, and unnatural as Computer German or Computer French.
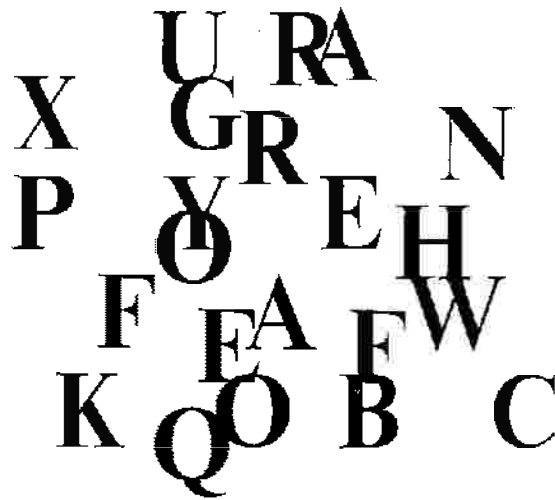
520 ST, 1040 ST, 2 and 4 MEGA ST's:

Different "sizes" of ST's. The number tells you how much RAM the machine has in kilobytes. A 520 RAM machine has 520 KB of space to use. A 1040 has twice the capacity, and a two mega ram (2 MEGA ST) is again twice as large. For comparison, an expensive engineer's calculator has 2 or 4 KB of memory. The Commodore 64's which are so popular with kids have 64 KB of memory; a 520ST has eight times as much. The standard PC can be upgraded to 640 KB; a 1040 ST is almost twice as large (and twice as fast: all ST's are equally fast). These numbers only give you a rough idea of size; a poorly written program can work very well, but take up an enormous amount of space; well written programs can often be much smaller. ST programmers, having lots of space, build programs the way Texans build toilets. A Voyager space probe to Saturn can contain an entire program to find a new, unexpected moon, photograph it, and transmit the data back to Earth: all in 200 bytes of code.

It is only for marketing reasons that the numbers are not correct. You will soon figure out that a 260ST really has 256 KB; a 520ST has twice as much, or 512KB; a 1040ST has therefore twice again as much, or 1024KB. 4MB ST's have 100 extra kilobytes. But the numbers are not "pretty", 256/512/1024 /2048/4096 looks "messy". The marketing people forced the name to be more presentable.

Abort: To exit a program. This reminds me of a story. This friend of mine, who is a catholic priest, uses an ST. Superbase helps him keep track of his flock. Last year, he went to the Vatican for several weeks; when he came back, I asked him what it was like, to live and work inside the Vatican. His eyes lit up: "They have such huge computers!".

✳ .ACC: See accessories

Accessories: From the leftmost drop down menu on the desktop of any GEM application you can have up to six accessory programs. These are small programs which you can use while another program is loaded.

Accessory Loader: A program which you place as the first one in your AUTO folder. It lets you turn other auto programs and accessories on or off.

ACK: Acknowledgment. When you send files with a modem, ACK means that the file was successfully recieved. NAK stands for "Not acknowledged."

Active Window: Even if you have several windows open, you can only work with one at any time. Place the mouse on a window and click; it then becomes the active window.

AHDI: Atari Hard Disk Install. If you can't start the hard disk, this program lets you establish contact. See chapter four, hard disks.

Active Window: The window which is laying over the other windows.

Algorithm: A complete description of a function which tells you step-by-step how to reach a result.

ANSI: American National Standards Institute.

Application: To use, as in the sense of to use a tool. Normally, a program.

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ARC: Archive. A program which compresses files. See the communications chapter.

Artificial Intelligence (AI): This is a strongly discussed area in computering. If you want to learn about AI, the major program available for the ST is XLISP. Best of all, it is freeware; it is available to everyone. Contact any PD service for a copy. Don't confuse AI with expert systems; an expert system looks at carefully defined values and uses rules to arrive at "best decision" situations. This is computerized decision making. It can deal with very large (i.e. complex) situations. This however is not artificial intelligence. So, what is AI? No one agrees. It would seem to be the ability to emulate the human thinking process on a computer. Very serious philosophical problems arise here. AI is hotly discussed by computer scientists and philosophers.

For Further Reading:

Norbert Wiener "The Human Use of Human Beings: Cybernetics and Society", 1950, USA. Prof. Wiener developed the science of cybernetics, or information theory, which is the basis of computers. This little book is very readable for non-computer science people and discusses the general nature of cybernetics and its implications.

Hubert and Stuart Dreyfus "Mind over Machine: The Power of Human Intuition and Expertise in the Era of the Computer" (Mac-Millan, 1986). Hubert Dreyfus, who teaches philosophy at the University of Berkeley, and his brother Stuart, an engineer at Stanford University, wrote this book as a reply to the discussion on artificial intelligence. Hubert Dreyfus is the foremost critic of artificial intelligence, discussing its possibilities (or, better yet, its limits) on philosophical grounds. Dreyfus' arguments have been correct up to now; artificial intelligence is impossible to produce; all major research projects, with nearly unlimited funding, have been stopped because of zero results. The book gives an excellent, readable summary of the debate over the last 25 years and the history of artificial intelligence research. John Searle, an American philosopher, is also part of the debate; a widely read article of his appeared in the April 29, 1982 "New York Review of Books". There are substantial theoretical difficulties, not the least of which is the problem that we don't have the slightest idea what intelligence is, much less how to construct an artificial version.

Elaine Rich's "Artificial Intelligence" is a good textbook on the subject. It requires some computer science background. An introduction to AI, with lessons on LISP. 436 pages. 16 page bibliography. McGraw-Hill, 1983.

ASCII: American Standard Code for Information Interchange. (Pronounced: ASS'-kee,

rhymes with monkey) The computer, being basically a mechanical device, works with on/off states. Luckily, that allows us to use the binary notational system. These on/off states are called bits. So that we can read a screen, the bits are collected in groups of eights which are called bytes (and groups of bytes are called nibbles.) By assigning numbers to each byte, we can use our alphabet. Tp complicate things, we can use different numbering systems, such as binary, decimal, and hexadecimal. It often helps if we know the decimal value of a character. Sometimes, a program can't "find" a character, even though we can see it on screen. This is due to identical characters having different numbers. By being able to check and identify the character's decimal number, we can fix such problems. See chapter two, the keyboard, and chapter four under "How to use a Monitor."

ASCII serves as a way for us to identify characters. Instead of saying "a blank space", I can also say "ASCII decimal 32". By looking at an ASCII chart (appendix A), you can see which character I mean. Decimal 32 is a space character in the decimal notational system; hex 20 is the same character in the hexadecimal system.

Assembler: See Languages.

Asterisk: The character "*", also called "star."

Atari: In the Japanese game of go, this means "checkmate." See: Mt. Fuji

Auto folder: Any non-GEM programs with a .PRG extender in a disks AUTO folder will be automatically run when you boot that disk.

Backups: I don't know anyone who made backups from the beginning. Only after you've lost a major file and hours or days of work will you began to make backups. A backup is a safety copy of your programs and files. Keep two backups. One should be in the other end of the room and the second one should be in a different house.

Basic: Don't waste your time with ST BASIC, the Basic programming language that came along with the computer. It's got errors, and rarely works right. I've never figured out what to do with ST LOGO; few people use it outside of schools. Blank out those free disks and use them; they're high quality. If you want to learn Basic, or use Basic, get either GFA Basic, Omikron Basic, HiSoft Basic, or FAST Basic; these are good and fast. They have good manuals, lots of books, and frequent magazine articles about them. (The first English translation of GFA's manual was lousy; the second is better). You can talk to lots of other people

about these programs. It is easy to get literally hundreds of source codes on disk in order to learn to program and to take pieces of code for your own programs.

Batch: Being able to work with a group of files in a single process.

BAUD: A unit of transfer. One baud is one bit per second. See the communications chapter.

BBS: Bulletin Board Service: It is also called an electronic mailbox. If you have a modem, then you can call a central computer (a BBS) and leave messages to other users, receive messages, and get copies of programs. A BBS lets different kinds of computers talk to each other directly.

Bell: The American telephone standard. The European standard is CCITT (Comité Consultatif Internaional Télégraphique et Téléphonique).

Beta programs: This means "test versions" of programs; the versions which are being developed or have not yet been officially released. BETA versions are nearly always pirate copies. These should be avoided; these programs have bugs.

Bits, Bytes, Kilobytes, Mega-bytes, MB's, KB's, KB's: A bit is the most simple unit of information; it is either yes or no. Electronically, this can be on or off. Eight bits together can define (describe or state) just about any letter we would want (just multiply 2 by itself 8 times; that produces 256 different states, which means 256 possible separate characters, the basis of the ASCII table). This group of eight bits is called a BYTE. When you press the letter "R" on the keyboard, you don't send an "R" to the computer. Instead, you send a string of bits. A word, or a page, or a picture is thus made up of a long string of bits. What it is important to know about at this level is the size of that string: how long it is. Your files (information, texts or pictures) will have different sizes. Short files have of course less bytes than long files. Open the OPTIONS menu from the desktop and click on SHOW AS TEXT, instead of ICONS, and you will see the byte size of all your texts.

1024 bytes is a kilobyte; so a file that is 23,378 bytes is also 22.8 kilobytes (you usually round up; therefore it is about 23 kilobytes). A page of 1st Word text is about 3 kilobytes (3072 bytes). (Of course, this depends on whether you have full pages of text, or lots of empty spaces). Later in your work, as you began to fill up your disks, it becomes more important to know the kilobyte size of your files. One Megabyte is equal to 1,024,000 bytes (1 MB). There is also a unit called a "Nibble". KB is the

usual abbreviation for kilobyte; Kb is the abbreviation for kilobits.

Blanks: On a computer, a blank is not a blank; it is an empty character. It still occupies a whole character space. If you press the space bar and fill up a page of blanks, it will take up as much space as a page of a's. Blanks have two ASCII decimal values: 30 and 32. See the wordprocessing chapter for more information. When searching for a word, use blank spaces before the word. If you search for "own" and don't use a blank space, then the program will find "shown, blown," etc. By tapping in a single blank space, the program only finds words which start with "own...". If you tap in a blank space afterwards, it won't find "own!, own? or own;" because the following character isn't a blank; it too is a punctuation character.

Blitter: There are two ways to speed up the ST. New Mega ST's use a blitter chip which speeds up the graphics process. The screen works faster. This is very desirable with a word processor; you don't need to wait. If an ordinary ST takes two minutes to scroll a long text, an ST with a blitter can scroll down in about 1 minute and 15 seconds, or nearly twice as fast. Working with pictures is also faster. A blitter chip can be installed by any Atari dealer.

There is also a software approach: TURBO ST. This is a program which improves the screen display rate. It works about as fast as a blitter. TURBO_ST is distributed by HiSoft in the UK.

Bombs, Freezing, and Crashing: Start over again. Bombs produce little bomb symbols on screen; freezing means that nothing works any more. Crash means that the whole thing blinks and starts to boot again. There are many possible causes for this. Bad programs, unplanned manoeuvres (eg moving the mouse too fast), conflicts in memory allocation (two programs try to use the same memory space), TOS incompatibility, etc etc etc. There are lists which explain many of the bombs and the TOS errors, but this won't help you; it is very technical. If a program crashes, try to discover how to recreate the crash. This information is very useful to others; they can avoid it. The programmer can try to fix the problem. Bombs have nothing to do with a virus.

People always want to know. So here is a list of what those bombs mean:

One bomb: Your ST has died. This isn't possible.

Two bombs: A bus error. You or your program has attempted to address an illegal or reserved place in the RAM.

Three bombs: Address error or word with an uneven number.

Four bombs: Non-existent command.

Five bombs: Attempted division by null (0).

Six bombs: Address which is outside of the CHK commands.

Seven bombs: Exception of the TRAPV command.

Eight bombs: Privileged command conflict.

Twelve bombs or more: Uninitialised interrupt.

See? You have a list, and so what? Nothing to do but press Reset.

It is difficult to provoke a megabomb; these are bombs all the way across the screen which have lines going down. Delete a folder and use a disk monitor to restore it. Move a file into that restored folder and then try to show it on screen. This does the trick. It bombs because you have messed up the FAT and directory sectors.

When you bomb, there are two things you can do. Either reset (press the button which blanks the screen) or switch the machine off entirely and start all over again. Which button, and where it is, will depend on which version of the ST you have; the reset button is spring-loaded; the off/on switch clicks. Both seem to have the same effect, but they are different. When you completely turn off the machine, it wipes the RAM memory clean (the machine must be off for at least five seconds, which is usually the time it takes to say "Why did I ever waste my money on such a stupid, lousy, idiotic program?"). A reset will only clear the parts of the memory which are not protected by certain routines. If you are using reset proof programs, such as certain ram disks, then resetting will not delete those programs. If you bomb, a simple reset will clear up the memory; if you reallybomb, and a reset doesn't help, then youneed to cold boot.

Boot Disk: The ST automatically creates disks so that you can boot from any disk. You can also create several boot disks with special features. Of course, you can boot with any disk.

Booting: This used to be called "boot-strapping". That comes from an old American expression: To pull yourself up by your bootstraps. Germans know this from Munchhausen; riding along on his horse one day, he fell into a mud hole. Munchhausen took hold of his hair and pulled himself out. When you start up the machine, there are certain programs which are carried out. But in order to carry out those programs, the computer must have a program which is active and can carry out programs. But that program has to be already running so that it can start itself. A chicken and the egg problem. What it means, for us, is just starting the machine. There are cold boots: when you start totally, as in the

morning. There are also warm boots, as when you press the RESET switch, which doesn't turn off the machine completely.

Buffer: a memory space or block of memory which is used to hold data. A spooler is a buffer. For example, the FAT table is stored in a buffer.

Bugs: World War II pilots reported that gremlins, little bothersome elves, were causing many problems on aeroplanes. Bugs are related to them. Every new program is full of them; it takes a sharp programmer and active feedback from users to catch and remove the little critters,

Bundled Programs: When you bought your ST from a store, several programs were included with the machine. Some of these were written by Atari Corporation (fx ST WRITER), others were written by independent software houses and were bought by Atari for distribution to its customers (e.g. 1ST_WORD, DB MASTER ONE). The different programs were given out at different periods and in different countries; new buyers do not get 1ST WORD any more, for example. DB MASTER ONE, a database, was given out in Denmark for a few months in 1987. These programs have a curious status; they are very much commercial programs, they are copyrighted, you can not just hand out copies of them. But so many people have them and 1ST WORD has become the standard word processor; it is nearly public domain. A number of public domain services in fact hand out copies of 1ST WORD.

Bus: A bus is a connection between the different parts of the computer.

Button: Little boxes in the message windows where you can click.

Cache: A memory buffer. A storage area in the memory which is used to speed up programs by storing parts of them.

CAD: Computer Aided Design. Using a computer to draw a table or a helicopter.

CAM: Computer Aided Manufacturing. A computer guides the tools and thereby makes something.

CapsLock: The key next to the space bar which locks the keyboard so that only capital letters are produced.

Carriage return: Represented by a small ⌐. The word comes from old mechanical typewriters; the roll at the top which moved back and forth was called a carriage. A lever brought the carriage back to left so that one could write the next line. For the ST, carriage return means going to the beginning of the next line.

This is done by pressing Enter or Return. If you need to use a carriage return in a macro program, press Control + M.

CCITT: The European telephone standard (Comité Consultatif Internaional Télégraphique et Téléphonique). The American standard is Bell.

Chips: The first flat transistor was built in 1959. In 1961, an integrated circuit, using four transistors, was put onto a round flat surface, called a wafer. By 1964, consumer products were being made with five transistors in one circuit. In 1968, 180 transistors were squeezed onto a chip; ten years later, 1978, the first 16 bit chip held 20,000 transistors and was also the first entire central processing unit (CPU) on one chip. It is expected that by the year 2000, a chip will hold around one billion components.

The actual wafers, which look like little metallic rectangles about the size of a cigarette end, are packed in dark brown ceramics called chips. You can easily open the ST and look at the whole collection of chips inside. EPROM chips have a small window so that the wafers can be erased by exposure to ultraviolet light. This window is covered by a sticker; peel off the sticker, get a magnifying glass, and you can see the surface of the wafer. Be sure to recover this window. (It takes perhaps several days of strong sunlight to erase a chip.

Normally, one uses a small ultraviolet lamp.) There are three main kinds of chips that are important for us: CPU, ROM, and RAM chips. The CPU, or Central Processing Unit, is where the actual work happens. Commands are carried out and data is changed. The other two, ROM and RAM, are memory chips; they hold data. Read Only Memory (ROM) means just that; the information in that memory can only be read; it can't be changed. The data has been "burnt into" the chip. TOS, the "program" which make your computer run, is kept in ROM; it can't be erased. The only way to change the ROM data is to pull those chips out and replace them with other ROM chips with new information. Danish computers, for example, have Danish on the screen, instead of English. To convert an English ST to a Danish ST, the ROM chips are changed.

The ST has over 192 Kilobytes of ROM space. RAM is Random Access Memory; this holds data which can be put into the chip, held there, and then sent back again; therefore it should be called something like Write and Erase Memory. RAM chips are empty when you turn on the computer; when you read a file from the disk, a copy of the data goes into the RAM chips. The ST also uses some of this RAM space for its work. Each RAM chip holds 32 Kilobytes of data; the 520 ST with 512KB of RAM has 16 of these chips.

Another common way to describe computers is the speed of the CPU by noting how many times per second it "ticks". A Hertz is a measurement of time: one beat per second; a MegaHertz (MHz) is thus one million times per second. An IBM PC works at about 4.77 MHz; five years ago, that was considered fast. The Amiga runs at 7.1 MHz; the ST works at 8 MHz. Two years ago, that was fast. The new Compaqs tick at 16 MHz, or twice as fast. The more cycles per second (Hertz), the faster your computer can process the information. It is expected that we'll have 100 MHz desktop computers in ten years. Who needs a Cray anyway?

CIM: Computer Intergrated Manufacturing. Systems which can construct and produce things.

CLI: Command Line Interpreters. A computer or program which works with a command line; you type in commands as lines. PC's and Amiga use CLI's; to delete a file, you write: DEL A:\FILE.DOC and press return. TTP programs require that you write a command (see TTP).

Clicking: Pressing a mouse button once.

Cluster: Two sectors on a disk. On a hard disk, a cluster has four sectors.

CMOS: Complimentary Metal Oxide Semi-conductor. A semiconductor.

Coffee, Beer, and Wine: These will destroy your disks and keyboard. Don't put them near the computer. Several in the user group have knocked over glasses of wine into the keyboard; disks have been soaked in coffee, and so on. If a disk gets wet, don't put it into the drive. The disk drive head will become dirty if you just "try and see" if it is O.K. If you pour liquids into your computer; clear non-sticky ones (water, etc) will usually be O.K. if you stand the computer on end and let it dry out. Sticky ones (beer, coca cola, etc) may be a problem. Let the machine dry out. If it is not O.K., and your warranty is over, then open and clean with a moist cloth. If your warranty is still valid, go to your dealer.

Compiler: See languages.

Configure: this means that you can set up a program and then save that set up in a special file. Configuration files are usually called "*.SET" or *.CFN. If they have the same first name as the program, then they are often "default" files, which means that when the program is started, the configuration information is automatically used.

Corrupt: Damaged files. Part of the storage information is wrong or missing and the file can't be used by a program. By using a disk monitor, you can inspect a file on disk. It can

rarely be saved, but if it is a text file, you can make notes and rewrite it.

CPI: Characters per inch.

CPS: Characters per second.

CPU: The main chip in your machine. The Central Processing Unit. This is where much of the actual work is done (instructions are carried out, etc). You don't need to know about the CPU, the MMU, the GLUE chip, or any of that stuff, unless you want to start taking your machine apart.

Crash: See bombs.

CRT: Cathode Ray Tube. A TV screen.

Decimal: See ASCII. See also chapter two: keyboards.

Data: All of the stuff that goes on a disk, and which you use in one way or another, is in the most general sense just DATA. Just information. There is of course good data (correct information) and bad data (corrupted, or faulty, information). This data can appear as either a program; then it is a set of commands which organizes and works with other kind of data, such as documents. Data is stored in "files".

Databases: Databases have several parts. The FILE is the whole thing, like the box of cards. A RECORD is a single card from that box. That record is broken down into FIELDS. Your business database which holds all the customers and distributors is kept in a file; each customer has a record, where his name, address, telephone number, etc is listed. Each of those information items is in a field.

You set up a database by first creating a new file. This file is like a box of blank cards; the cards must be individually defined. You create and place the fields to suit you. Once this is finished, you can begin to insert information into the database. A blank card, with blank fields, is shown on screen; you type in the information. When it is correct, you save it, and then go on to the next card. Once all of that is finished, you can "retrieve" information. It can be "sorted" (arranged in any manner you like), "searched" (find a particular item), "merged" (connect two files), or made into a report. A report can be set up to your needs. Your information can be sent either to the screen, printer, or into a file on disk.

Be sure that your database program can grow. Database programs are often limited in the number of records, fields, or characters in the fields. If you are going to keep track of customers, then 50 characters per field is O.K. But if you're putting a bibliography on your database, then it is very desirable to be able to write small descriptive paragraphs. A further

advantage is the ability to produce ASCII reports onto disk. Most database programs are for business people, which use them to make mailing labels. Students who use databases for bibliographies however need to put a list of books into a form which their word processor can read.

Again, as with spreadsheets and MIDI programs, there are few PD databases. If you are going to use one, get SUPERBASE. It is the ST standard. Very flexible, very powerful. It has been updated into Superbase Personal 2, which can accept graphics and work with external texts. This is very useful; you don't need to enter information into the database. For example you have 950 pages of notes on the function of narcissism in Freud's development, compiled from several hundred books, articles, and notes. The whole mess is on your hard disk. How can your find one item? Simply define the texts as external files, and Superbase can search through them.

I am not going to write a "How to use Superbase" in these pages; it is a commercially distributed program. Superbase has an excellent manual. Furthermore, an introduction to databases is a huge job; if you are going to use a database for the first time, buy the program. A database program is not like anything you have ever used; it is impossible to understand it without a manual. You will waste a lot of time. If you don't have time to bother with all the work of setting up a database, you can pay a programmer to do this for you. Contact a user group.

For more information, or to find a dealer near you, contact Precision Software, 6 Park Terrace, Worcester Park, Surrey, KT4 7JZ, England. Tel. 44/1/330/7166.

A database program is useful only if you have to deal with large amounts of information or if you have to deal with information repeatedly, in various listings. If you have several thousand books in a bibliography listing, then it works; if there are only several hundred, it may be easier, all in all, to just keep it on paper. Keeping track of customers makes sense only if you have to constantly make up new lists of various classifications of those customers. Otherwise, it may be easier to keep that on paper. You will make mistakes with databases in the beginning. The program may be too limited, others may offer options which fit your needs better; you create "cards" which have too little or too much information; simple spelling errors means that the card won't be found. ; Look at the various databases, select several, and make short versions of your database (perhaps only one hundred cards or so); work with them. It is impossible to recommend one database program which covers all needs; that doesn't exist.

There are also databases which are "on line". These are database programs which are on large computers and can be accessed (used) by any computer with a modem or terminal connection. Many users confuse databases with database programs and BBS's (see BBS chapter).

We saw that a database program is a personal file search system. A BBS is usually a private, amateur system, mostly operated by User Groups (UG's) or individuals. UG BBS's tend to change very quickly; they pop up and down with amazing speed. Many companies maintain BBS systems for their employees and salespeople. Travelling employees can call the company and pick up latest price lists, leave reports, mail messages, etc. Many major hotels have a modem and computer available for business people.

Now we get to an On Line Database. This is a mainframe computer with a database program and a large collection of information. You cannot download from a database. The database has its own special program. Usually a database is kept by the CICoSTftIA (Committee In Charge of Such Things for the Industrial Association).

For example, the Association of Chemistry Industries, a collection of all companies which work with chemistry, will have an office which keeps the database for the members of the industry group. They have professionals who maintain the system, write the programs, collect the information, teach courses to new users, etc. The database program is usually written especially for the industrial information (a collection of population statistics is of course different from a collection of information about aviation engineering). The user must go to a course lasting several days to weeks, in which he learns to use the particular database program (the database doesn't want people to block up the system by wasting time just looking around; the company doesn't want to pay 25,000 dollars just for the user to go back and forth for 15 minutes.) Private users normally cannot use these systems; only companies. A company, about to spend a lot of money to make a chemical which destroys the environment even faster, will call up and check if anyone has ever done research in that specific area.

For example, the DIANE Centre (Direct Information Access Network for Europe) is an office which serves professional data search. If you need to undertake data search, the Diane Centre is the first place to start; they have information about every single data search system in the world. There is a branch of this office in all European countries; they are usually part of the GMICST (Government Ministry in Charge of Such Things) or are part of the CICoSTftIA. Regrettably, there is not yet

a standardized system for Europe; you will need to find this office or its counterpart in your country. One way is by asking the librarian of a large university library or by writing to either the British office: AESLIB, Jerry Turpee, Information House, 26-27 Boswell Street, London, WC1 N3JZ, UK, or the Danish DIANE Centre (write in English): DIANE, Danmarks Tekniske Hojskole, Byg. 101, DK-2800 Lyngby, Denmark. Tlf. +45 31/816666). These services offer a database newsletter which has the latest information.

There are excellent books which list and describe not just hundreds, but thousands of major databases. Such reference material is dated very quickly; it is also very specialized. Contact a university or technical library. Most of these systems are expensive and require special training in a database language. The Common Market maintains a Database service for the countries of the Common Market (who else?). All economic, industrial, financial, population, etc., etc., etc., information is available. This is especially of interest to business and planning.

Default: see "configure".

Desktop: The main screen, the one you get when you BOOT. On the desktop appear the different WINDOWs, which are a second kind of screen, which you can move, re-size, open and close.

DESKTOP.INF: A file called DESKTOP .INF will set up your desktop the way you like it. This file is created when you use the SAVE DESKTOP option.

Desktops: These can be found at the Salvation Army along with chairs; used coffee tables sell for about 2 or 3 pounds, mostly because they are in some godawful early fifties style. Saw off the legs and trim the top to size. Many of these are made of nice wood: oak, etc.

If you sit for long periods, your back will hurt. Back problems are common among users; we will sit for three or four hours straight just trying to figure out a "challenge". Something that helps is a foam wedge pad; it is about 10

cm high at the back. You can get these at any foam store for about 2 or 3 pounds. You need to sit straight. Writing this manual and my thesis has guaranteed me a visit to the doctor and sessions of physiotherapy. The proper position is a sort of cowboy position; sit with your knees lowered, just like on horseback. The arms hang straight down, bent only at the elbows. If you work with the elbows forward, then this is a greater stress on your shoulders. The keyboard needs to be at the same level as your elbows; there should be a 90 degree angle between your elbows and hands. The monitor has to be up high so you look straight ahead. If you look downwards, this puts a stress on your neck and shoulders. The small of your back needs to be arched inwards, just as when you stand up straight. PC computer tables are worthless; the keyboard is too high, it is not angled downwards, the monitor is too low, and there is no room for the mouse.

It was for these reasons that the light pens, those darlings of futuristic essays back in the
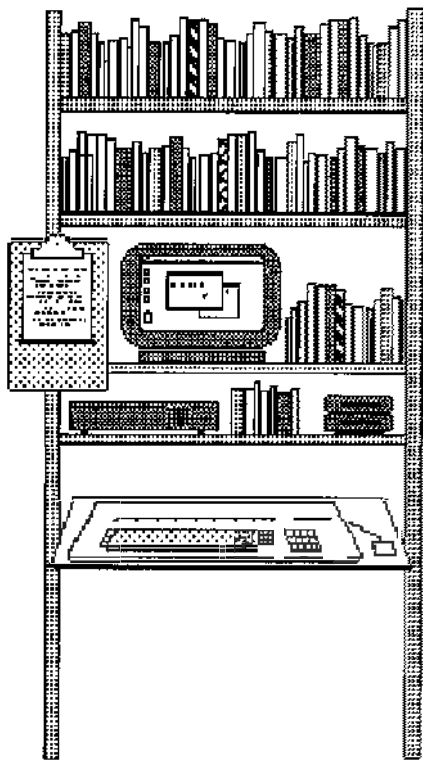
A Computer Setup for 25£

You can buy a cheap shelf for this or adapt one. It takes up little room, and places the monitor and the keyboard at a comfortable height.

The clipboard hangs next to the monitor along with dictionaries, etc. A single shelf holds the drives, disks, and your harddisk.

With an angled board, the keyboard can be at the right hight and angle for comfortable writing.

70's, died out. Waving your arm in front of a screen for several hours will make you want to strangle the designer. It hurts. Your mouse arm will also hurt; especially your clicking finger.

If you feel sore after working with the computer or your back hurts, you are sitting in the wrong position. Simple as that. Before I changed my system around, a ten hour session could be painful. Now, I can work much longer; the final draft of this manual has meant three straight weeks of fifteen to sixteen hour days. No problems. That I haven't seen the sun shine is another problem... Can anyone tell me who is president now?

Desktop Publishing (DTP): Programs which lay out a page, newsletter, book. Used for publishing. See word processing chapter.

Dialogue Box: A little box which shows up on your screen and asks you a question.

Directory: A list of files on your disk.

Disk Editor: See Disk Monitors.

Disk Jockey: this is what you are if you try to copy files and end up swapping disks four times for each file. Use a RAM disk, a file transfer PRG, or a good copy program.

Disk Doctors: see Disk Monitors.

Disk Monitors: see chapter six: How to Use Monomon.

Diskzine: A magazine on disk (disk magazine).

DMA: Direct Memory Access. You can connect hard disks or laser printers to the DMA port. This allows very fast transfers of data.

✳ .DOC: The extender to Wordplus files.

Document: See file. A document is usually a text file.

Double Clicking: two quick clicks. If you can't double click fast enough, use the CONTROL.ACC to change the click response time. You will find that some programs will allow you to click the right mouse button. Other programs will have special or secret functions if you click in strange places. Always try what seems intuitive; mice are very popular with ST programmers.

DPI: Dots per inch.

DTP: See Desktop Publishing.

E-Mail: Electronic mail. This means mail or messages which are sent over the telephone system, not by the post office. With E-Mail, you can send text, programs, pictures, music, etc etc, whatever goes onto a disk. The average full page of text uses about 3 KB, which, when compressed, takes up about 1.7 KB. The average 1200 Baud modem can send about 5,6 KB per minute, which means a full page of

text can be sent in about 30 seconds. You pay the normal telephone bill for 30 seconds of telephone use. Since however most messages are short paragraphs, the actual text can be sent in five to ten seconds. The system is fast in that the message arrives instantly; the other person can read it within several minutes. But things aren't that rosy in practice. First you must establish access to the BBS system. This takes at least five to ten seconds, assuming you know the system. If it is a BBS to which you have never called before, it can take up to five minutes to register. Many BBS's will register you only after several days. Next, it is up to the recipient to look onto the BBS and read his mail. If they are regular users, fine. But it is very common for most users only to call up every few weeks. Regrettably, the old post office, with their slow workers, is faster and certain; most mail is delivered the next morning. It is also much cheaper to send a disk full of material by mail than by telephone. E-Mail is a great idea on the face of it, but in practice, it is too uncertain.

Emulators: The ST has programs which allow it to emulate other computers. This means that the ST "acts" like another computer; it turns into a MS DOS PC, CP/M, BBC, Atari XL, or a Macintosh. The ST will then be able to use programs for those machines. Emulation is not without its problesm. There are many hidden difficulties; you will need to understand the technical and software nature of both types of machines in order to solve problems. If you are using the machine for professional use, it will certainly be cheaper, all in all, to just buy both machines.

PC ditto, the PC emulator, works well but is very slow. Super Charger and PC Speed, which are hardware based, are much faster.

Aladin 3.0 and Spectre are the Macintosh emulators. Aladin works very well; you can use your Atari hard disk, matrix printers, and laser printers. But it can't emulate the 128 KB ROM system. Spectre is not finished. The current version is buggy; the harddisk isn't handled too well nor can you print. The Spectre can emulate the newer 128 KB ROM system. Aladin 3.0d is distributed by Signa Publishing Systems, Alexander House, Station Road, Aldershot, Hants GU11 1BQ, Tel. 0252 341 600. Spectre is distributed by HiSoft, The Old School, Greenfield, Bedford, UK. MK45 5DE. Tel. 0525 / 718 181.

ESC: The escape key (upper left corner). See chapter two.

Exit: To quit, abort, or get out of a program.

Extender: The three character "last name" of a file. DOC is the extender of MAIL.DOC. This identifies a family of similar files.

FAT: File Allocation Table. A system used to keep track of how a file is stored on sectors. See chapter four.

File: Information which makes up a unit. A file has a unique name to enable both you and the computer to find it. A file can be a picture, a message to your mother, a database of your addresses, a program, etc. The word is not standardized; many people refer to text files and program files.

Footprint: The amount of space it takes up on your desk in square inches. Some people think that if they know the footprint, then they know something very technical about the computer. It certainly sounds important; next time you're at NASA Space Center, ask them about the footprint of their computers.

Formatting: A disk is blank when you buy it. It needs to be structured in order to store information. This is done with a formatting program.

Freezing: See bombs.

Games: A terrific way to lose five days out of your life.

GDOS: This is a pain in the neck. The ST was originally designed with the idea that various parts of the ST could communicate directly to the printer; the printer would then be totally guided by the computer. GDOS was supposed to be a system that lets you print out in a high quality. But it was released very late, incomplete, and wasn't documented. It works poorly, it is complicated, and it often can't work on TOS systems from other countries. I have had few good experiences with GDOS; it is a major source of complaints, queries, etc. I just avoid it altogether. If you are thinking of buying a program which uses GDOS, get a written guarantee that the dealer will install it for you.

Hard disks (HD's): a metallic disk which holds data. Hard disks can hold much more than an ordinary 3.5 inch disk. Hard disks are usually "fixed", the disk can't be removed. New "removable" hard disks are available; a single disk can hold 10 or 20 MB and can be switched, just like a diskette. See chapter 4.

Hash: the little ⌗ symbol which is on the key next to the return key. ASCII decimal 35.

Hexadecimal: A notational system which is based on 16 digits. 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, and F. Hex 5B2 is 1458.

HP: Hewlett-Packard. Or, High Prices.

Hypercard, Hypertext: A power word. Mention this at a cocktail party. People get more and more clever about ways to put information into computers. "Hypercards" are a

method of storing information and allowing you to connect it together and get at it very fast. Developed for the Mac, and available only for the Mac at present, but certainly available for all other machines in the future, Hyper-cards gives you an enormous amount of control over the computer. Any user, without programming ability, can write programs. If we think of a program as a collection of options, Hypercards lets the user put together a new package of options by simply selecting them from a large collection of options. You can thus create your own programs. Further-more, Hypercards can deal with information in a new way; all information is treated equally; pictures, texts, sounds, etc, are all information and can be mixed and added. This mishmash of information is called Hypertext. This hyper-information is kept in short blocks, about a screen full. The various blocks are then strung together by the user in any way he likes, not just 1-2-3. The user, instead of being forced to go through text by scrolling from top to bottom, is able to hop around the information; this is what we do anyway in the real world; you want to know about your trip to New York City, you grab a pile of books, snapshots, sub-way maps, even look at movies and listen to the latest music on the radio: simultaneously talking while playing music, shuffling through pictures placed on top of maps and books opened to various pages and the TV's rock videos in the background: a collection of infor-mation strung together in a network that is extremely difficult to describe, but any of us can easily understand. If we could put all of these various "kinds" of information onto hard disks, then using the computer would be a very different kind of activity. This is hyper-cards. You can see now why it is hard to describe; it is not hardware, nor a program, nor a certain piece of information. It is a method. (See SMALLTALK too.)(To find more information on Hypercards and Hypertext, contact a Macintosh dealer. An excellent article by Craig Ragland, Ph.C, appeared in Mac-Apple, a Mac magazine, in August, 1987. (page 20-28). This article includes a full page of bibliography: books, programs, collections of essays, addresses: all commented.

We ST users should pay more attention to Zoomracks, which came out before hyper-cards; it is a very sophisticated way of handling information in a very easy environment. If Atari Corp had supported and bundled Zoom-racks in the same way as Apple has supported Hypercard, then the ST would have been THE machine, not the Mac. Atari Corp goofed up once again. Zoomracks has developed a solid user base in the USA; it is used by profes-sionals in many areas. There are even two user groups: Zoomracks UG, Jerry Finzi (Tlf. 212-255-2111) and Malcolm Wilson (Tlf.

203-735-6711), Ground Glass Systems, 36 W. 20th Street, New York City, New York 10011, USA. In California: Zoomracks UG, Marty Brown (Tlf. Oakland, 271-7460), COAST, Box 2955, Oakland, California 94609, USA. Zoom-racks is a company that goes the distance: version 3.0, including many improvements suggested by users, will run on both ST's and PC's; files are transportable. Paul Heckel, of Zoomracks, appreciates feedback.

IBM: International Business Machines. Or, I Borrow from Mac. TWA, the airline, is also called "Try Walking Across."

Inverted: When you click once on an icon, it becomes inverted. Or, it turns black. Or, it is displayed in reverse video. White pixels be-come black and vice-versa.

Joker: When you use a "?" in a search box, this is called a joker. It represents any single character. If you are searching for the word "cat", you can write "c?t" and the program will find "cat, cut, and cot." Use jokers when-ever you are uncertain of the spelling. If you want to find only the wordplus files and you may have called some of them DOC and DOK, then use DO?; this finds all variations. See also wildcard and extender.

LAN: Local Area Network. Hooking together the various computers in an office so that they can share hard disks and printers.

Languages: Many people ask which languages will run on the ST. Just about every-thing. All the major languages, and many dialects, have been adapted to the ST: Basic, Logo (which is defined as a "powerful language" in your Owner's Manual is a language for children), C, Assembler, Pascal, Modula 2; the major artificial languages: Lisp, and Prolog; plus the "philosophical" languages: Smalltalk and ICON; and then APL, Fortran, etc, etc, etc., plus operating systems such as OS/9. Both old fashioned procedural languages, like Basic, and the new artificial intelligence languages have been adapted to the ST. "New" languages aren't new; LISP, the major artificial intelligence language, is over 30 years old and older than BASIC.

Computers understand only numbers. Speci-fically, only two numbers: zero and one. There is no need for further numbers, in fact, the limitation has to do with the way information is stored. The disk, a surface of iron particles, is a pattern of magnetic fields, either attracting or repelling. The attracting/repelling, on/off, yes/no, or zero/one states are interchangeable over different media: whether on iron oxide disk surfaces, electronic pulses on transistors,

pixels on a screen, or numerical notation systems (the semiotics people are going to go nuts when they stop fooling around with Micky Mouse and realize this). This binary information state has several implications; there is no ability to perceive ambiguous states. The state must be either zero or one; anything in between or beyond is ignored.

Now, the space shuttle has a system of seven on-board computers which are constantly monitoring everything. Since there is a possibility of error or malfunction, the computers compare the information with each other. Any wrong information is "out-voted" by the majority. Equipment which produces constant "wrong" information is then shut down. This is not a system for dealing with ambiguous information; the final result is that a definite yes/no state is produced.

A further possibility is the "weak bit". It is possible to create a single bit on the disk which is "improper"; it changes its state back and forth. This is exploited as a form of copy protection; when the program is started, it checks this weak bit ten times. The combination of yes and no answers will vary and it will never find the same state ten times. If the program is copied, then the copy program will copy it as one state, either a yes or a no. When the copied program starts up, it checks that bit, finds ten identical readings, and thus rejects the disk as a copy. This is used on several ST programs. There is no ST copy program which can recognize a weak bit, much less produce one, because that requires a sophisticated disk head mechanism. Back to our main issue: this seems to be a way of enabling the computer to recognize random information. The program accepts that the value can change. This however used to produce a final decision, which is yes/no (in this case, original/copied).

Computers understand binary numbers. This is organized into a system called "machine language", a "low-level" language. Since it is difficult to look at a page of binary numbers, humans work with language systems which are similar to human language. Programs are a collection of instructions, called "statements", which step-for-step tell the computer what to do. They write programs in those "high-level" languages and then use a "translator" program to convert the high-level language into the low-level machine language which the computer can understand. The various programming languages are therefore related. "Assembler" is a low-level language which is similar to machine language. It is difficult to program, because every step must be precisely defined, but since it is similar to machine language, the finished product is very fast.

Further languages are called "high-level"

languages. BASIC (Beginner's All-purpose Symbolic Instruction Code), LOGO, Pascal, Modula-2, C, Lisp, Prolog, etc, etc. There are lots of them; many are designed specifically for a particular computer; others are local variations called dialects.

Most languages work with statements. These need to be converted into a form which the computer can understand. There are several ways to do this: interpreters and compilers.

An "interpreter" converts one statement at a time into machine language and then runs the program. The original set of statements are unchanged. You can write a program, use an interpreter to run it, see how it works, and then go back and make changes and then run it again. If there are errors, it stops at the faulty statement.

GFA BASIC's and Omnikron BASIC's run-only interpreters (R.O. versions) illustrate this sort of thing. On disk, you have a source code, which are the original program statements written by a programmer. You start the interpreter and it asks which program you want to run. It then runs the "code" directly. Since the code is there, you can study it to see how the program did various things, change it to experiment, etc. Source codes are very useful for learning to program. You can take the parts of a source code and form a "library" of routines for use in other programs.

A "compiler" translates the entire set of statements directly into machine language. A compiled program is faster than an interpreted program because the interpreted program works statement-by-statement. Programmers first perfect a program by using interpreters; when all the bugs are fixed and it runs well, then it is compiled. The result is a "stand alone" or an "executable" file, a program which can be used by the computer without any programmer's tools. Your ordinary ST programs, such as First Word, are "stand alone" files, the programs which have the "program" icon. Simply click on these and they start.

If you have a favourite program which is a source code (it requires that you start up an interpreter such as GFA's RO), then ask a programmer to compile it for you. The result is a normal program. It also runs faster. There are various public domain compilers as well, so you can learn to do this yourself. Compilers are specific to the various languages; a Basic compiler can't deal with Modula 2 code, for example. The difference between various compilers is speed; since the entire process must be complete before running the program, it means that a fast compiler lets you test the program, make changes, and then test those changes. ST's don't have very fast compilers; an ST Pascal compiler can do 5,000 lines per

minute, Turbo Pascal on the PC can clear 30,000 lines per minute.

Laws: Computering has its own laws. The most famous one is:

Garbage in, garbage out.

No software or hardware is going to improve a lousy idea, not even Reagan's Strategic Defence Initiative.

Another rule is:

The more important the work, the more likely that everything will go wrong.

This has been confirmed by many users.

A third rule, closely related, is:

Computers have no mercy, especially with deadlines.

Many users, when facing a system crash, tend to become Catholics; any and all saints are called upon to save the file. This reminds me of the story about the little boy who was climbing around on the roof of a high building; he slips and starts to slide to the edge; he cries out "Oh, God!" Just then, his jeans catch on a nail, and he stops; so he just looks up and says "Never mind!"

Loading: To bring information from a disk into memory. When you start a program, it is loaded into the memory Just another word for "starting."

Local Area Networks: If you want to share a hard disk in the home or office, network systems (Local Area Networks, LAN) are possible. All of the ST's and hard disks and printers are hooked together. Everyone shares the same programs and each has his folder with controlled access. One LAN system for the ST is available from PAM Software, Carl-Zuckmayer-Strasse 17, D-6500 Mainz 33, West Germany. Each node costs 1,238 German marks (approximately £180), including a hard disk, software and cables. E-LAN is available from GTI, Gesellschaft für Technische Informatik, Unter der Eichen 108a, 1000 Berlin 45, West Germany. Tlf. 030/8315021. There are also several simple public domain LAN's: NETWORK and ANET 2; these can be obtained from most PD services.

MIDI: The ST dominates the music world; sound studios, theatres, and all professional musicians, from rock and roll to concert artists, have ST's for sound mixing and manipulation. There has been a good series in ST WORLD from England: see issues starting March, 1988 and going up to at least July 1988 and possibly continuing. Chris Mullen has covered every aspect of MIDI and the ST. (See the magazine chapter for information on ST WORLD; you can get back issues from them. There is also a brief review of the major music

magazines for MIDI.) There's not much here about MIDI; I'm not a musician. And information on MIDI needs to be extremely detailed and up-to-date; it isn't worthwhile to write anything less.

Modem: connects your computer to the telephone so that it can communicate directly with other computers (BBS, databases, banks, other users, etc.)

Motherboard: the board which holds all of the chips. This name came about when the first PC personal computer was presented to the chairman of IBM: the computer engineers lifted off the top and he shouted out "Whoa! Look at that mother!"

Another famous name: Winchester drives-supposedly, at some point these were shipped in boxes marked 30.30; someone remarked that this was the same number as the Winchester 30.30 repeating rifle, the rifle that won the West (or at least, was featured in a number of Hollywood films).

Motorola: Other 68000 Motorola 68000 chip computers: the TRS-80 Model 16, which had a bad reputation; the Apple Lisa, a fore-runner of the Macintosh, with mouse, windows, etc; the Fortune 32:16, which used the UNIX operating system. This 128 kilobyte machine cost over 6,000 US$ when it arrived. It was ahead of its time. The Sinclair QL lasted only for several years; it can now be bought for less than £50. The current 68000 chip machines are the Amiga, the Macintosh, and the ST. The Amiga uses a mix of WIMP and CLI; the Mac is fully WIMP, but has the operating system on disk, and the ST is fully WIMP with the operating system in ROM. George Bush is fully WIMP as well.

Mouse: An interface device. One way of sending information to the computer. Your keyboard does the same thing. Mice were developed in the late 60's by Xerox Corporation. Apple made them standard. IBM (I Borrow from Mac) laughed at them for a long time, but they are standard on the new IBM's. Another idea was the light pen: a pen connected by a wire; you simply pointed at the screen. But that requires even more waving around with your arms. A joystick is a mouse of sorts; just another way to send information to the screen. There are trackballs; you spin a ball to position the cursor; these were developed for arcade games (tough and unstealable). A mechanical mouse is the ST mouse; a rubber ball in its stomach. An optical mouse has a light sensor in its stomach; it moves over a pad with a pattern; the sensor detects the motion. This moves very fast and smoothly; optical mice cost several hundred pounds. A good test for a mouse is its preciseness; can it move very fast without

lagging behind on screen? Future mice will not be mice at all, but possibly a pair of gloves which send hand positions and movements to the computer; you "pick up" and "handle" what is on screen; there is even feedback; you can "feel" the objects, not just see them on screen. Prototypes already exist.

Screens are also changing; NASA has a screen which looks like a large pair of glasses; the user looks directly into a universe of computer objects; his "electronic gloves" are visible and let him manipulate the objects; an engineer will "touch" and "stress" an object; feedback lets a biologist "touch" a molecule and "feel" which places are active; a writer could pick up sentences and move them around, breaking them into pieces and putting them together. In ten years or so, there may not be any monitors or mice; you can interface with your computer by moving your hand, pointing your finger. Some users already interface with their computers in this manner; if something goes wrong, they punch the screen.

Multisync: A monitor which can work in color and monochrome resolutions.

Mt. Fuji: The Atari logo refers to Mt. Fuji in Japan.

NAK: Not Acknowledged. See "ACK."

Networks:I know of three networks: Use-Net, BitNet, and EtherNet. These are worldwide networks which are something like enormous BBS systems. They connect universities, research institutes and companies. Only such places have access to them. Computer science students, for example, can use BitNet at their institute. Messages on these systems are from the entire world. In a single day, in a single area (SIG), there can be up to five or twenty Mega-bytes of messages. UG's with computer science students are thus better informed then many commercial magazines. ST MAGAZIN, for example, had never heard of USENET until June 1988. It is on USENET that much of the major discussions between the developers and Atari Corp occurs.

OCR: Optical Character Recognition. Pro-grams which can scan a written text and turn it into a file on your computer. AUGUR, from Signa Publishing, can read printed material. Tel. 0252 874406.

Paths: Your file has a path from the root directory to where it is. If the text file is in a folder called "Mother" and that is in a folder called "Mail" which is on C drive, then the path is C:\Mail\Mother\JULY.DOC.

PD's: Public domain. PD's are public domain programs or disks (see chapter 10: PD's).

Pixel: PICture ELement. A single dot on the screen.

Plants: (the green stuff outdoors) A good idea is to put plants next to your computer. Lots of them. Even if you are Walking-Death-to-Plants, Chlorophytum will grow anywhere, with just a bit of water every once in a while.

★ **.PRG**: An extender which means that the file is a program (for example, 1STWORD.PRG)

Prices of software and hardware: Why are they so high? Several reasons. The market is directed mostly at business people, and they, quite frankly, don't care what the price is. In fact, if it is too low, they become suspicious. A company manager will buy £2000 of software per month, simply to see what the stuff does. Offices buy mouse pads that cost £200 each. In the keyboard chapter I describe how to make an F key guide; a reader told me that these, in similar quality, are sold to offices for £50 each. An office chair, which costs £5 used, can cost £150 new. Blank disks can be bought for £1; offices pay 8 to 9 pounds per disk. And they buy entire crates of them. Office people don't care about the price; they care about service, support, and the name. IBM doesn't care in the slightest about prices; take a look at an IBM catalogue; student lamps for a price that many people pay in monthly rent alone. All of this is aimed at the office market, which deducts the entire thing as a business expense. Either they pay taxes on their profits, or they invest their profits and have an expensive looking office.

And a second reason: computer owners are seen to be rich. If people have enough money to spend on silly things, such as computers, then they must be well off. All of those reader surveys which the magazines trot out each year prove this; the average income is far above the national average. The average reader is be-tween 28 and 40 years old. People who are making money. And the companies are no dummies; we go around telling them how much money we have, they raise their prices accordingly. Computer magazines are often more expensive than other magazines; the publisher knows that the readers spend 10 to 20 pounds per month on their interests. The same thing happens with yachting people; they get really hit; anyone who can afford to have £100,000 floating around is not going to be let off easily at the pay counter. It is students who are hurt most of all; they must pay the same price to sit at the same table as office managers and professional hobbyists. (Note to myself: raise the price of Your Second Manual.)

Problems: The curious thing about computers is that a problem is not a problem, but rather, a challenge. (My high school gymnastics teacher, Coach - we called him "Coach" - always said "Let it be a challenge to you.") If your bicycle has a flat tyre, that's a problem; it has a clear nature (hole, no air) and a clear solution (patch and pump). No discussion.

But on a computer, anything can be done in at least ten totally different ways, with totally different explanations. And no one agrees about the solution or why it works. Everyone will solve a problem in his own way: for example, to print out new characters. Hardware people will change the chips. Programmers will reprogram. I would use a utility program. Font users will design fonts; others will redefine the printer. It is very difficult to give "answers" to problems; you "think" you have a problem; you try to describe it, but a working answer, and a final description of the problem, will be something totally different. The whole thing is a challenge.

RAM disk: This is very difficult to explain, although when you understand the concept, it is very simple. A RAM disk is a way of storing data electronically, instead of on disk, so that you can access (read or write) it much faster. It is extremely useful.

RAM/ROM/EPROM: You have three kinds of memory chips: ROM notes Owhich can accept graphics and work with external texts. hangpowerful. It has been updated into Superbase Personal 2, MeSUPERBASE. It is the ST standard. Very flexible, very remove) the information. The third is the EPROM (Erase Print ROM); this is a special ROM chip which can be erased by exposure to ultraviolet light. The ceramic chip has a small glass window to let the light shine onto the chip. It takes about 16 to 24 hours for sunlight to erase an EPROM, so this stuff on Miami Vice is a bit exaggerated.

Read: Reading means that your disk drive is reading the disk and moving the information to the RAM memory. This is also called loading.

READ_ME.TXT: Short texts that are on disk with information about a program. Usually, you should read these first.

Resident: One often talks about resident programs. That means a program which is in the computer (not on disk). The concept is not too clearly defined; different things can be resident in different ways. Your accessories are called resident; they are in the RAM chips; so you call them RAM resident. When you have TOS in ROM, then it is ROM resident; it is in the ROM chip. The program which formats your disks (the one in the desktop menu) is a ROM resident program; it is always there.

Robots: there's a robotics program for the ST. This could be interesting for engineering and design people as well as children. It uses Lego or any construction set blocks (Lego is made in Denmark (the word means "play good" in Danish) and is the most successful toy in the world, with 70% market saturation - there is even a LegoLand, a children's amusement park, in Denmark; the entire thing is built out of billions of lego bricks).

I found out that the top engineer of a certain car factory uses a lego construction set to build model gearboxes for prototype cars. The robotics program is made by a company which also builds industrial robots. Contact Personal Robotics Limited, 3 Reading Road, Henley-on-Thames, Oxon RG9 1AB, England, Tlf: (44)(0491) 578 001.

Root Directory: This is the outer-most level on a directory path. If your files are not inside any folders, then they are in the root directory. Your accessories should lay in the root directory. See directory and paths.

✕ .RSC: An extender which means that this is a resource file, which is usually extra information for the program. If it is missing, then the program will not load (for example, 1ST WORD.RSC).

RYFM: What a programmer will tell you if you ask a question which is answered in your manual: "Read Your F*%)!"g Manual!" You must read, re-read, and, several weeks or months later, re-re-read the manual. Things you did not understand then will become clear later. Nabokov was right.

SmallTalk: This, like Hypertext, is very difficult to explain. It is however one of the major areas of research for personal computering and promises big results. Just for now, for the beginning of this paragraph, let's say that Smalltalk is a operating system for the computer. At the Xerox Research Center in Palo Alto, where the mouse was also developed, work has been going on since 1970 on this

project. By 1980, the eightieth (80) version of SmallTalk was finished and released.

Smalltalk is the origin of our windows and menus. If IBM copies Mac, then Mac copies Xerox. Smalltalk uses windows to create work surfaces. These windows are not just simple GEM windows; the Smalltalk windows are defined by the user. When he creates a window, he chooses what kind of options will be in that window. This is not any more difficult than picking out the options. He can create a word processing window, a drawing window, a database window, etc. The user moves his mouse over the different windows; the mouse will have different capabilities over the different windows. The user however doesn't have to have totally separate windows for each task; he can easily choose various options for the same window. Why separate your database, word processor and drawing program? So SmallTalk doesn't really use programs; instead, the user makes his own.

The mouse really comes into its own here: three buttons, called red, yellow, and blue; a mouse click can generate "pop-up" menus; these don't come down from the top of the desktop, but appear anywhere on the desktop. Uniterm 2.0, the terminal program, has pop-up menus. Amigas have them too.

Smalltalk is a "virtual machine". It creates itself as a virtual computer inside any computer, regardless of the actual hardware, and sets itself up. A SmallTalk for the ST can run just as well on the Amiga, PC, whatever. If you create an elegant set of options, a window, on your computer, anyone else could easily use it on their computer. Data transfer, currently a pain in the neck, would be as easy as transferring between two ST's.

The same with the monitor. The screen image of a program needs to written for the specific monitor of the computer; the screen image of Amiga programs, which are in lots of colours, function very differently from ST programs; it is difficult to transfer an Amiga picture to an ST, because the Amiga picture is more complex. Smalltalk avoids this whole problem by having a virtual screen image as well. It fits anywhere.

The result for users and programmers is a system that runs on any computer regardless of hardware and which allows transfer of files and programs without adaptation problems. Any user can create, define, and redefine his own "programs", which can be used by any computer.

There are several SmallTalk systems for the ST already. There is a Public Domain version, Little Smalltalk, which is very simple but requires quite a bit of computer science theory to understand. It uses command lines, instead of windows. We have had this in our User

Group and have tried to work with it. You can get a copy from any of the PD services. A West German company in Dortmund, Georg Heeg, is developing commercial versions; the cheap one costs 1,700 Deutsch Marks (approx. £550) and the professional version costs about 2260 DM (approx. £750). SmallTalk, with its virtual computers and screens, requires lots of Megabytes: around 3 megabytes or so, plus a hard disk; its "TOS" is about 1.4MB.

Smalltalk is still being developed, and will be still in the development stage for quite some time. It needs so much RAM and clock speed. But considering the rate of hardware development, it won't be long before we start seeing SmallTalk. For those who are interested, an article on Smalltalk appeared in the ST MAGAZIN, April 1988.

Swivel Chairs: All computers should be sold with an office chair included: the kind which turns, is on wheels, with a backrest. You will tend to twist around quite a bit, reaching over and around your keyboard. You can buy an office chair for about £5 at the Salvation Army's second hand stores. The Salvation Army, with its good contacts, tends to get large donations of office materials from companies. The Salvation Army is, by the way, my favourite general charity, 92% of their intake is used for the poor. The highest paid person in the Salvation Army receives 23,000$ a year. In comparison, most charities spend 45-60% on themselves and the rest on the poor.

Spreadsheets: Modern finance is unthinkable without spreadsheets. If scientists and mathematicians were the first to have computers in order to solve theoretical problems, then finance people were the first to have practical programs. Spreadsheets are one of the basic kinds of programs on computers.

The spreadsheet replaces the ledger book. Just as with an accounts book, you first create titles and define the columns and lines. You also define the various mathematical relationships between the various columns and lines. Then the numbers are entered. At this point, the computer's ability takes over. By changing even just a single value, you can let the computer recalculate the entire spreadsheet; you can see the impact of a small decision on the whole economic system. This lets one literally play around with the numbers. A paper spreadsheet would require an immense recalculation with a calculator; one cannot do any of "just change this and see what happens" checking.

Spreadsheets are displayed as a huge imaginary sheet that is divided into vertical columns and horizontal lines. Each junction is called a cell which holds a single number. Depending on the program, there can be a lot of cells. Since all of this can't be shown on the screen at one time, you look through a "window" that looks

down onto the spreadsheet and shows only a small rectangular portion of it. Spreadsheet windows have nothing to do with our ST GEM windows. The information can also be displayed as line graphs, bar graphs, pie charts, etc., and these can be two dimensional or three dimensional, and with colours.

VisiCalc, a spreadsheet, was the first program for a desktop computer. Spreadsheets have undergone a very long development process and make up the backbone of business programs. This means, therefore, that the best spreadsheets are available on business computers. Since the ST has not made much inroads into the finance world, there are not many good spreadsheets for it. This is one of the reasons that ST people have bought PC emulators; these emulators allow access to the excellent PC spreadsheet programs. PC people are so accustomed to spreadsheets that if you ask them what kind of computer they have, they often answer "a Lotus 123".

For a good ST spreadsheet, K-Spread 3 and 4, by Kuma, can be recommended. It can also read Lotus files. Templates are available; these are setups for spreadsheets. There are templates for just about any profession; just start it up, plug in the numbers, and there you are. Aren't computers fun? Kuma, 12 Horseshoe Park, Pangbourne, Berkshire RG8 7JW, UK. Tel. 0734 844 335.

If you want to know what spreadsheets are like, there are several public domain versions. These, like music programs, are limited; there is so much commercial value in a good spreadsheet that these are rarely free. But you can look at them and get an idea of what it is like. One is called SPREAD, and the other is called SHEET; available from most PD services.

Star-Point- S ta r*. * See "wildcard."

Text Editors: Not to be confused with word processors.

TOS: "The Operating System". This is called DOS ("Disk Operation System") on PC's. MS-DOS just means that it was written by Micro-Soft. TOS is a complex group of programs and systems which make the computer work. Think of a core surrounded by several layers. The central core is the machine itself, the chips and other hardware. Around it, covering it, is:

1) BIOS (Basic Input/Output System): This depends directly on various basic (or main) devices. It works at a very low level. It reads the keyboard, writes single characters to the VT-52 screen, and does several other things.

2) XBIOS (eXtended BIOS): This allows access to an extended set of specific devices (for example, the printer: both parallel and serial

ports, the mouse, midi, sound, etc). It permits general disk access. It formats disks. Both BIOS and XBIOS form the first level around the hardware.

3) A-Line Routines: These simple commands take care of a great deal of the actual work of setting up what becomes the image on screen. Dots, lines, rectangles, filled rectangles, fill closed paths, move/copy rectangles from one place to another, etc. The Blitter works in this area by speeding up these calculations and movements. Over this is...

4) GEMDOS (GEM Disk Operating System): It is the second level. It is therefore not so specific to the hardware. It writes strings of characters to/from the screen/keyboard. It takes care of memory allocation. BDOS runs programs and files. It creates files, does the Read/write, deletes, finds files, etc.

5) GEM (Graphics Environment Management): A set of routines which are independent of the devices. This makes up a third layer around the computer. These control the windowing. And last of all, most visible to the user, is...

6) The SHELL, which is the outside level of the system. A shell is the interface between the user and the computer. Your desktop is a shell. A shell is also called an application. GEM uses shells to unify a complex group of abilities from the various parts of The Operating System (TOS). This is presented to the user as a simple graphic image on .screen, from which he can choose various options by pointing a mouse and clicking. Our "programs" are shells, the outside level of this system. Beneath the screen image of 1st Word, LaserBase Database, and many other programs are lots of boring program lines. We see nothing of that; we only see a surface with places for the mouse to click.

For simplicity, I only mentioned some parts of this system. This core/layers/shell theory is the main one for all desktop computers today. There is debate and discussion of how much any one part is distinct from other parts. You can see that all computer magazines spend a great deal of time trying to explain this. There are very few people who understand this system entirely (only a handful of the top professional programmers, and they have quite a lot of arguments about it). And this is the beauty of this theory; if you only want to use the computer you do not have to worry in the least about any of this.

Trackball: see MOUSE

* TTP = TOS Taken Parameters:
A program which starts by showing a window on screen into which you must write a com-

mand. ARC.TTP is the best known. Usually, you can write HELP, h, ?, or ! and get some information.

Upgrading: I wrote a seven page description of how several of us have upgraded a 520 to 1MB. I sent copies to my proofreaders; the consensus is that many people will destroy their computers. There are 256 pins which have to be soldered; there is only millimetres between them. A wrong touch; you're dead. There are cold solders and good ones; if you don't do it perfectly, you will eventually have memory problems. If you touch too long, the chip is destroyed; it can take days to find which one. The MMU chip must also be soldered; a wrong move can destroy this. There are simply too many things which can go wrong; only an experienced electronics person should do this. If you want to upgrade, send your ST to a trained person. Don't do this yourself.

In many new ST's, however, upgrading is very simple. The slots are available for "pop-in" upgrading. Open your ST; if there are empty slots next to the RAM chips (sixteen chips in a row), simply press the new ones into place.

User Group's (UG's): See Chapter 13.

Utilities or Tools: A German defined "tools" as programs which help you solve problems which you would not have if you did not have a computer. A utility, or tool, is a secondary program which fixes problems which you have with your main programs. If you want your word processor to write Spanish characters, then a tool program will let you change your keyboard. There are all sorts of tools, which do all sorts of things.

V Numbers: Programs often have numbers after the name. There is not much of a standard regarding these numbers, but the following seems to be followed by the professional software producers. Let's take WORD-PLUS V2.02 UK, for example. What do those numbers mean? V2.02 UK means Version 2.02, a second, major rewrite, with two minor rewrites, and with British spelling on the screen and a British dictionary (colour, not color). The test versions of the program are usually called V.0.XX. The first released version of a program is called V.1.O; when small changes have been made (corrected spelling, etc,) then the new updated version becomes V1.01, V1.02, V1.03, etc. When bigger both parallel and serial e, keyboard becomes V1.1, V1.2, V1.3, etc. When major updates and changes have been made, the whole digit changes: V2.0, V3.0, etc. If there are various versions of the program, usually for various languages, then it can be called UK (British English), US (American English), etc.

Why bother with V numbers? Programs are constantly being upgraded. They are improved. New options are added; errors are removed. About every six months, we see new "generations" of programs; an idea is introduced and is quickly adopted by other programs. You will find out that using a computer is a job of constantly upgrading. It is difficult to write a "once and for all" list of "tips and tricks"; six months later, it is useless. 1st Word V 1.01, which was the standard for quite some time, is outdated; hardly anyone uses it. Most moved on to V1.06, many use 1.16 or 2.02. The newest version is 3.14. V1.01 is just primitive.

Virus: Science fiction. Computers are being infected by a disease. Files on mainframe systems have been destroyed by viruses. PC people have been hit by one virus after another for years now. One Mac virus got onto the disks of the author of a painting program; from there, it moved into the computers of ALDUS, the large software copier house, which then infected the disks being distributed for Ashton Tate, Lotus, Microsoft; these went all over the world. GFA Basic Version 3.0's book, which included a disk, had a virus on 10,000 disks of which 1,500 were sent out. GFA spent a great deal of money e several SmallTalk developing a virus killer, and cleaning and labelling the remaining 8,500 disks. Omikron has had two viruses on their disks. The Amiga virus only shows how much software copying is going on; first developed in early January, 1988, in Switzerland, by mid January, it was all over Europe and had started to appear in Los Angeles. By the end of January, it was all over the US. Four weeks to conquer the world! The first ST virus appeared in the US in late February 88: soon thereafter, the rest of Europe. In mid-April, 1988, the first ST virus killing program was made in Holland.

What is a computer virus? There are many wild rumours. Many think that the virus is a disease which a computer can catch. TV journalists, who don't know better, describe it this way. A virus is a small, simple program. There are many kinds of virus. Some are harmless; they only start when you start them. There are some of these can be ordered from any PD service (MITES.PRG and VIRUS.PRG). They disappear when you reboot. These are just for fun. They don't spread.

Other viruses can reproduce; they can make new copies of themselves. This is where the trouble starts. They copy themselves secretly. They spread from disk to disk; soon, every disk, plus your hard disk, has a copy. If another ST uses one of your disks, it spreads to those disks. In itself, there is no real harm from most viruses; they just reproduce themselves.

Some kinds of virus can be evil. It will destroy your data. Text files lose lines or gain extra,

silly lines; programs will become larger and larger. The memory gets filled up. Drives will report that there is zero on disk and that it is filled up anyway. Suddenly your disk will reformat itself. Such a self-reproducing virus will spread to your entire disk box.

Some viruses don't act immediately. Perhaps they check the clock and when six months or whatever has gone by, they come into action. The PC has the Friday the 13th virus; every time Friday is on the 13th, PC people are in terror. It become active. Other viruses act only after the fifth copy (or whatever). It is up to the programmer's wit.

How do they spread?: When you start up, the ST looks in the boot sector to see if there are files which should be started automatically. The virus sits there; it will then be started and it makes a copy of itself into the memory. You remove the infected disk and place a new disk in the drive. The virus in memory checks to see if there is a virus on the new boot sector, and, if not, it copies itself onto the new disk. Now it has spread itself from a disk via the memory onto a new disk. The process repeats itself.

There is a second kind: the "link" virus. It attaches itself to lines in your program (links on). Every time the program is started, the link virus reproduces itself. The program begins to grow. Soon, not even a hard disk can hold it. The good thing about a link virus is that it infects only programs; it can't attach itself to text files (since you don't run a text file, it can't be activated). You can get rid of a link virus infection by deleting the programs and making new copies from your backup disks.

A handy little accessory is PROTECT.ACC by Timothy Purves, who has written quite a few other programs, including the Michtron BBS program. Instead of checking every program first, you can just "write protect" a drive so that the screen flashes when a program tries to write itself to that drive. This is useful on a harddisk: as you are checking new disks in the A drive, a virus could try to write itself to the harddisk in C drive.

The Antivirus: There is a virus which works as a virus protection system. The ANTIVIRUS copies itself onto all of your disks. If a virus tries to write itself onto the disk, then it warns you by flashing the screen.

How do you know if you have a virus?: You can't see it. It will not appear on your desktop with a name "VIRUS.PRG." It is hidden and automatic. You will notice that things are different. Files disappear. Programs refuse to run. The kilobyte size of files will change. The memory fills up. A disk will suddenly reformat itself. New messages appear on screen.

What to do about it?:

Don't copy so much. Your desperate craving to have all 465 ST stock market programs will expose the rest of your disks needlessly. It is impossible to ask people not to copy at all, so just slow down.

Avoid cracked commercial programs. Many viruses are written by "cracker" groups which then place them on very desirable commercial programs. Pirate copying of commercial programs is a major form of viral transmission.

Don't just take that new disk which you got in the mail this morning and throw it into your disk drive. Turn off and unplug the hard disk (the ST runs a weak current through the hard disk port; it knows that a hard disk is attached). Run the new disk. Do not use your other disks immediately afterwards. When you finish, turn the machine off entirely for one second per 100KB (five seconds for a 520ST, ten for a 1040, etc). Don't just reset. Some new viruses can survive a reset, and possibly up to five seconds of no power. No virus can survive a cold boot.

Check commercial programs. Before using that brand new program, check it. Commercial programs are the single major form of virus transmission; Aldus infected perhaps 300,000 Macintoshes worldwide. Not even Long John Silver at warp factor six gets around that much.

Be careful with downloaded programs from a BBS. Download it onto a separate disk. Test it. Most BBS's, like most PD services, check their programs, but you can never be too safe.

Use the copy protection tab. It is mechanically impossible for any virus to write itself onto a protected disk. Your drive has a mechanical safety which cannot be turned off by any program.

Make backups and keep these in a safe place. In case of total infection, reformat (not just delete) your work disks and make new copies from the write protected backups.

With a disk monitor, you can look in the boot sector. Strange messages are clues to a virus.

Use a Virus Killer. This is a program which detects and destroys a virus. There are several. SAKROTAN is the best virus killer currently available. Sakrotan has a library of viruses and boot sector programs; it can identify if a program in the boot sector is a virus or a known boot sector program. If it finds an unknown boot program, it displays a warning and shows you the boot sector. Furthermore, Sakrotan can identify the activity of a Link virus. There are many kinds of link virus, but they all do the same: attach themselves to programs. This increases the program's size. Sakrotan lets you make a CRC check, or a checksum of the total size of the program. This is then stored in a library file. You can then at any time test

whether the program has been infected by a link virus; its number will change. Sakrotan does all of this clearly on screen so that you can use it, even without understanding about CRC numbers or boot sectors.

Hints for using Sakrotan: Make a CRC check of your AUTO programs from your main boot disk. Weekly, check those programs. Since these are started repeatedly, any link virus will appear there first.

Sakrotan can be bought directly from the author: send a donation to Henrik Alt, Kirgel-weg 25, 7160 Gaildorf, West Germany. It is also available from any PD service, ST Computer's PD service, or our BBS in Denmark. Regrettably, Sakrotan is in German, but it is not too difficult to use.

Make a virus killer disk with your best virus killer and a disk monitor. Keep it copy protected. Change the files to READ ONLY status. Use this disk to check new disks. I have put together a virus killer disk which is available from many PD services; ask for the Virus Doctor Disk.

To test for a link virus: Make a CRC check of the programs which are in your AUTO folder. Since these are started up daily, they are especially exposed to a link virus; any such infection will appear here first.

Other virus killers: The Virus Detection Utility (VDU), by Frank Lemmens and Richard Karsmaker, of Holland, is very well known. The change. Sakrotan does all of this clearly on screen so that you cancommercially distributed, Contact them at: Strike-a-Light Software, Richard Karsmaker, Kievitstraat 50, NL-5702 LE Helmond, The Netherlands. Tlf. 31/4920/40052. A handy little accessory is PROTECT.ACC by Timothy Purves, who has written quite a few other programs, including the Michtron BBS program. Instead of checking every program first, you can just "write protect" a drive so that the screen flashes when a program tries to write itself to that drive. This is useful on a harddisk: as you are checking new disks in the A drive, a virus could try to write itself to the harddisk in C drive.

PD services are the best place for help. PD services collect and distribute the newest virus killers. Disks from a serious PD service are safe; they are checked by the librarian.

The Future: There are at least fourteen ST boot viruses; a West German group called Night-mare Inc. has written a Virus Construction Set; the user can generate viruses. There are scores of link viruses. We will certainly see more and more viruses in the future, doing all sorts of clever things, getting around all sorts of virus killing programs. Common sense, the write protection tab, an updated virus killer

program, and not so much copying is the best way to prevent an infection.

VOICE Telephone: Many modem users have two lines; one for the modem and one for humans. The telephone number for the "humans" line is called the voice line; dial that and you get a voice, not a bleeping computer.

Wildcards: The symbol "*" in computerese is called a WILDCARD; it represents any character. This is often used in the directory window, for example, to specify which files will be shown. The combination *.* is big magic; it means, literally, WILDCARD.WILD-CARD, or ANYTHING.ANYTHING; any file with any extension will be shown. If you write *.DOC, any filename with only the extension .DOC will be shown; all files with any other extender are hidden. If you are hunting for ACC (accessories) and maybe you changed some of them to .ACX, then try .AC* This will show only those which have AC as the first two letters of the extender. Selecting files in this way is called using a MASK (a filter). See also joker.

WIMP: Window, Icons, Mouse, Pull down menus. This is the desktop environment of the ST. See chapter one or the White House.

Work Disk: The disk which you use daily. You should also have a BOOT DISK and a BACKUP.

WP: Word Processing, not to be confused with text editors.

Writing: Writing to a disk means that your disk drive head is writing information onto the disk (saving).

Special Symbols: There are several special characters which are used by programmers. See the entries on ASCII and chapter two for more on ASCII.

* Star, or asterisk. ASCII decimal 42. See wildcards and jokers.

/ Slash. ASCII decimal 47.

\ Backslash. ASCII decimal 92. This is used to mark a folder in a path line (see: folders, pathlines), eg, C:\WORK\TEXT.TXT. "Work" is a folder which holds the file "text."

‡ Hash. ASCII decimal 35.

~ Tilde. ASCII decimal 126. Or, that little snake. This is often used to hyphenate (break a word at the end of a line).

_ Underscore (as in Read_Me). Often used to separate words in a file name.

? See Joker.

TOS

"The Operating System" ("TOS") is the "program" which makes everything work. Over the years, Atari has released versions of TOS without saying much to the users. There is the "TOS on disk", the "Old TOS", the "New TOS," the "Blitter TOS," and the "Rainbow TOS." Furthermore, there are the various national TOS; eg USA, UK, BRD, Sweden, and at least two different old Danish TOS.

TOS on Disk, or, TOS 1.2.

The very first ST's needed to load TOS from a disk. You should get TOS on chips; it is much faster and saves about 200 KB of memory. If you need TOS on disk to start your machine, you're a member of the Old Timer's Club.

Old TOS, or, TOS 1.2 in ROM.

This is the same TOS as the one on disk; it was placed on six ROM chips and into the ST itself. This is faster and doesn't take up the ST's RAM memory. If your ST can start by just using any disk, then you have TOS in ROM.

New TOS, Blitter TOS, or TOS v.1.2.

This appeared in early 1988; it supported the Blitter chip. Otherwise, there wasn't much improvement. Furthermore, it was not very "downwards" compatible; many programs which worked with the old TOS did not work with the new TOS. To find out which TOS you have, save the desktop. If it asks you for confirmation, then you have the "New" or "Blitter" TOS or later versions; if not, then you have the "Old TOS 1.2"

Rainbow TOS, or TOS v.1.4

TOS v.1.4 was announced nearly two years before it was released. It is called the Rainbow TOS because if you look at the copyright message on a color screen, "Atari" fluctuates in colours. TOS 1.4 is very fast with the disk; it speeds everything with the disk or hard disk by at least 50%. It also lets you reset from the keyboard (press Control + Alternate+ Delete); move files instead of just copying them (hold Control down), no forty folder problems, all programs can be autostarted, and several other functions. It is fully compatible with the 1.2 TOS. If you have an ST which uses six ROM chips for the TOS, then you can upgrade to TOS 1.4. It is well worth the small cost and trouble. Don't use the Beta version of TOS 1.4;

it has bugs. To find out if you have TOS 1.4, the copyright message (upper left corner of the screen) reads "copyright 85, 86, 87, 88, 89"

STE TOS, or TOS 1.6

This was released three weeks after TOS 1.4! It too is called the Rainbow TOS. Version 1.6 is for the STE. There are only some downwards compatiblility problems. If you have an STE, then you have TOS 1.6. That's that.

In addition, there are the various national TOS. If your menus are in English or German, etc, then you have that TOS. In the first three years, there were several Danish TOS. Now, there is only one Scandinavian TOS, in Swedish.

A further difference in ST's is the keyboard. Danes need Å's, Germans use Ä's, etc. You can change your keyboard layout by using Keyedit (chapter 2). You can also change the keys by gently prying them up with a knife and ordering new ones from Atari. Of course, you should ask Atari in the proper country for the extra keys. The keyboard is often used as a simple form of copy protection; the program is keyboard specific. A German Calamus or STAD, for example, checks the keyboard to see if it has German characters. If not, it refuses to start.

All of this means, in practise, that if a program does not work on your machine, it may be problems with TOS or the program may be keyboard specific.

As a general rule: if the program is recent, then it works with the newest TOS. If your ST is several years old, check that the program works with your TOS.

A Tip: If you want to use a program which was written for an earlier TOS, just load that TOS from disk.

Upgrading your TOS

This is easy to do. Get a set of new TOS chips from Atari. Just open the ST and find six ROM chips that sit together in two rows of threes. On top of them, they are noted "H0, H1, H2, L0, L1, and L2." Note in which direction the notch on the top is pointed. With a screwdriver, pry them out and replaced them with the new ROM chips in the same order and direction. Just press them into place.

Y2M PD Disks

Many of the readers of the previous version of the Y2M have asked me for PD disks. People were sending me disks with requests for programs. A common question was "Can you recommend a program which does ..." (Uncommon questions have ranged from seeking help on satellite steering systems to requests for sex education books).

Anyway. To make it easier, I put together a disk or two of programs for each chapter of the Y2M.

This doesn't mean that you can ignore PD services. There is no room here for the hundreds of specialized programs which just may be what you need for that particular challenge. And the astronomy, chemistry, mathematics, and hundreds of other programs, which are excellent, aren't here. The Y2M disks are just the basics. Write to several PD services and ask for a catalog.

All of the disks are checked and protected against virus. The programs are newest versions. If new versions or better programs appear, these will be replaced. Disks are single sided format.

Y2M 1A:BOOT Disk. Auto folder with Screen dumper, ACache, FolderXXX, Accessory loader and FSELECT. CAT accessory, Input, Calendar, Free Ram, Key Edit 2, Monoware, Speed, Spooler, Recover, Rescue, and a virus killer. 26 files. 247 KB.

Y2M 4A: Disk Disk. Fast Copy 2, Hyperformat, MaxiDisk RAM disk, Monomon, Serial Number checker, SuperFile copier. Sticker. 11 programs. 345 KB.

Y2M 4B: Hard Disk Disk. DLI1 (Hard disk repair), Folder XXX, HD Directory, HDX, AHDI, Protect, Ship, Split, Turtle, Wincap. FSELECT, and a Loader. 19 files. 330 KB.

Y2M 7A: Accessory Disk. The thirty best accessories. Bitte Ein Bit, several calculators, Control Panel, Disk Contents, Free Ram, Terminal program, MM Copy, MiniDos, Goodies, Disk man, KeyMac 2, Melt, Protect, RAM Buffer, and Speedmouse. Loader and file selector included. 32 files. 297 KB.

Y2M 8A: Programs for WordPlus. Ajax, Strip, and programs to convert files into Wordplus format. Index to make indexes. Text files about WordPlus. A typewriting program plus a keyboard editor. Plus a spooler. 10 files, 352 KB.

Y2M 8B: Printer Drivers to 1st Word/WordPlus. ASCII, Bro, Bro1109, Bro1509, Bro10P, BroHR15, C8028, Canon, Citoh, Corona, Epson 12, Epson FX80, Epson LX80, Ex 70.1, Exucut 70, Gabi 2, Gem 10X, HP Jet, IBM compatible, IBM Pro, KXP 1091, KPX 1092G, LQ 800, NEC, MP 165, Okimate 182, Okimate 192, Pan, ProWrite, Quietjet, QUME, Riteman, Seikosha, Seikosha SP100, SMM 804, Star, Star NL10, Star SG10, Star IBM, Star 510, TA SE 320, Taxan 810, Toshiba. 52 drivers. 434 KB.

Continued...

Y2M 11A: Communications Disk: All that you need for communications. Uniterm. Clock, Encrypting, Input, Kermit, UUE, Arc, ArcX, Arc Shell. 11 files. 336 KB

Y2M 12A: Best Games: Baller, Pacman, Minefield, Missile, Othello. All for monochrome. Monoware is included; this lets you use the programs on colour screens. Five games. 332 KB.

Y2M 13A: Art Disk: Public Painter. GEM Draw. Picture tools include: Convert, Density, Hacomini, ScrDump, Snapshot. A folder of 14 pictures, including maps. 33 files. 331 KB.

Y2M 15A: Virus Killer Disk: Sagrotan 4.14 or newest version. Monomon disk monitor. Protect accessory.

★

A Special Offer from the ST Club

The PD Catalogue

Details and descriptions of over 1,500 disks. This bumber catalogue usually sells at 80 pence but is free to purchasers of the Your Second Manual. Includes details of Disk Mag back issues which are available from the ST Club. Disk Mags are compilations of the best and latest PD software.

The ST Club Newsletter

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