Significant Bits

Brisbug

In this issue...

Double issue for the two month holiday period.

Meeting: Sunday 13 December 1992

10am -- 5pm

Bardon Professional Centre
Simpsons Road, Bardon, Brisbane

Main event (1:30) in the theatre:

The RAMWARE Christmas Show

Yes, it's here again!

Rob (Ho! Ho!) Neary and his merry elves entertain us with the latest in games and the wonders of CD graphics and encyclopaedias.

Angus & Robertson Bookshop

10am - 4pm in Foyer

11am - 4pm	Software library & shop,
10:00 - 12:00	Training classes
12:00 - 3:00	Junior Club
12:00 - 1:00	Lunchtime
12:15 - 12:45	New members Orientation
1:00 - 1:30	General Business / Q & A session
1:30 - 3:00	Main Event (See above)
3:00 - 5:00	SIG meetings. (See signs)

BRISBUG PC USER GROUP Inc.

The Brisbane group for users of PC-type computers
PO Box 985 Toowong, Qld 4066 Tel: 274-4108

Office bearers 1992:

President	Ron Lewis	273-8946
Vice-presidents	Chris Ossowski	274-4144
Treasurer	Max Kunzelmann	201-6551
General Secretary	Chris Raisin	379-1415
Membership Sec.	Trevor Freiberg	816-1356
Chief Librarian	Lloyd Smith	281-6503
Software Controller	Terry Tuttle	397-1191
S'ware Shop Sup.	Helga Galea	870-1956
Ext. Ops Director	Chris Ossowski	274-4144
SIG Co-ordinator	Bernard Speight	349-6677
Training co-ord	Dan Bridges	345-9298
Magazine editor	Geoff Harrod	378-8534
Committee Members	Robert Bromwich	
	Les Cathcart	
	Brian Doyle	355-0913
	Bob Gurney	355-4982
	Paul Walters	800-3282
	Bruce McNamara	369-5563

Bulletin Board Service

Sysop: Paul Marwick.
Assistant: Graeme Darroch
BBS phones:
(07)871-0304   871-0298   870-2972

Software Library & Shop

Post Prepaid requests to:
 Brisbug Software Library,
 95 South Station Road,
 Booval 4304
or phone: (07)281-6503 MON-FRI
 9am to 1 and 2 to 4pm ONLY!!

Significant Bits magazine

Chief editor: Geoff Harrod
Associate editor: Ron Lewis
Reviews editor: Ash Nullawalla

Contributions always welcome and needed!
Preferably on disk (any sort), or modem upload to
Brisbug BBS "Stack Overflow" file area.

Deliver disks, artwork or copy to:
 G Harrod, "Significant Bits" Editor,
 CAD Partners 672 Sherwood Road, Sherwood,
 Qld 4075 Tel:(07)379-1899 Fax: 379-1732

Printer: MARLIN PRINTING
37 Caloundra Rd. Caloundra (074)915-833

Meetings

Meetings are held on the 3rd Sunday of every month, except under unusual circumstances, at

BARDON PROFESSIONAL CENTRE
Simpsons Road, Bardon, Brisbane
10am to 5pm.

Brisbug occupies the main theatre and several other rooms. Please note that other groups are usually using the centre at the same time, and that **parking is totally prohibited around the buidings and driveways**, and the upper level car park is strictly reserved for staff and for exhibitors with specific prior permission. There is a large car park off Carwoola Street with a footbridge over the creek and a pathway to the centre.
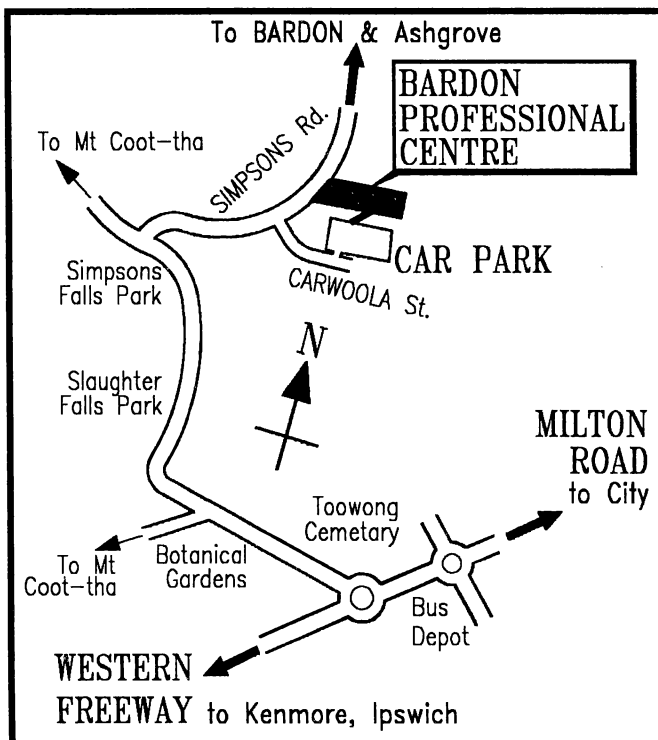
From the Engine Room

Well its the end of the year already ... where did it get away to?

Merry Xmas and a Happy New Year to you all. We hope to see you back again next year (or should that be next month?).

These holiday times are probably, for recreational computerers (new word, invented before the Yank achronymers thought of it) a peak period of usagecorresponding to the increased availability of leisure time. For many of us involved in providing facilities for Brisbug, it's probably the opposite ... we tend to turn off the computer at the first sign of an excuse (such as the splash of a swimming pool or hiss of a stubby top) and head out to do other things, particularly in the family area. As a result some of our services (Library, BBS, Help Line may be slower to respond than usual.I ask for your tolerance of these delays ... the workers are actually recharging their batteries for next year.

First thing next year for Brisbug is our AGM. I urge you to come along and vote for the committee members of your choice. Although the actual number of committee (nine) is lower than last year (basically to increase efficiency of meetings), the need for advisers, doers and thinkers is more pressing than ever. There is plenty of room for you to become involved as assistant to one of the committee, so think about putting something back into your club
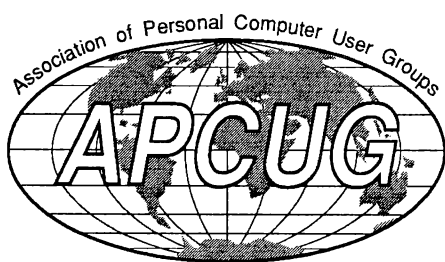

**MERRY CHRISTMAS
and a
HAPPY NEW YEAR.**

Proudly a member of:

From the Editor...

Another year, another AGM... Now's the time to marshal your own ideas as to how Brisbug should be operating, and to seriously consider what part you could play in helping it happen.

The executive has decided on some changes to the committee structure this year aimed at both improving the decision making process and lessening the time burden placed upon each participant. As in many voluntary organisations, the active members are very often those who are most busy in their life outside the organisation, and the time available to individuals has always been a problem for us.

I sorted through my back copies of Sig Bits the other day, and I must admit I was pleased at the way it had come along. I have several ideas as to how it could go from here, but the time commitment is such that I would be quite happy to hand over the controls to someone else. In fact, I really will have to spend less time on it myself even if I do continue in the role, and that is far from certain. I've very much enjoyed producing Sig Bits, but it has often seriously got in the way of earning my living.

Well, this is the combined December and January issue, so I hope it gives you plenty to feed your brain with in between all the Christmas edibles, and maybe it will help keep you off the streets during this rather hazardous period. I wish you all a very enjoyable and safe Christmas break. Let us think a bit about the value of peace on earth at this time, as we relax at home or with friends, and pause to consider how different it would be if we were in one of the several places where civil strife is raging still. Whatever we think of our leaders and their rivals, however wrong we may think our government's actions are at times, and however bad our economic situation may seem, in truth, we are lucky to have as stable and competent a regime as we do.

I'd like to take this chance (maybe my last!) to publicly say a very big Thank-You to all those who have contributed over the last year or so to Sig Bits. That includes those who have written for us and those who have helped get it together and delivered to you. I'd particularly like to thank Ron Lewis who for rather more than half this year has done at least half the work of producing the magazine. Often it was quite a bit more than half, and at one stage when I was heavily committed to an urgent job, he did virtually all of it. Besides all that, Ron has also been the sole addressing, bagging and posting organiser, with his little band of baggers, and it was Ron who always took the huge pile of mailbags to the mail exchange. Next year it's going to have to be done differently! It's just too much. Thanks, Ron.

And of course Sig Bits would be nothing without writers. We should all thank our regulars for continuing to take the time and trouble. Many people have commented that the most noteworthy feature of Sig Bits is the quality of its content. For that we must thank our writers entirely, and we are most fortunate in that respect. But we do need more feedback and letters to the editor.

Lastly, I would like to thank Geoff and the crew at Marlin Printing and wish them a happy Christmas too. It's a rare thing in magazine production to depend on a one-week printing stage, but they do it for us!

-- Cheers, *Geoff*

A Memorable Experience

The sun was shining, as it had done a lot lately, and I had a couple hundred dollars spare burning a hole in my pocket so what was I going to do? Well, I could spent it on the family, a day out on the Gold Coast maybe... But no, I had a more brillant idea. Why not upgrade the computer memory from 1meg to 2.5meg? At a cost of only $90 a meg now was the time to realize that dream.

(After I spent up big they brought the price down again didn't they!)

Out came the User Manual to find out what chips I required and the number required. Well, the book said that 18 x 511000 in bank zero and 4 x 414256 with 2 x 41256 was all I needed in bank one. I rang a dealer who said he could help me: "Just bring your computer and book along just to be on the safe side". While there a check showed that my computer had no parity checking chips. As I had never had any problems in the past and I was led to believe that I could get by without them when I upgraded I only bought 16 x 511000 (saved $20 -- great). Now my computer already had 8 x 414256 chips which I wanted to use if possible so as to save more costs. The book said if I followed the configiration I have outlined above I would be able to use at least 4 of the chips, so that's the way I went.

Home I went, not as happy as I wanted because the 511000 chips would not arrive until the next day from down south. The next day no chips.... they had missed the truck. The third day they arrived and I collected them and headed home. Because my computer is designed for easy access I only had to pull out the 2 drives and the power unit to be able to get to the motherboard. The placing of the chips into the board was straight forward enough and I also had to pull out the four existing chips on bank zero. The big test was at hand. I rebooted the computer and it said memory found did not match the amount in the Bios Setup. No problem; change the setup and reboot. Up rolled 640k Base memory and 1920k Extended memory.

This was just great. The wait had been worthwhile. Now I could make my Ramdrive 1.5meg and I could also have a Disk Cache with the rest. Every thing worked just as planned for 24 hours. Then it started... the computer locked up while in use. Strange I thought, never had this happen before. Did a reboot and it played

up again a little later on, claiming a problem with Command.com. Resaved Command.com down onto the hard drive and rebooted. Problems still arrived at different times and appeared to be getting worse. Then when trying to save a file I had problems saving it. The computer started to save then stopped, so I resaved it again as I did not want to lose this file. Well what happened next, I found out, was that it had saved rubbish to nearly all my directories, added sub-directories and corrupted 50% of existing files.

This was just great I thought, now I can get practice using DOS to clean up the mess I was looking at and have lots of fun rebuilding the corrupted files. The computer would not recognize the rubbish written and no way could I delete it off the hard drive with any program.

I saved off what I could but the only way out that I could see was to format the hard drive and have 35meg go down the shute. I rang the dealer and said "I think your chips are faulty or at least one is as I have had a problem writting to the hard drive". He replied " Not a problem, bring over the computer and I will check out the chips".

With the computer in what seemed a hundred pieces he said "There is your problem... no parity chips". They were not fitted because they led me to believe (when I was in a couple of days before) that I could get by without them as the computer had not required them in the past. "Ok I will buy the parity chips if I have to have them" I said. Home I went $26 lighter and the computer in pieces.

I put the chips in and reassembled the mess. No, the problem did not go away, so I decided to take out the 4 x 414256 chips (remaining original memory) and power up on 2meg. The reason for this was because the new 2 meg was 70 nanosecond rated and the original was 100 nanosecond, and I thought they may not be getting along together. This must have

done the trick as everything is running fine to date.

While all this was going on I also added a 80287 maths coprocessor which has speeded up a lot of programs that do any sort of maths calculations. Cost of the 287 was $149. I found out a week later, in Sydney you can buy them for $115. So now I'm running on 2 meg and a 287 coprocessor, have my hard drive reformatted, 1 meg in eight chips sitting in the drawer, and $330 removed from my pocket.

SO... **REMEMBER to keep your hard drive backed up** more often and you too will be able to enjoy your computer a whole lot more. As we all know... it only happens to the other guy.

This member wishes to remain... Anonymous.

P.S. from Sig Bits editor...

We will agree to withhold an author's name if they feel strongly about it, provided the real name is known to us.

I might add to the above saga...

A dealer can be expected to ensure a memory upgrade works if they are entrusted with doing the whole job. If you choose to DIY then it is always your risk with what you buy. There are often gothca's like this with memory, and it is quite often the case, but not always, that identical chips are required throughout. Still, that was an unusually spectacular result; more often it just causes erratic hang-ups. As he says... backup often, especially before doing something to the computer. Make sure you have a boot floppy too.

-- Geoff.
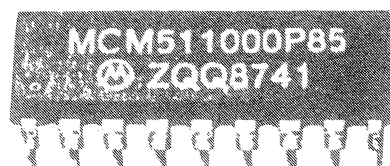
Brisbug's Sunday - in Pictures

Reported by Ron Lewis. Pictures Lloyd Smith, Chip Karmatz and Ron Lewis

There is a lot of activity at Brisbug on our meeting Sundays, much of it concurrent, so that members may miss some of the "colour" as they attend their favourite session. Most of these pictures were taken at the November meeting to show some of the people who give up some of their leisure time to improvethe facilities available to the general membership, and some of the members enjoying those facilities.

The Bardon Professional Development Centre is a very pretty setting, nestled as it is in the rain-forest foothills of Mt Coot-tha. The Centre itself is designed on a diamond-shaped layout which presents somewhat of a navigation challenge to first-time visitors. The presence of a spiral staircase between the upper and lower levels which discharges users in the opposite direction to that which they entered it presents a confusion to some of the not-so-new members (and particularly Presidents in a hurry). Once you can find your way round though, the hgih quality of the lecture facilities is apparent, and for those who want lunch (with perhaps a beer or wine) Clare's diner is a "must stop".

The average total attendance on a Sunday is around 500 - 600. Usually about 40 memebrs of the Junior club, and often their parents, swelll these ranks. Observations suggest that attendance at the five morning classes is about 200 in total, with the crowd peaking at about 1:00 - 2:00 pm, at which time the theatre is full to capacity of about 350-400.

New members, who average 30-50 per meeting, are well catered for, with an Orientation Talk in the Courtyard at 12:15 (unless it is raining in which case we "talkers" have to hunt around to see where , in the extensive and sometimes confusing layout thats BPDC, Ron Kelly, "Pied Piper" to the NMUG has led them to.

Software Shop Supervisor, Helga Galea stands amid her display of wares in the Library area. About 100 different items, ranging from computer "bits" such as printer stands, to full Operating Systems, like DR-DOS 6, are available. Despite its keen prices, the Software Shop generates a profit which is applied to other member facilities.

The Library area is a hive of activity for virtually all day. The twenty-odd volunteers would average about 700 disks of shareware programs copied for the day. In addition about 1ι copies of the library catalog disks (5 in the set) are exchanged. The library is the major income generating activity of Brisbug (apart from membership of course).
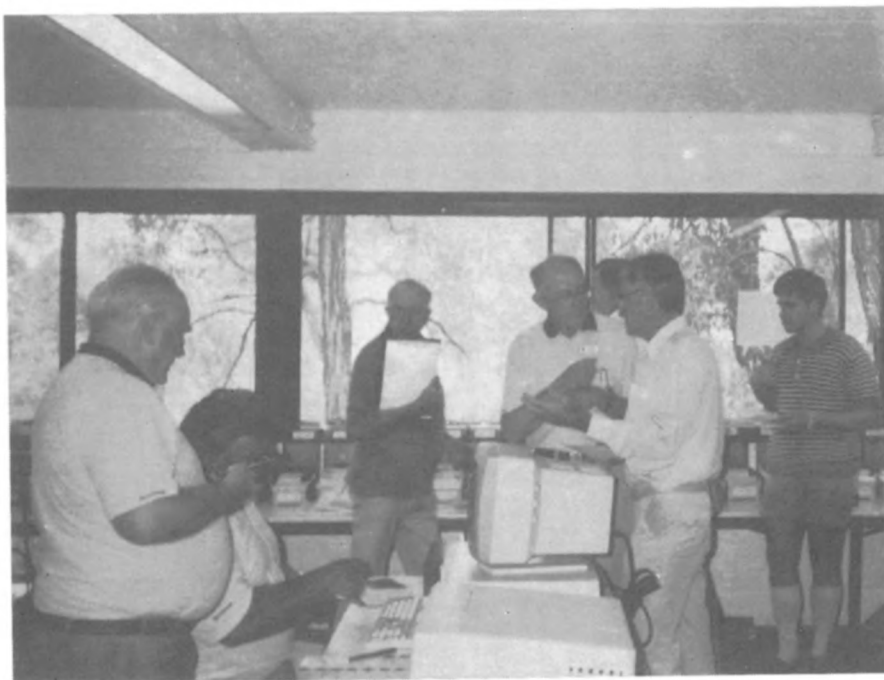
Faces, both New

Left: *One of the original eight members who formed Brisbug back in August, 1985, Peter Grimes was a long-time committee member, Vice President and assistant to the Treasurer of the times, his wife Helen.*
Peter, a professional programmer, founded the Pro-SIG, and convened it for some time.
These days, he is more likely to turn up for a natter with some of his fellow "Old-Timers" (sorry Peter, I know you're younger than me - Ed)
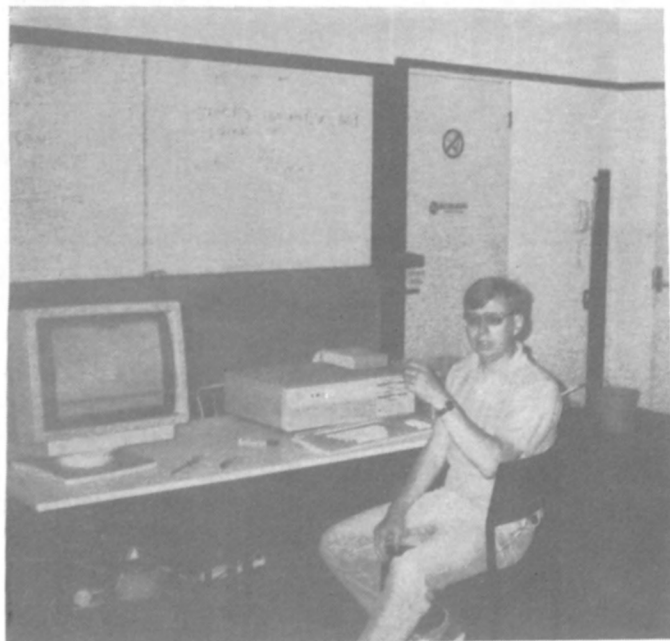
Below left: *Another very familiar face is Dan Bridges,seen here in his characteristic role of Educator and challenger of the "Power Users". Dan is also famous (notorious?) for his fearless, but not foolhardy, investigation of viruses. Gladstone Club members still talk about Dan's demonstration of the Michaelangelo virus on a borrowed machine during which he announced, to the very evident distress of the owner, that he couldn't remove the live virus he'd just loaded onto the hard drive*

Below: *New User Group lecturer John Tacey in familiar pose in his Introduction to DOS course for new members.*

and Familiar

Right: *Former committee member, now Welcomer-Extraordinaire and New Member Information Services Officer, Ron Kelly poses in front of his next "love", the library.Most members would not know that "Kit" Kelly is the chief organiser of copying of the popular software kits.*
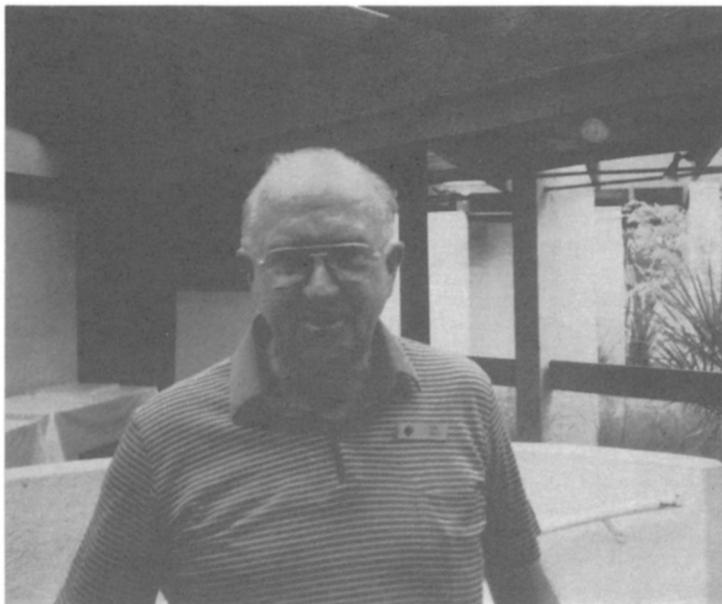
Right: *Familiar faces at the front foyer membership desk Jan Ausburne of the Library staff, helps Membership Secretary, Trevour Freiberg with processing of renewals and new applications. On an average month, Trevour processes over 400 applications, renewals and reminders.*
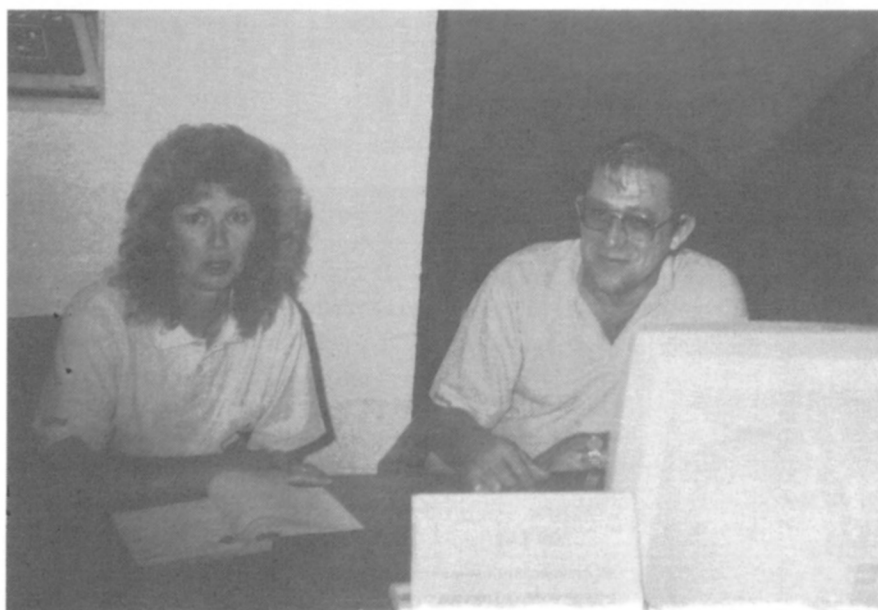
Right: *Another "escapee" from the Library, Jack Worrell, has joined Treasurer (bag-man) Max Kunzelmann, at the front desk. Max is not holding up his next SwissAir ticket to his beloved Switzerland, rather checking out the funds. Turn-over is in the order of $150,000 per year; not quite AustraliaPost that Max is familiar with, but significant no less.*
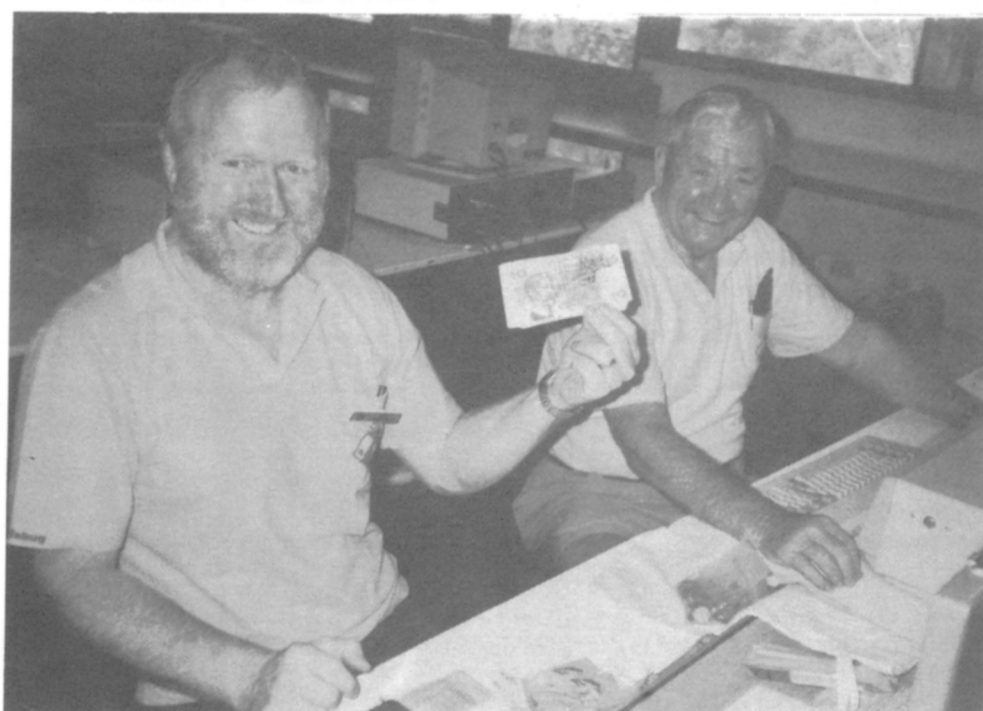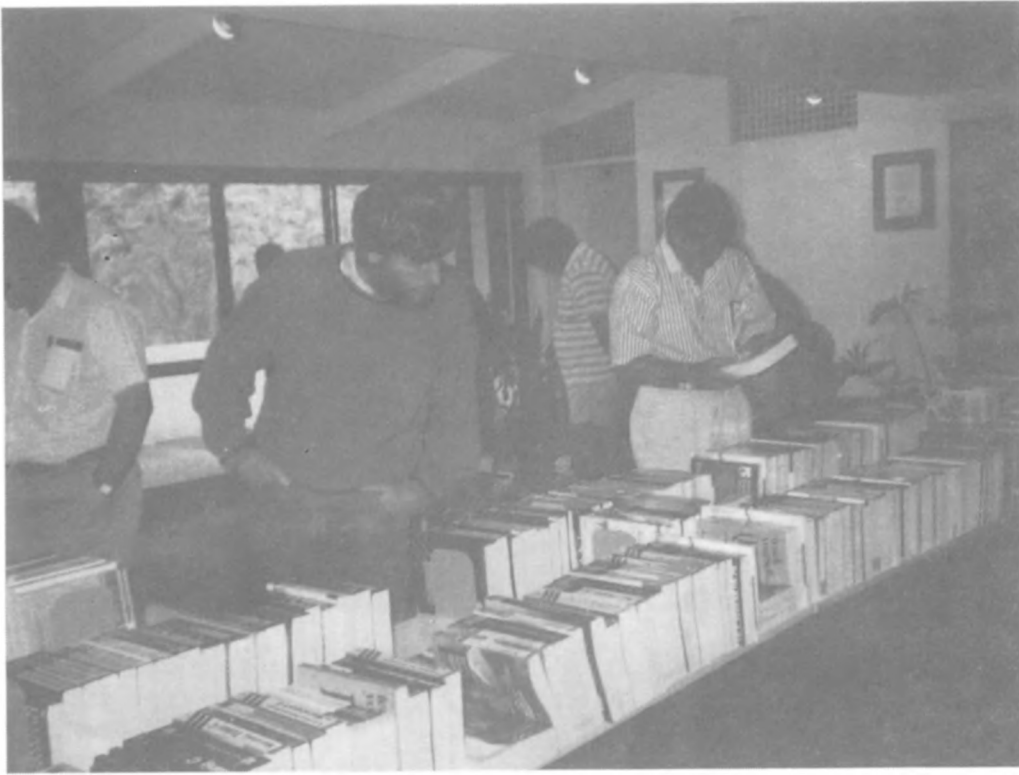
The reasons members come to meetings are many and varied. There is a dedicated band of Library workers, for instance, who never leave the confines of the Library/Software Shop except for the Christmas Party and Annual General meeting (not on the same day), when the library is closed. Others, often long-term members like Peter Grimes, (pictured later on) come mainly for the chat and to see old mates.

But by far the largest single type of member is the relatively inexperienced user who is looking for information and assistance.

Our education services are aimed mainly at the New to relatively-New user, with John Tacey catering for those who are very new. My Not-so-New Group tends to look at new products (such as hand-held colour scanners) or to review the options available in a major class of equipment e.g. printers. Dan Bridges challenges the "power users" with his very detailed knowledge of PCs.

Two specific language classes, on TurboPascal and C++ are helping members who want to learn to program, or improve their current skills.

After classes, a relatively informal presentation, usually referred to as the "Lunchtime Special" occurs in the theatre. The quality and content of these presentations is continually increasing, as the time available to major presenters is increasingly taken up well in advance.

Around 12:00, our Junior Club starts. Originally intended to cater for the younger "fry", increasingly parents are attending too. We suspect they enjoy the chance for

Rob Neary, of Ramware Pty Ltd, is typical of the local experts who donate their considerable selling skills to demonstrating the latest equipment. Rob is particularly famous for his flair in showing how the latest in sound and animation can make education fun and effective. Kids games they may sometimes be, but not necessarily easy, even for the brighter (or braver) in the audience.
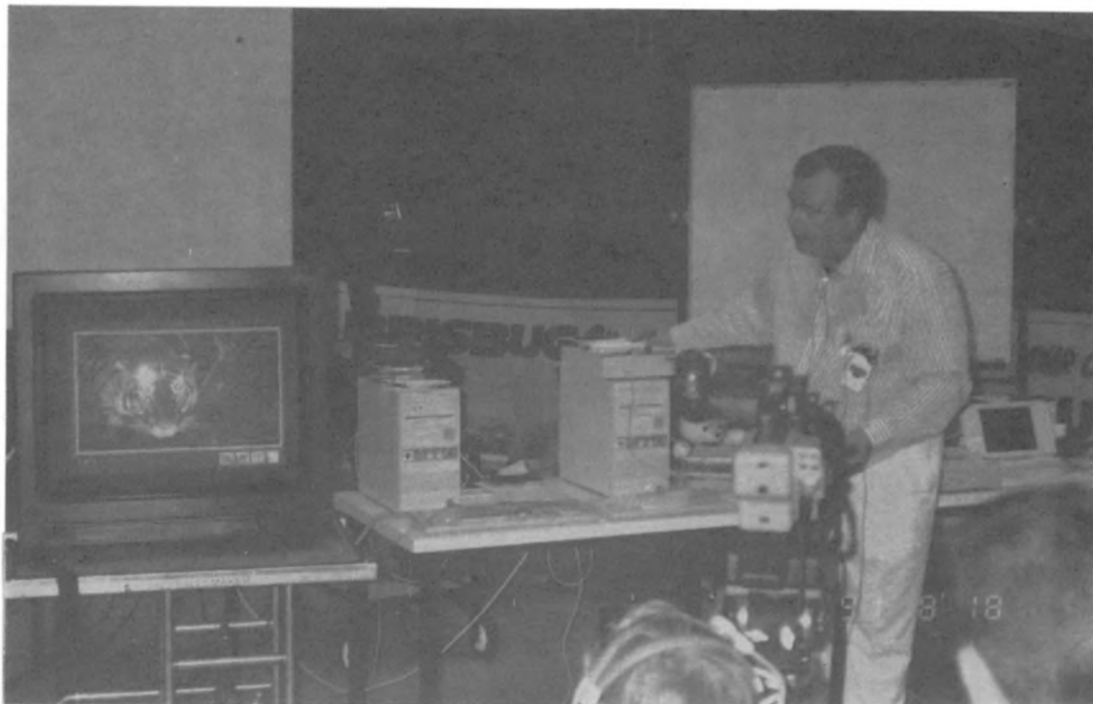
"hands-on" experience in a relaxed atmosphere. Next years committee wil probably expand on this facility.

The formal Brisbug Club meeting is usually brief, and followed by a question-and-answer session for members problems.

The main presentation (the "Main Event") features a topic of note and major interest to as many members as possible. All major hardware and software suppliers have featured recently. Interstate speakers such as Borland, Microsoft, IBM, Epson, Intel have been complemented by local companies such as Ramware and Precision Power Products. At one meeting, Borland gave every member who attended a full copy of dBase IV Vers 1.1 which could be updated to Version 1.5. This was so popular we had to run a dBase class for new owners.

The day does not end at the close of the main event. Many members stay on to attend SIGs i.e. "Special Interest Groups", who concentrate on a particular part of their hobby such as genealogy or graphics. By 5:00 most of the workers are ready to "pack it in" and go home and rest their feet (Bardon has a million stairs to negotiate if you don't use the "disbled" ramps.

There are four weeks to recover, so most workers are ready to do it all again at the next meeting.

Thanks to both the workers and the participants, who make the considerable efforts of a small army worthwhile.   O

Occasionally we run "theme" days (or "Expos") on a topic such as Accounting programs. Major players in the field are invited to display, demonstrate, and present their wares so that members can compare their needs with what's available.
Many non-members have been attracted to these days; a sizeable proportion have subsequently joined Brisbug, but it appears that the retention rate (i.e. renewing of membership rate) is less than for those who join Brisbug as "generalists".
This picture shows two of our younger members registering delegates to the Accounting Seminar.

Letter to the Editor...

How not to sell a product

Place: Bardon Professional Development Centre. Date 15th Nov. '92.Time 12.40 pm. At this hour I walked into the Auditorium, where a young man, whom, to my knowledge,I've never met, was waxing lyrically about the latest upgrade of OS/2, Version 2.

In fact he was so wrapped in his subject, that I couldn't help noticing that several inaccuracies started to creep into his presentation. To say that ATM fonts can be obtained without any problems from bulletin boards or from friends, totally ignores the issue of copyright, as quite a few ATM fonts are definitely not in the Public Domain. Equally, it should have been pointed out that quite a few of the Public Domain ATM fonts have incomplete character sets, and often don't print well in small sizes.

Worse was to come when our lecturer started to talk about Windows NT. To compare an existing product (OS/2) against a product which has only just reached the beta testing stage, is unfair, to say the least, but then he started an all out vitriolic attack against Microsoft, peppered with untruths or half truths, which didn't go down too well with me or, for that matter, with several other members of the audience.

During question time, somebody asked our lecturer what the cost was of OS/2, to which he replied that he could sell OS/2 to the member for $190.00. This, of course, threw a totally different light on our lecturer. Had he been an ordinary computer user I could have forgiven him for his outbursts against Microsoft, but, as a computer software dealer, he had well and truly overstepped the mark.

Having sold photographic products for many years, I was taught very early in my selling career, that you don't rubbish your opposition, but instead stress the advantages of your product, against the opposition's offerings.

I don't suppose our OS/2 preacher was in the audience when the Microsoft boys took over the lectern, to talk about their new database products. Here, there was no sign of knocking DBase or Paradox and other major database products; in fact they went out of their way to stress the quality of these products.

You don't have to be a genius to figure out who gets my vote for the better sales presentation. In the meantime I would suggest that our OS/2 salesman gets himself some books on the art of salesmanship, as I cannot foresee a long and successful selling career for him in the computer industry.

— Ralph De Vries

EDITOR's NOTE:
We received quite a number of comments in similar vien from members by phone. The Microsoft presenters who followed sat through most of the OS/2 presentation, but were too professional to comment when asked about it.
It seems we must remember to remind our presenters in future of a few basic rules of diplomacy.
By the way, the current NT "pre-release" is actually part of a developer's kit and a condition of getting a copy is supposed to be that it is only used to test programs with and is not to be used to demonstrate NT. Yet as soon as it was available it was on show at the Expo!

Microsoft Presents - *FoxPro V2.0*

Sound System

Access V1.0

The November meeting saw three major presentations by Nabeel Youachim, Database Manager (Australia) and Craig Spender, Channel Manager, Microsoft Australia Pty Ltd. The presenters have kindly provided this summary.

Microsoft Access for Windows v1

Top 10 Product Features and Highlights

1. With Microsoft Access, you don't have to scrap your existing and valuable investment in data. Microsoft Access directly reads and writes data in all of the popular file formats even across a network, simultaneously with other users! You can easily share data back and forth with others in your workgroup who use Paradox, dBASE, Btrieve, and most SQL based databases.

Microsoft's Nabeel Youachim presents ACCESS for Windows V1.0

2. Microsoft Access takes advantage of the "ease of use" made possible by Microsoft Windows, - you can create complex queries with just a few clicks of the mouse using the Graphical Query By Example(GQBE) tool.

3. Microsoft Access takes advantage of both Dynamic Data Exchange (DDE) and Object linking and Embedding (OLE) to allow users to easily create databases containing, objects such as Word Processing documents, Spreadsheets, Pictures, Sound and even Video.

4. Microsoft Access has built-in database experts (called "wizards") to do the work for you. FormWizards and ReportWizards in Microsoft Access let you turn out professional forms and reports, even if you're not a professional programmer. Microsoft Access also has Cue Cards, the online coach with infinite patience.

Cue Cards help you learn Microsoft Access while you continue on with your work. Just call on a Cue Card to have it walk you through a task you happen to be working on like creating a table, designing data filters, or adding a Percent of Sales column to a report.

5. Microsoft Access Forms and Reports take advantage of the special features of the Windows interface. A user can display pictures or icons to customise the appearance of a form, also list boxes, option groups and check boxes are easy to create and make data entry more efficient. The Report writer easily produces desktop publishing quality reports. It is a banded, two-pass report writer, giving the user a powerful tool to create complex reports quickly.

6. To speed up routine operations, Microsoft Access provides an easy way to automate your work with Macros. Let's

say you have three reports that you want to print out each week or, say you want to remind yourself to back-up your database every time you enter 500 new orders. To automate these tasks, simply choose the appropriate action from the 40 pre-defined macro actions in Access, fill in the blanks to tell Access precisely what you want the macro to accomplish, link them together, and you've built a custom database application within Microsoft Access. You are not required to work with a complex programming language. (On the other hand, when you do need to use a full-featured programming language, you can use Access Basic.)

7. For serious database developers, Access Basic is a full development language and Integrated Development Environment (IDE). It is a powerful database development language patterned after the award-winning language found in Visual Basic. Access Basic is a modern, block-structured language with explicit
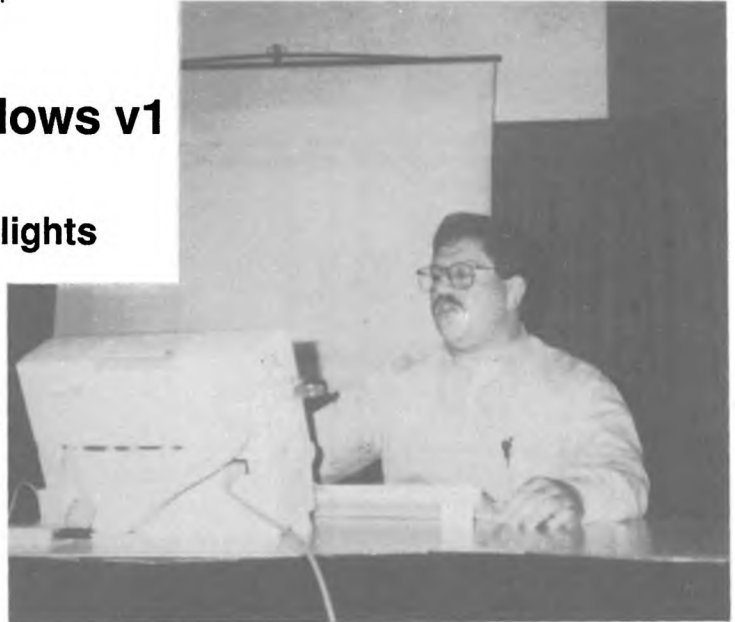
variable declaration, support for huge arrays, and familiar programming constructs. The Integrated Development Environment in Access provides an automatic syntax checker, single-step mode, and a debugging Window to help troubleshoot user-defined functions and procedures. The event-driven programming model in Access allows users to work with applications without feeling straight-jacketed, you retain the productivity of all the interactive-user tools of Microsoft Access, plus you have the assistance of an online, context-sensitive language reference, complete with code examples. Also, easy hooks into Windows Dynamic Link Libraries (DLLs) make it simple for you to extend the language, so you'll always have all the power you need.

8.   Microsoft Access also has its own state-of-the-art data store, with complete support for extended data types such as OLE objects and nulls. Support for referential integrity in Microsoft Access takes place at the engine level. Once enabled, you'll never accidentally create an order than has no corresponding customers. Also, the desktop data dictionary that's built in to Access allows you to define business rules as you design tables, so you'll never accidentally enter, for example, a negative tax rate. Traditional database management systems make a distinction between standalone, multi-user, and client/server versions of their products. With Microsoft Access, the choice is yours. In one box you get all three configurations. The user-level security model lets you lock out certain users from seeing sensitive information, so your data is always safe.

9.   For very large amounts of data or when extremely high levels of data integrity and security are required, Microsoft Access can act as a front-end client to MS SQL Server. Microsoft Access takes full advantage of the client-server architecture, with the reduced network traffic and increased efficiency that such a configuration provides. And through the use of Open Database Connectivity (ODBC) technology within MS Access, drivers to more data sources are on the way.

10.   With the Microsoft Access Software Development Kit (SDK) you can develop and distribute unlimited runtime applications for stand-alone, single user and Multi-user systems royalty-free.

Microsoft Windows Sound System v1.0

Top Ten Features and Highlights

1   The Microsoft Windows Sound System application for easily generating and adding voice annotations to documents and files like electronic mail is Quick Recorder

2   The ProofReader application provides audible proofing of numbers and common spreadsheet terms with a high-quality human voice.

3   Expanding the versatility of the PC interface, the Voice Pilot enables users to execute commands by voice, using a microphone that comes with the Windows Sound System

4   The Microsoft Windows Sound System includes a Setup utility that simplifies the installation process so that users can incorporate audio in an easy and immediate way.

5   SoundFinder - for quickly locating and modifying audio files (e.g. Apple, MIDI, Next)

Recording Control - for control of the recording source and the input level. Volume Control - for instantly accessible adjustment of sound volume and mixing.

6   Sound Control Panel - to assign sounds or music to system events.

7   Sound and Icon Library - to use in customizing voice annotations, recordings and sound effects.

8   SoundScapes - an audio screen saver.

9   Music Box 2.0 - for accessing and playing audio CDs

10   Guided Tour -an interactive tutorial for the Windows Sound System.   o

Photo: Chip Karmatz

Microsoft's Craig Spender presents the Sound System for Windows.

I Want One TOO, Please Mr Microsoft

The talk and demonstrations of ACCESS, FOXPRO, and the Microsoft SOUND SYSTEM, had many members eager to go out and obtain them.

Your reporter was particularly keen to get his hands on the Sound System, which Craig Spender had shown capable of allowing a user to talk his way around a spreadsheet (in this case EXCEL for Windows). To someone of such abysmal typing ability as me this represents a great leap forward, even if there is some time investment in training it to recognise your own peculiar accent. The ability to play ordinary CDs through your office mood music system is an added bonus, despite the difficulty Criag had getting the BPDC auditorium system to talk to his computer. Typical of "Murphy's Law" as it relates to lecturers, the two systems worked fine while being set up - Dan even got a fanfare introduction to his education report due to the volume level being set too high - at the moment when it was required to run "seriously" it stubbornly declined.

The database "freaks" (no disrespect intended) among us, and the application developers (particularly those who don't want to write "code") were enthusiastic, to say the least, about the two products Nabeel demoed.

Nabeel Youachim, Microsoft's Product Manager, provided an easier way for three lucky members, to get an advance preview of these products. They *won* a copy of FoxPro for DOS.

Our photos below show these members collecting their rewards for being able to guess a number previously written on his hand by the session chairman.

AVAILABILITY

All three products are due for release early December. Orders should be placed through your normal retailer ... NOT via Communique, even for Communique members.   o
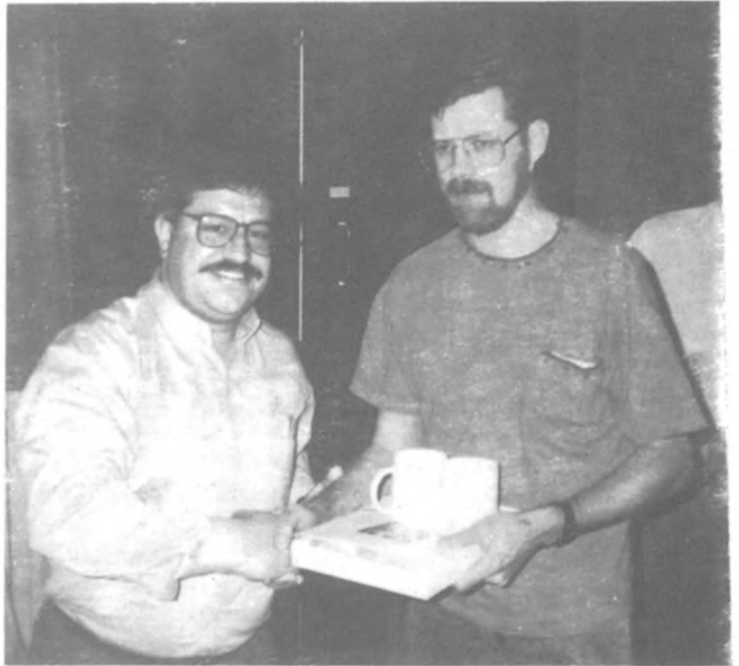
A lucky member collects a "naked" (see-through)Microsoft mouse and two coffee cups

FOXPRO to Go! Two members will not have to wait to buy their copies ... Microsoft presented them with complimentary copies

HARD DRIVES

Geoff Harrod

These notes are intended to help you understand about the choices available in hard drives without getting deeply into technicalities. They are intended to help you by arming you with some background knowledge when talking to salesmen etc, or when considering upgrading a disk and deciding whether to do it yourself. Users with very little technical background often embark on disk installation, sometimes without a hitch but they often get into difficulties. It's not as simple as some may say.

We hope to cover this topic in more technical depth shortly.

Types of drives and interfaces

MFM or ST506 DRIVES

This is the old standard interface. What you have when nothing is said about it. A bit outmoded now, not efficient in terms of speed, but usually very reliable. Require correct CMOS drive table setting, but special driver software (eg Speedstor or DM) can override that if need be. Now essentially obsolete for new installations. Most controllers can control two drives, so you might want to add a second drive of this type to the one you now have. However, most times it would be better value to replace it with a faster new IDE or SCSI type. Preformatting can be done by the controller ROM via DEBUG or by various disk preparation software. Often appropriate software is supplied with the drive. MFM = "Modified Frequency Modulated encoding".

RLL DRIVES

You may have heard bad reports on these. In fact, RLL is only a problem when people use an RLL controller to get a 50% or greater capacity increase on a normal MFM (ST506) drive. Then they are very likely to prove unreliable in the long run. If used with a drive intended for RLL they are perfectly OK, and usually a bit faster than MFM. RLL controllers usually ignore the CMOS drive details but, oddly, often require the CMOS table to be set to drive type 1 regardless of size. Preformatting must be done by the controller ROM. Like MFM, RLL is now obsolete for new installations, and the same comment applies re adding a second drive. RLL = "Run Length Limited encoding".

ESDI DRIVES

(Pronounced "Ezdee") These were the preferred type for greatest speed until recently. They can be troublesome to set up and the controllers tend to be expensive. They are rather sensitive to interference from other hardware because of the very high speed data transfer along the ribbon cable draped past other parts. They perform extremely well when properly set up, but for new gear, IDE is much cheaper and equal or better performance. Preformatting must be done with the controller's ROM routine; don't go using Disk Manager or such!

ESDI = "Enhanced Small Device Interface".

IDE or AT DRIVES

The latest type of disk controller (for PCs only) is called IDE ("Integrated Drive Electronics") or "embedded" or "AT". The drive itself has all the control electronics within it and connects directly to the AT 16-bit bus; hence the "AT" name. Unlike all the others, IDE works only in PCs.

It is usually the preferred system currently -- fast, simple, reliable, low cost and very immune to interference from other hardware. It requires NO preformatting and any defects are mapped out at the factory. Just use FDISK and FORMAT. Never try to preformat -- it may "kill" the drive!

The interface board normally used is not a controller and is commonly called a "paddle board". It does nothing other than connect the ribbon cable wires to the plug-in bus conductors, but it usually has a floppy disk controller also, and possibly ports too. There are also more complex interface baords with smart extras to boost performance or facilitate configuration by bypassing the CMOS table..

The only trap with IDE is that they normally require the CMOS to have the right values for cylinders, tracks & sectors. The drives rarely come with that information; you have to enquire. Modern PCs usually have a "user definable" setup drive number (generally 47) but older ones may not be able to have the CMOS set to suit the drive. The only remedy then is a new motherboard, a new BIOS chip (almost impossible), a "smart" IDE interface board or to use a SCSI drive instead. So check your CMOS drive table before buying a new drive! A major trap for the unwary.

IDE allows for 1 or 2 drives, but in fact there are often problems getting a second drive to work, unless it is absolutely identical in make, model and size to the first one. IDE cannot coexist with MFM or RLL, but can with SCSI.

IDE is intimately related to the AT's 16-bit bus, hence the "AT" name option, but they are now being offered for XTs with a wierd interface board that shuffles the 16-bit data into the XT's 8-bit data bus. That doesn't seem like a very good system and I have heard of problems with it. I reckon the only sensible way to upgrade a hard disk on an XT is to replace the motherboard with a 286 or 386, if practical!

SCSI DRIVES

(Pronounced "Skuzzy") Not used much on PCs until recently; common on minis and standard on Macs. They can occasionally be difficult to get installed, but are usually easy if the appropriate controller board is used. However, there is a very wide choice of controllers and a huge price range, and they need expert selection. SCSI is usually the only option for larger than 300Mb. The SCSI interface is also used for some tape systems, CD-ROMs and scanners. It is likely to become very common now. SCSI ignores the CMOS drive table, so provides a way out if there are problems there. It is also a way of adding a second (or third or fourth) drive when the existing IDE or other system won't co-operate. Usually a fair bit dearer

than an IDE solution. Will usually coexist with anything.

SCSI = "Small Computer System Interface".

"Hard Cards"

These are very thin drives mounted on a plug-in board which carries the controller. The attraction is that they don't need screwing into mechanical mountings or any cable connections. They can be an easy way to add a second drive, although you can't take it for granted that they will coexist with what you have. Early ones were not all that reliable or long lived, but they are ok now. They are usually somewhat dearer than conventional drives, but have quite high performance. They are a good solution where there are no more drive mountings available in the computer box of course, which is often the case with the "slimline" style.

Proprietory systems

Certain famous PC makes are notorious for using customised drives with odd mountings, special controllers or BIOS drive tables restricted to their own models. Compaq and HP are the main instances. The IBM PS/2s use plug-in board mounted drives, but by now many other drive sources can supply special PS/2 models, often offering capacities larger than those available from IBM for that model.

Busses

IBM PS/2's and an occasional other make use IBM's 32-bit Microchannel (MCA) bus. Controllers and other boards for it are dearer than for the normal 16-bit ISA bus, and standard ISA bus boards will not fit. Some of the latest 486s (other than IBM's) use the new EISA 32-bit bus that will accept the common ISA 16-bit boards as well as the new EISA boards. EISA boards are generally quite expensive. There is a lot more complication in setting up a new board in an MCA or EISA bus.

HARD DRIVES GENERALLY

IDE and SCSI are the two current systems. New installations should use one or the other. The others are still available for upgrading, but often it is more sensible to replace the controller

and get a faster up-to-date drive type. The performance difference as perceived by the user running programs can be quite astounding. I recently changed my RLL 100 Meg 28 millisecond drive for an IDE 240 Meg 12 ms with internal high speed cache memory. The effect is like having a much faster computer, except when it comes to rendering or solid modelling which are processor-intensive.

Access speed

The quoted speed of a drive in milliseconds refers to the head movement time between tracks. It is normally assumed to be the average time for random

> **Don't rush out and buy a new drive on mail order without checking its compatibility with your CMOS drive table.**

access movements anywhere over the whole disk, but some less honest sources occasionally quote (without explaining) the other figure that manufacturers give: movement time between adjacent tracks, which of course is vastly less. The early XT drives were stepper motor actuated and gave an average random access figure of about 90 ms. Typical voice-coil actuated MFM or RLL drives are 35 to 25 ms, while the new generation of very compact IDE and SCSI drives are usually at most 15ms and down to less than 10 ms.

Transfer speed

The other factor in drive performance is data transfer speed. RLL uses essentially the same transfer system as MFM, but its compressed encoding system (which is what makes it fit more on a given disk size) has the effect of being noticeably faster. ESDI uses a very much faster data movement technique between the drive and the controller. IDE doesn't have a cable between drive and the interface processing and is at least as fast as ESDI. SCSI uses an efficient system for data transfer between drives and control electronics, but its full speed potential is sometimes wasted by inefficent controller design. SCSI can

be very fast but can also be quite slow, mainly depending on how much you spend on the controller. They range from a few hundred to over a thousand dollars, and need to be carefully chosen. One SCSI controller can interface with almost any number of devices on the one daisy chained cable.

Controller options

There are controllers both for IDE and SCSI that have high speed data cacheing and/or smart configuration memory. The latter can overcome problems with BIOS drive tables not having suitable choices. They are dearer of course, and there's no point in spending money on a cacheing IDE controller board if the chosen drive has in-built cacheing.

Buying a drive

Don't rush out and buy a new drive on mail order without checking its compatibility with your CMOS drive table etc. Drives are rarely supplied with data sheets now, so ask when ordering about cylinders, tracks, sectors, precomp cylinder, and except for IDE, check that a defect list is provided.

PCs with slide-in drives usually need the slides to be obtained separately, and 3.5" drives may need special brackets or 5.25" adaptor cradles. Suppliers don't always include cables. Some tower cases need longer cables. Getting the correct mounting screws can be near impossible unless you get a complete mounting kit, and the wrong screws can damage the drive. Adding a second drive can be a problem or need experienced help. If you don't know about drive table setup, preformatting, partitioning and final formatting, you'd better get help.

Precautions

Never move, or particularly, jolt, a computer while the hard drive is running, or after switching off and before the drive has come to a standstill. It can very easily spell the death of the drive and all its data. Wheeled workstation furniture is notorious for this, and castors with wheel locks are very advisable on those. Be careful with laptops when they are running.

❏

Lindsay's Letter

Lindsay Bates

S_o we come to the last offering for 1992. Thankyou to all who've rung me during the year and made comments on the various articles I've written. May I wish for all Sig. Bits readers the most wonderful Christmas ever, and that 1993 will bring you one step closer to your dreams._

Computer World

In my last Letter I wrote: ''Can you keep up with the continual changes in the world of computers?'' If anything, I think it it's gotten worse since then! Some of the changes that we commonly find affecting various computer users I've written about below

• • • **Prices** have continued downward, but with some recent hiccups which have seen rises in some areas. Will there be more falls or rises in the new year? Whether there are or aren't, one thing is certain: there will be continual _changes_ in the computer world. And to keep up will cost the odd dollar or two.

. . One of the big movers is in the area of **Multimedia.** It won't be too long before most of our PC's will have a CD ROM player and a sound card (see _The Multimedia Phenomenon_ below).

The CD-ROM is needed to hold a LOT of data (such as for encyclopaedias) and to provide for sound and graphics. The sound card will bring stereo sound to graphics and even to our spreadsheet and word-processor files.

. . With the recent worldwide shortage of some Intel CPU's, there have been some changes to what's selling locally. Faster computers are now beginning to come of age: the DX2-50 is selling well, and the DX2-66 has made its appearance. Also available are new CPU chips from Cyrix (see also _The Fastest Computer_ below).

THE FUTURE. Every month we come closer to the time we'll each own a Personal Communications Centre. It will basically combine into one system our computer and phone (a video phone), but will also handle fax, modem and answering machine. It will be cordless and portable. If it's an Entertainment as well as Communications centre it will include TV as well.

While you may not be able to put this on Sante's list for next Christmas, it's nonethless coming to a home near you, sooner than you think.

Notebook Computers

Notebook computers seem to have a lot going for them. But so far neither they nor the earlier laptops have been able to knock desktops off their perch.

Why do desktops seem to remain so perennially popular? These days it's all to do with matters like price, features and colour.

For a long time I've said that when colour notebooks get to be affordable, we could see them take off with a vengeance. Who wants to watch TV on a B & W screen? Not too many. And it's not a lot different in computers - especially when colour quality can match or excel that of their desktop cousins.

As to features, so far the manufacturers don't seem to be serious. Notebooks are not powerful enough, they don't have enough disk space, and - worst of all - they don't have enough memory. Two megabytes of RAM is just not enough for today's market, especially if it costs hundreds to fit another 2Mb; that's if any extra can be added at all.

Price? Well, the cost of colour notebooks has been dropping almost by the month, with some prices now approaching the $5,000 mark.

Power and hard-disk size are on the up and up, too. If they improve the amount of RAM and keep that price coming down, maybe we'll get to see the day of the notebook yet. There are those of us who hope it will be soon.

Windows 3.1

Many computer users around the world now have Windows installed on their computer. All the major software houses have now written software for the Windows platform. So what's this done to our computer?

It's made a lot of new things available. Windows programs run in graphics mode, so we now have true WYSIWYG (What

You See Is What You Get) on our desktop.

This means you can turn out fancy printing and wonderful graphics even on a dot matrix printer, and also that you only have to set up your new printer ONCE (often a very painful job) - all your Windows programs will then print to it, no sweat.

But there are a couple of downsides to running Windows. One is that it's so slow compared to our old DOS programs.

Ironically, the hold-up stems from the very thing that makes Windows so new and so good: the fact that it runs in graphics mode and has the back-breaking job of plotting for all those pixels on screen.

The second downside is the sheer complexity of Windows and the programs we run under it. When something goes amiss it is VERY difficult to figure out what's wrong. Difficult because most of us know very little of what's going on behind the scenes - so how can you figure out where the problem lies?

This tends to make Windows what I call *fragile*. It simply can't be trusted to always do exactly what we expect under this condition and that condition.

Some think the solution to this problem is to keep away from Windows altogether. But that's no answer, because what I call New Technology programs like Windows and OS/2 2.0 - well, they're here to stay whether we like it or not.

Maybe the thing to do is pray hard for Windows 3.2 or for version 4.0.

Better still would be an awful lot more help from Microsoft to both users - so we can understand what's goin' on - and to software developers - so they can write their programs a lot better. Most of us would be grateful for even a small improvement.

What Specs. for the New Computer?

Most users are now aware that New Technology (NT) programs like OS/ 2 2.0 and Windows are demanding more and more of our PC's. So what do we need today for that new computer system?
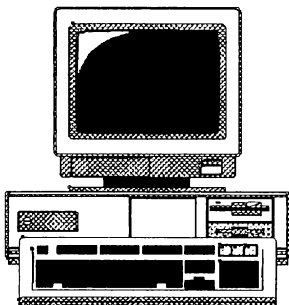
❑ We need a *fast CPU.* The ole 286 will no long suffice for all this new stuff. How about a 386? A top-end 386 is fine, but a 486 is even better. I'm now to the point where I tend to advise our customers to get a 486SX-25 as a minimum purchase (if the budget allows this, of course).

❑ We need *a lot of hard-disk space.* With prices coming down, we're selling more and more computers with 210Mb hard-drives. They fulfil the need of giving that much-needed space needed by NT programs and their datafiles (plus they run more speedily than their 105 or 130Mb counterparts).

❑ We need *speedy hard-drives.* NT programs require a lot of our computer and the demands on the hard-disk are particularly high. Having the fastest drive we can afford will give the best speed of operation (see also Understanding the Windows Swapfile, below).

❑ We need *plenty of RAM* memory. Unfortunately prices of RAM have recently taken a hike upward. Used to be, that most of us could get away with 4Mb of RAM. But OS/2 2.0 needs 8Mb minimum, and more and more Windows programs are coming to need the same.

Excel 4.0, for example is a dreadful memory hog, and if you want to run it with any degree of speed you'll likely need 8 meg.

That's not to say that 8Mb of RAM actually runs Windows any faster than 4Mb, because it doesn't. The way to view it is that the more programs you have in memory *the more you're slowing your baby down:* beef it up to 8Mb and you'll soon have that speed back.

❑ We need *something to speed up graphics.* It hasn't really taken off locally yet, but a graphics accelerator card is a good starting point here.

Soon to come will either be local bus technology (to take advantage of the 32-bit processing capabilities of the 386 and 486 CPU's) or EISA - rather than ISA which most of us own. ISA, which is basically 286 technology, is way overdue for a change.

(We had someone enquiring about local bus technology who reckoned it conjured up a picture of the school bus pulling up at the corner. Or maybe it meant bus technology made locally? We hastened to assure him the bus is where

the data races round on the PC's mainboard, and local bus is just a faster way to do it. Nettie reckons she can see a picture of this minuscule bus with red wheels, taking off at a great rate of knots from that Stop on the Motherboard called CPU, and careering round corners on two wheels as it aims to get to the Monitor Card Stop in the shortest possible time.)

We Can Dream, Can't We!

Why don't we already have all the above in our current computer? (if you have, then we're all green with envy!) It's all a matter of price. Speaking of price, here's Lindsay's dream of a PRACTICAL computer system he'd like to be typing this article on:

486DX-50 (DX2-50), minimum 8Mb RAM, minimum 240Mb hard-drive, expensive flat-screen SuperVGA Monitor, Local Bus (or EISA) combined with fast Graphics Accelerator Card, CD-ROM with Sound-Blaster Card and quality Stereo Speakers.

Also a good 240Mb internal tape backup unit that would automatically do a daily backup for me, a fast internal Fax Modem with quality Windows software - and, of course, the usual dual floppies, 101 keyboard and medium-tower case. Now that would be A SYSTEM!

Trouble is, after totally wrecking the budget with the dream computer, I'd still have thousands more to spend on a fast colour printer and mono printer, a second computer (well, Nettie has to have something to use, doesn't she?), and a network so we can share printers and programs between the two computers.

At this stage, maybe it's all just a little too expensive - but we can *dream,* can't we?

Choosing a Computer Dealer

It's really is about as hard as buying a used car! That's why so many people in Brisbug are always raving on to you about buying decent equipment from a reliable dealer.

Out there it's Let The Buyer Beware - with a vengeance! No, when you're warned over and over, it is *not* overkill. Buy cheap, and ninety-nine times out of a hundred you'll get exactly what you paid

for. People who purchase by price alone are taking an incredible risk. Those who're in the industry know this only too well - it's difficult enough for *US* to find and source equipment that's going to do the right job for you.

So how *can* you tell the goodies from the baddies? If the price is cheap, then you can be close to certain you are buying a cheap 'n' nasty. Please don't do that to yourself (we did many years ago, and take it from me, it was definitely NOT one of life's better experiences!)

The cheap price is almost always associated with the unscrupulous dealers, too. Like the Used Car Dealer they will take you down without blinking an eyelid. If you do get done, you can only blame yourself.

Use your own User Group to guide you to a dealer who knows his stuff, cares about the people he sells to, and will not sell you junk. I use the word deliberately - I've been around long enough to have just about seen and heard it all, and believe me, junk is definitely the word.

Find a good bloke who will sell you good stuff and give you real service. And when you've found him, stick with him - for he really is worth his weight in gold.

William Gates Esq.

Wouldn't you like just 1% of what was once Bill Gates' dream? I sure would! It seems that Microsoft just goes from on from one hundred million to the next hundred million.

During 1992, I've slowly found some admiration of Microsoft and the products they sell. They seem to have discovered their users at long last. They seem to be treating us more decently and to be giving us better products and better service.

It's all part of their plan for the PC world to become, not *IBM* compatible, but *Microsoft* compatible. The plus for us is that, in order to achieve this, they've had to get a lot people on side. A whole lot. In the process, a pile of good things are happening.

IBM did us all a fantastic service by developing a world standard that all our PC's ran under. They did this because they were big enough to. Microsoft's aim is nothing less than deposing Big Blue from this throne and establishing *their* world standard for our PC's for the next decade.

I, for one, think they have a good chance of pulling it off. And I even hope they do.

Fact is, we need someone big enough to create standards. You want that soundcard to be able to plug into your CD-ROM, and *work* straight off? Then we need a world standard that everyone adheres to, so it will. Actually, standards, plural, is what we all want in every area concerning our PC.

(In case anyone thinks I'm now on Microsoft's payroll, not so. When things need to be criticised, I criticise 'em. When things deserve praise, I give praise. Mind you, if MS ring tomorrow and offer me a $100,000 PA job as a consultant - well, after all, it would enable me to have my dream computer systems!...)

DOS is Dead - or is it?

Microsoft seems to have done an about face about DOS, and is now saying they're still supporting DOS programs. Wish they'd make up their minds! Personally, I can't see how we can go backward once we've gone forward, if you see what I mean.

Of course there are those who reckon we never did go forward, and are still perfectly happy with DOS and their DOS-based programs. What's more I can see their point - what's the bet they run faster, are simpler and more efficient, take up much less disk-space, and don't require a 586 computer!

Thing is we're all different, and we all have different computer needs. Anyone who peddles the idea that Windows is king or OS/2 is king or DOS is king is just showing their immaturity. What's right for you may be right for me, too; or it may not be.

So if you have no need for any new-fangled New Technology programs like Windows, good for you. It'll save you a fortune in software and hardware, to boot!

P5, 586, or Whatever. .

Intel are being very coy about the next family of CPU's for our PC's. So it could be some months yet before we see the P5 - or whatever they're going to call it.

Meantime we have the clone-makers like Cyrix introducing new CPU's for the masses, and others selling cheap Maths Co-Processors, too. Know what all this has done? It's brought prices down in a

hurry. No longer does Intel have the monopoly they've had for so many years. They now have competition, and piles of it. In turn, this is bringing more choices to us all as we buy our next computer; but it's taken away some of the comfort, too. When AMD brought out their first chip, we all had to decide if it really was okay to move away from Intel chips for the first time. Now we're getting more and more decisions like this to make.

Will the new 486DLC's, and the like, soon get to be accepted like AMD chips did? Only time will tell. Like many of those I talk to as they're considering their new computer, I, for one, won't be racing into something as soon as it hits the market.

Prudence ALWAYS says, give them time to find the bugs and iron them out. Then maybe I'll buy.

The Fastest Computer
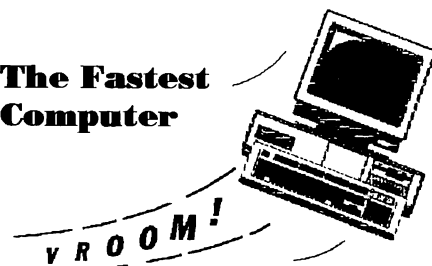
The fastest computer is always going to be *the one that runs your programs the fastest.* Forget about Landmark being 200+, or Uncle Joe's 486SX-25 being faster than Aunt Ethel's 386DX-40. What counts - the only thing that counts - is the speed your PC runs your programs.

So is Landmark a hopeless test? What about the Norton Index then? The short answer is, they're only guides. Just like a hard-drive rated at 13ms is only a guide. But you CAN get some ideas as to how the 486SX-25 really runs, and here are some pointers as to how.

The old Landmark is often quoted for the speed of computers. It wasn't too bad a guide until the 486 came along. From there it really was pretty hopeless, and gave seriously false impressions.

The new Landmark (Version 2, and Commercial) is much better. Typically it will give you a speed for a cached 486SX-25 around 84Mhz (old Landmark an inflated 112Mhz). A 486DX-33 will give around 110 while a 486DX-50 will be about 167. At the other end of the scale, a cached 386SX-33 comes in at around 47Mhz.

When we say 47Mhz it means this computer is running like an AT-286 could be

expected to if it were a 47Mhz machine (pretty fast indeed by AT standards, but slow against today's Bullet Trains). The slowest computer commonly available today is probably the 386SX-33, while the fastest one commonly available at time of writing is the 486DX-50.

If the 386 at Landmark 47Mhz is racked up against the 486 at 167 Landmark, the 486 will be 4 times faster than the 386, right? Well the 486-50 owners just wish it was - but unfortunately it isn't!

Why? - because Landmark is only a guide. And then only a guide to the actual speed of the CPU. A LOT of other things affect the speed your computer actually runs your program at (see *What Specs. for Your New Computer*, above).

If you commonly run Windows you know how long the blankedy thing takes to bootup into Windows, right? So running into Windows isn't too bad a test as to how fast a computer actually runs, that is, as opposed to Landmark or any other speed test figures.

Here are actual tests of the two computers mentioned both. The 386SX-33 went into Windows in around 17 seconds. The 486DX-50 went in in around 8.5 seconds. You see the effect of the speed of the hard-drive, the monitor card, the monitor, and so on! Nearly 4 times the speed in Landmark, but only twice the speed on actual test.

More on Fax Modems

Following my blurb on Fax Modems in the October issue, I've had a number of people query me about using the Fax Modem to send faxes.

Because the day of Australia Post being used for correspondence is fast coming to an end: the computer combined with the Fax Modem is a great way to convey your message easily, conveniently and cheaply.

Think about it for moment. You can fit an awful lot on a normal A4 page, and fax it just about anywhere in Australia for 50c, about the same cost as postage, envelope and paper. The plus is that it arrives within the minute you sent it - not next day, or next week!

Here's a compilation of some of the most commonly asked questions I've had.

How much extra for the software to send faxes?

Virtually all Modems and Fax Modems are sold with software included. So the short answer is: nothing.

Will I need to spend extra on better software to send faxes.

I wouldn't expect so. It's up to you, of course, but we happily use the software as supplied.

Can I easily send multiple faxes, i.e. the same fax to numbers of people?

Yes. This is called broadcasting, and the Fax Modem makes it extremely easy to send a fax to one person, a few people or to many, many people. From the very first fax you send, you can start setting up your easy-to-use phone list. You'll use this list for broadcasting, anytime you want.

Can I send a fax at a scheduled time?

Yes. As long as the computer is on, the fax will be sent at that time.

Can I send a number of faxes at that time?

You can schedule any number of faxes to be sent at whatever times you choose.

Can I get faxes in while the computer is unattended?

Yes. A received fax is automatically saved as a fax file in the directory you specify, i.e. it does not have to be retained in computer memory. It's even possible to receive the fax and have your printer print out a hardcopy for you at the same time.

Can I send quality faxes; for example, can I send a fax with my letter-head plus text plus graphics which I may choose to create in something like Word Perfect for Windows?

You can certainly send graphics' faxes. If you do this from DOS, you would normally type the text in an ASCII editor or word-processor. You can then easily add graphics to this, things like your letter

head, your signature, whatever.

In Windows, you can send ANYTHING that ANY Windows program can create: fancy text, pictures, graphics, anything. If Windows can create it, then Windows can print it and also fax it - this is just another example of the flexibility you get when using a GUI (Graphics User Interface).

How long does it take to send a fax?

Time taken depends on how complex the page is. If it's got a lot of graphics then it will take longer to send.

In practice, we tend to send local faxes either from DOS or our Windows word-processor. The DOS ones - being simple - go through pretty fast.

STD faxes we mostly send from DOS for greatest cost saving, i.e mostly a text fax, maybe plus one graphic (.PCX). We also schedule them to be sent after hours for further savings. Sent like this, a one page fax to Sydney or Melbourne we can usually get through for either 25c or 50c.

What do I do if I get a fax from someone else that I then have to fill in and fax back?

That's easy enough. Change it to a .PCX and type in the details in something like Windows Paintbrush! Change back to fax format and send back.

Do I have to actually print out the fax?

Not at all. You can view incoming faxes any time, as well as outgoing ones. You can then keep a given fax on disk if you wish, or print out hardcopy. There's even a file archiving facility to keep your 'used' faxes in.

Note that viewing of a fax is done by reading the fax file into a viewer, i.e. you cannot see the fax as it's actually being sent or received - simply do this immediately before or after, using the viewer.

If I get a Fax Modem, which is best for me, external or internal?

It's mostly a matter of preference.

The internal will usually cost less, maybe even below $300 for the total hardware and software package. It's also tidier: no cables out to the modem and to the power supply, and no space taken up for the modem.

A plus for the external is the lights on the
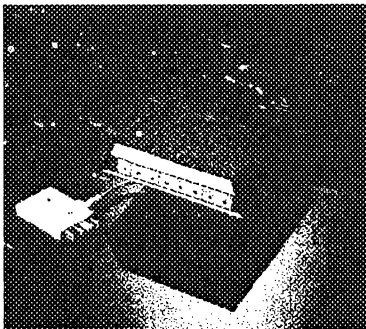
front that tell you what's going on. (I've gotten used to them and would find it hard to do without them. But no doubt if I'd started with an internal I'd never miss them!)

Understanding the Windows Swapfile

There are many things to look at if you want to get the best possible speed out of Windows and your Windows applications. One is the Swapfile (what's written below is for 386 and 486 users). It can save you having to buy more RAM for your computer, but the more it's used, the slower things will run.

Have a look under *Help* in Program Manager, then click on *About Program Manager*. My system currently reports 4,439Kb of free memory - which is a pretty neat trick considering I only have 4Mb (ca. 4,000Kb) of RAM memory to start with!

The Swapfile is the explanation for this apparent discrepancy. The Swapfile uses your hard-drive as Virtual Memory to increase the RAM you have fitted in your system.

(It is also the explanation for a file called WIN386.SWP taking up a pile of your hard-disk space. Mine is currently sitting on 5070848 bytes.)

When you bootup Windows you have to wait for some time while the disk runs and all sorts of jobs are done. One is the actual creation of the temporary Swapfile - unless you've created a Permanent Swapfile, that is. There's some contention as to which is fastest - a temporary or permanent Swapfile - but that must wait for another time.

I hope you have enough disk space for it to create a decent sized Swapfile. Windows will decide what size depending on what programs you're using at the time. It may be only 3Mb one time but 5Mb the next, so do check that amount of free disk space (see *Those Once-A-Day Tasks,* below).

You also need what we call contiguous disk space. Without that, the file will be all over the disk, and that may slow things up markedly (you can get more contiguous space by running a disk defragmentation program like Norton's Speedisk).

You can see that what happens is that Windows configures part of your hard-drive and uses it as extra memory. When your Windows programs are using the Swapfile a lot (i.e. there is a LOT of disk activity), then you can be sure that what you're doing is being slowed down by your hard-disk.

In this event, because your disk is always going to be slower than using RAM memory, you may like to consider increasing to 8Mb RAM if speed is important. In any case, ensuring that the Swapfile is on your fastest drive (if you have two) is the way to go.

You can access what's happening with your Swapfile via *Control Panel* then *386 Enhanced, Virtual Memory* and maybe *Change*. This is where to go to tell Windows to use your fastest disk, too.

The Multimedia Phenomenon

If the computer world continues the way it's going, all of us will end up with a CD ROM and some sort of sound-card in our PC's. What's this all about? - it's the new wave in computing: combining sound with graphics with what we already use our computers for.

First the CD ROM.

This typically fits into one of your free 5 1/4" slots and installs itself as the next drive on your computer, i.e. if your hard-drive is Drive C, the CD will be Drive D. You access it just like it's a hard- or floppy-drive (it pretty-much behaves the same) and in access speed it's somewhere between these two. The pluses for the CD ROM are that it can store piles of data, and it's relatively cheap storage space, at that. You can fit a whole encyclopaedia on just one CD, probably costing less than $100.

On the CD will be files - lots of files - like we're already used to. They can run programs as normal, but the CD has enough room for files to produce fancy graphics and digitised sound as well (to play through your stereo speakers connected to your sound card).

Once you've checked something in the encyclopaedia you take out that CD and put in, say, the National Graphic Mammals to view, read and learn. It's a bit like going back to floppy-disk days, but the

CD is faster - and just one will hold more data than maybe on your whole hard-drive.

CorelDraw has received a lot of airplay in *Sig. Bits* in recent time. Instead of 10 or 15 floppies to install the program from, you can install the whole program from just one CD. This is both faster and easier - no pushing disk after disk into the floppy-drive any more.

Or you can actually run CorelDraw *from* the CD instead of from your HD. And because the CD holds piles of data you'll have dozens more fonts to use if you install or run from the CD and thousands more examples of clipart! It really does change what we can do with our computers.

The sound card.

This fits into one of the slots inside your computer. It's used to add sound to the brilliant images that the CD ROM enables us to easily view on our computers (we can expect to view movies on our PC's in time to come). With he right programs, quality digitised stereo sound and speech can be added to programs and displays.

There are many kinds of sound cards, just as there are different CD ROM drives. Some manufacturers combine these, eg, one of the popular combos is the Multimedia Upgrade Kit by Creative Labs.

Here the sound card is also the interface for the CD ROM drive, so it saves you one slot in the computer. It also means you cannot run this CD without the sound card. So if you decide to do a sound card first, do check compatibility with a CD ROM for later.

Be aware that some of the graphics and sound facilities provided by the CD ROM and the sound card may require you to have Windows 3.1 installed on your computer. If this seems a pain, we can thank Microsoft and Windows 3.1 for some of the standards they've brought to this new branch of computing.

If you've not yet seen what can be produced from CD ROM and/or heard what can be produced on a sound card, then you can look forward to a treat the first time you do. You may also find yourself checking the bank balance to see how soon you can afford these exciting sound and graphics facilities.

All this New Technology (NT) stuff like Windows and OS/2 2.0 is all very fine in its way. I know they're trying to make our computers easier to use, and in some ways they're succeeding in this aim.

In the process, though, we're losing control. NT stuff looks great and some of it IS more intuitive and thus easier to use. But - *users do like to be in charge*. It's all a matter of: does the computer control you, or do you control it?

Back in the good ole DOS days (when DOS was king) we all had some chance of understanding what was going on. Now there are all these things that go on behind the scenes, and few of us understand what - let along why.

Which means that if something goes awry, where does one start? Many times we haven't a clue, simply because we don't understand how it all works.

Many people - including me - have commented how hard DOS is. And it is. But compared to an NT program, DOS is like a babe in arms. Because you could actually get to understand how DOS worked - or at least enough of it to figure some of the steps involved for your program to run.

Not so the NT programs. They're so complex that you need a computer to figure out wot's goin' on (and pity help you if the computer's runnin' an NT program at the time and happens to play up on you)!

Thing is, they're taking all the FUN out of computing for many people. Where's the *challenge* of getting into the works of it and actually figuring how it functions? Then *modifying* that. It was hands-on experience under DOS, and it could be VERY satisfying.

But that's all changing, and the new stuff is taking a lot of the sheer enjoyment out of computing. I, for one, am not happy about that. Ah, well, maybe I'll just go and program a couple of batch files to make me feel a little better...

Those Once-A-Day Tasks

Want a bit of hands-on experience as mentioned in *Lindsay's Soapbox* above? No problem. May take you into some uncharted waters, but. You're game? Okay, let's give it a whirl.

The task is to produce a little program that will allow us to do some tasks just once a day, when we first start up. Like doing a virus check. Or backing up a few important files that may have changed since yesterday. Or the important task of checking hard-disk space left (see below), or that the system clock is still the right time.

The program we'll create checks to see if you've already booted up today. If not it will do the once-a-day tasks.

The program we'll create needs to check to see if you've already booted up today. If not it will do the once-a-day tasks.

The program itself is a tiny .COM file given in *Australian PC User* last year. It really is a beauty. Just follow the steps and believe me you're going to feel great when you've succeeded!

First we type up an ASCII (English) file called ALREADY.SCR and save it into our Utilities directory. It has to be in ASCII. It will take you a few minutes to do it, but is well worth the trouble.

```
N ALREADY.COM
E 0100 B4 2A CD 21 3B 16 37 01
E 0108 75 0B 3B 0E 39 01 75 05
E 0110 B8 01 4C CD 21 89 16 37
E 0118 01 89 0E 39 01 BA 3B 01
E 0120 33 C9 B4 3C CD 21 8B D8
E 0128 BA 00 01 B9 47 00 B4 40
E 0130 CD 21 B8 00 4C CD 21 00
E 0138 00 00 00 41 4C 52 45 41
E 0140 44 59 2E 43 4F 4D 00
RCX
0047
W
Q
```

Make sure you have everything correct, then exit to DOS to your Utilities directory, so you can use ALREADY.SCR to make our tiny .COM file.

You need the program DEBUG.EXE to be in your DOS directory so have a check for this, then type the following at the command line:

```
debug < already.scr
```

Make sure you face the arrow the right way. In a very short time you'll have a

new file called ALREADY.COM, 71 bytes in length. Type the word ALREADY to run the file and, provided you made no mistakes in your typing, ALREADY.COM is now initialised and ready for use!

What would you like to do just once a day? Run SCAN to do a check of your computer memory and root directory files, perhaps? Or maybe check hard-disk space remaining?

With many of us running out of space on our hard-drive, it really IS important to check space daily. Why? - because DOS does NOT effectively warn you about disk-full! If you've had it happen, you'll know that stupid things occur - but you can't figure out why (if it hasn't happened to you yet, you've been warned).

Our final task is to get into AUTOEXEC.BAT in the root of Drive C. It's also an ASCII file, and a very important one, so always make a backup before altering it. Copying it to a floppy-disk is a good way to go.

You could put the lines below at the very beginning of AUTOEXEC.BAT right after the ECHO OFF line. Much better would be straight after the line that starts with the word PATH. Here they are:

```
:Runs ALREADY.COM to do tasks once a day
already
if errorlevel 1 goto SKIP
scan dir c:
time
:SKIP
```

And that's it! The three lines I put there to do just once a day were, first, to run SCAN to do a virus check; then do a DIR of drive C to check how much space was left; then, finally, run TIME to check that the system clock is not too far out (to skip this, just tap Enter).

Hope it works for you and that you feel great when it's done!

'Bye till next time.

Have a fantastic Christmas!

-Lindsay K. Bates

Ph: (07) 808 9441 after 11am.

Tech Notes:

Dates, Time, Paths, Help, DOSKEY

Doug Rickard

How often have you seen someone using a PC and seen a date like 10/31/92 on the screen? The tenth day of the thirty first month? What it means of course is that their PC is still displaying dates in the default USA format of mm/dd/yy. However most of the world does not use this format.

Dates

The three most common date formats are:

1. dd/mm/yyyy
2. yyyy/mm/dd
3. mm/dd/yyyy

Form 2 is that recommended by the ISO because it will sort naturally. Page 395 of the "Microsoft MS-DOS V5 User's Guide and Reference" (hereafter referred to a the "MS-DOS Manual") gives a list of the date formats used by the various countries. As you will see, 15 countries are listed as using the dd/mm/yyyy format, 6 as using the preferred ISO format of yyyy/mm/dd, and only the USA is listed as using the mm/dd/yyyy format.

There is no legislation enforcing the use of a specific date format in Australia, however the dd/mm/yyyy is the most common, with the yyyy/mm/dd format gaining much acceptance in technical circles. Individual government bodies however do have certain accepted conventions, and in many cases the USA form of mm/dd/yyyy may not be accepted. In some cases the use of it on a legal document has even rendered the document invalid and non-binding!

MS-DOS has a facility for displaying the date in a number of different formats. Unfortunately not all system programs and utilities make use of this capability, but it is still worth while invoking the local date format if possible. This is done by means of the 'country' command in MS-DOS. The 'country' command accepts a numeric argument.

This numeric argument happens to be based on the international telephone dialling code for the country concerned. For example, the country code for the USA is 1, the country code for the UK is 44. Surprisingly enough, the telephone code for Australia, 61, is labelled as "International English". In other words, we just

about have the best of all worlds when it comes to internationalisation.

To select the International English date format for MS-DOS, the following line should be included in your 'CONFIG.SYS' file -

```
country=061,,c:\dos\country.sys
```

Time

MS-DOS keeps time in an internal clock. This clock is actually set to 'local time'. For the majority of applications this is perfectly satisfactory, but in some cases it is necessary to keep other forms of time as well.

A simple example might be a PC network that just happened to span two time zones, such as a small business based in Coolangatta and Tweed Heads. If they are using a common file server, just which time stamp should go on a file, NSW time or QLD time?

Unix solves this problem by having the internal system clock keep UTC time, and this is used for time stamping operations. However as most users want to see time displayed in their own local frame of reference, Unix just adds on the difference between UTC time and local time before displaying it. Unix keeps this time difference, or UTC offset, in an environment variable called TZ. TZ also includes the alphabetic string used to designate the local time zone, e.g. "EST".

To enable full portability of 'C' programs between Unix based systems and MS-DOS, it is necessary therefore to have MS-DOS keep some form of UTC based time. Because MS-DOS is too dumb to know about UTC, most 'C' implementations for MS-DOS have some way of overcoming this problem. Instead of keeping a UTC clock, and calculating local time from it by adding the UTC offset, Microsoft C does it by taking the local

time, and calculating UTC by subtracting the UTC offset (obtained from the TZ environment variable) from local time.

The two most common routines for getting UTC time and local time in 'C' are 'gmtime' and 'localtime'. The small program in FIG 1 should print out the correct UTC and local times.

However, if you have not set the environment variable TZ in your AUTOEXEC.BAT you will find that UTC time is shown as being 8 hours AHEAD of local time, instead of being 10 hours behind. This is because, if TZ is not defined, the routines will use a default value for TZ of "PST8PDT", a value used in the USA. In order for the 'gmtime' and 'localtime' functions to work correctly one should set the TZ environment variable in the AUTOEXEC.BAT file, e.g. for Queensland, -

```
set TZ=EST-10
```

Setting PC Clock

The PC clock maintains local date and time. These can be displayed by use of the 'date' and 'time' commands. The date and time can also be set using these commands by adding an argument, e.g. -

```
c:> time 13:36
```
or
```
c:> date 31/10/92
```

Note that the date must be given in the USA mm/dd/yy format, even if you have defined a country code!

Alternatively, a very accurate computer time is available from AOTC (Telecom). Telecom Research Labs in Melbourne maintain a set of atomic clocks. These are in fact part of the group of atomic clocks world wide which are averaged to determine UTC, so they are very accurate. From these, Telecom provides an ASCII based time service from equipment in Brisbane and Melbourne.

You can automatically set your PC clock to the AOTC clock if you have a 1200 baud modem by using my SETTIME.BAS program. This is described elsewhere in SigBits, and is available from the Brisbug Bulletin Board. This QBASIC program will set your PC's clock to the AOTC clock very accurately. Please read the comments in the program to see where you may have to change the code to correspond to the comm port to which your modem is connected, and also the telephone number if you are outside Brisbane. The whole sequence takes less than 10 seconds, so the cost is minimal, even with STD charges.

```
/* TESTTIME.C */
#include <stdio.h>
#include <time.h>
#include <stdlib.h>
#include <errno.h>
int main()
{
    struct tm *newtime;
    long ltime;
    unsigned long status;

    status = EXIT_SUCCESS;
    time(&ltime);
    newtime = gmtime(&ltime);
    printf(" UTC time is %s", asctime(newtime));
    newtime = localtime(&ltime);
    printf("Local time is %s", asctime(newtime));
    return status;
}
```

FIG 1 – TESTTIME.C example code

Path Names

MS-DOS directory search paths are set up using the 'path' command. However the maximum length for the 'path' command is 127 characters. In many cases this proves to be insufficient, particularly in a networked environment where one may have more than 10 disks to search.

The substitute command 'subst' allows one to associate a virtual drive letter with a complete path. This can shorten the length of a 'path' command considerably, e.g. -

```
echo Set up some alternate drives to
    shorten path.
c:\dos\subst z: c:\c600\binb
c:\dos\subst y: c:\c600\bin
c:\dos\subst x: c:\dos
c:\dos\subst w: c:\wp51
c:\dos\subst t: d:\temp
echo Define the search paths.
PATH=C:;x:;C:\TOOLS;w:;z:;y:;t:;C:\MASM;
    M:\DECNET;M:\PCAPP
```

Help

Under MS-DOS V5 Microsoft has made available a much improved on-line "Help" facility. The 'help' command invokes the C:\DOS\HELP.EXE program. It uses the file C:\DOS\DOSHELP.HLP as data. This is a formatted ASCII text file containing a limited one or two line help text on each of the available MS-DOS commands or utilities, and just typing the command 'help' will cause this file to be displayed on the screen.

If however one requires detailed help on a particular utility, then typing 'help' followed by the name of the utility will cause that utility to display its help. For example, typing -

```
C:> help append
```

will cause the 'append' utility to print out its help text just as if one had typed -

```
C:> append /?
```

There are several conditions required for this new "Help" system to work. Firstly the utility must have been written with internal help, and must display this in response to the "/?" switch. Secondly, an entry for the utility must exist in the C:\DOS\DOSHELP.HLP file. If an entry does exist, then 'HELP' can call the utility with a "/?" switch, causing the utility to display its help text.

Provided these conditions are satisfied, even user written utilities can be incorporated into the MS-DOS "Help" system. To do this, first ensure that the utility can display its help text in response to the "/?" switch. If so, then edit the file C:\DOS\DOSHELP.HLP. At the correct point in alphabetic sequence in the file, add the name of the utility and one (or at most two) lines of basic help in a similar fashion to the other entries. This should be just enough to describe what the utility does, and should not be overly detailed.

From then on, if the 'help' command is given, then the information on your utility will be displayed along with all the other utilities and commands. If help is invoked together with the name of your utility, then HELP.EXE will call your utility with the "/?" switch, causing it to display your detailed help message. In future, anyone writing any program intended to be run on an MS-DOS system should include the capability of the program displaying a help text in response to the "/?" switch.

Command Line Editing and Recall

A feature available under MS-DOS V5 but often not used is the ability to recall previous command lines, or edit the current command line. This can be particularly useful when one has typed in a very long command but mis-spelt just a single character.

Normally one would have to re-type the whole line again. However when using command line recall, by just typing an up-arrow one can recall the last command. Then one can correct just the one character in error and re-execute the command.

The command line recall and editing functionality is provided by the 'DOSKEY' utility. DOSKEY is capable of performing many other functions as well, e.g. macros for complex commands, etc., but it's greatest asset is the ability to perform command line recall and editing. The command line recall is done by DOSKEY maintaining a "history" of previously typed commands. This history is kept in a memory buffer, and the amount of memory allocated to the buffer will determine the number of commands that can be recalled. DOSKEY should be loaded into memory from AUTOEXEC.BAT, and the following command in AUTOEXEC.BAT will reserve 2048 bytes for history and macros -

```
load c:\dos\doskey /bufsize=2048
```

or if you can load into upper memory -

```
loadhigh c:\dos\doskey /bufsize=2048
```

Doug Rickard
Software Technologies Pty Ltd
Po Box 127 Coopers Plains Qld 4108

Learning QBASIC:

BIOSDATA.BAS

Dan Bridges

In this Christmas instalment of his series on QBASIC Dan presents quite a major program that really gets into the technical guts of the computer. It should give you something to chew on over the break when you've had enough of mince pies etc, and be highly instructional quite apart from the QBASIC programming aspect.

THIS month we'll work through a program to examine the contents of the BIOS Data Area (BDA - see "Learning Qbasic", SigBits, Oct 92). By the standards of this series the program is large (over 500 lines of code). But it is highly modularised and it is possible to build a much smaller "no-frills" version and then progressively add in more features. The program is also available in the new Brisbug BBS file area that contains code and some of the programs mentioned in SigBits. After working through this program, the reader who has been following the series should feel quite comfortable in the QBASIC environment.

Educational aims of this program are:

✱ Consolidate your comprehension of Words and Bytes.

✱ Provide many more examples of bit-level Boolean operations.

✱ Demonstrate how modularisation simplifies the handling of a complex program.

✱ Allow you to develop an understanding of keyboard concepts through experimentation.

✱ Touch on some other technical features of the PC.

✱ An example of the use of a multi-dimensional array to hold a large amount of data.

✱ Demonstrate some speedup techniques.

The Basic Concept

This program came about after I saw a simple BDA snooper program (Fig. 1) by Steve Halko (1:362/12) in the QuickBASIC echomail conference on 6 Aug 92. You should create this simple program now.

The program consists of 2 nested FOR NEXT loops. The inner loop changes the cursor position to columns 4, 8, 12, ... 64. The outer loops cycles through rows 5 to 25. This 16 by 16 positional matrix displays the 256 bytes of the BDA.

Line 9 uses a compact method of prepending a leading zero (when required) to form a two-character byte display. Say Byte$ is "7". The length of this string is 1, so line 9 becomes:

```
PRINT STRING$(1, "0"); "7";
```

The STRING$(Num, Char) function repeats Character the required Number of times. In the above example the line ends up printing "07". If Byte$ had been "B2", the length would be 2 and STRING$(0, "0") would generate no leading zero.

To get an good grasp of the workings of the nested loops press F7 repeatedly (Execute program to current cursor position) with the cursor on line 10 and press F4 (Show Screen) occasionally to see the

result. Do this until at least a few of the second row of characters are shown.

Now move the cursor to line 11 and perform the same actions.

Program Development

Interested by Steve's program I started to flesh it out. Because of the large amount of info being displayed the decision to colour coordinate sections of the screen was taken. While it will still run on a mono system (much of the development work was done on one) it requires a colour display to match the legend to bytes being shown. The colour coordination also applies to related functions. For example all keyboard info shares a red background colour.

As I worked with the program, more and more desirable features suggested themselves. I ended up with a program that was too slow. It took 218.5ms per main-loop iteration. (Unless indicated, all timings are taken in the QuickBASIC IDE. Execution in the QBASIC IDE takes about 50% longer. The compiled version was usually twice as fast as running in the QuickBASIC IDE.) This was just acceptable on my computer (386/25) but I was concerned that it would be far too slow on an AT or (horror of horrors) an XT.

```
1  DEFINT A-Z
2  CLS
3  DEF SEG = &H40    'BIOS Data Segment
4  DO
5      FOR i = 0 TO 15
6          FOR j = 0 TO 15
7              LOCATE i + 5, j * 4 + 4
8              Byte$ = HEX$(PEEK(j + i * 16))
9              PRINT STRING$(2 - LEN(Byte$), "0"); Byte$;
10         NEXT j
11     NEXT i
12 LOOP UNTIL INKEY$ = CHR$(27)    'Press ESC to quit
```

Fig. 1 -- The basis of the program

```
1   FOR Offset = 0 TO 29
2       BDAByte = PEEK(Offset)
3       IF BRCFB(Offset, 0) <> BDAByte THEN
4           BRCFB(Offset, 0) = BDAByte
5           Byte$ = HEX$(BRCFB(Offset, 0))
6           LOCATE BRCFB(Offset, 1), BRCFB(Offset, 2)
7           COLOR BRCFB(Offset, 3), BRCFB(Offset, 4)
8           PRINT STRING$(2 - LEN(Byte$), "0"); Byte$;
9       END IF
```
Fig. 2

The problem was that each BDA byte was being redisplayed every loop. The same problem applied with the fancy keyboard buffer display and decipherment features and the numerous other displays.

So I decided to work towards storing the contents of the BDA, the screen location of the displayed bytes, and the associated foreground & background colours in a 5-dimensional ("columns") array, with each dimension having 256 elements ("rows"), for a total storage of 1,280 elements. These elements are all integer variables (2 bytes) so 2,560 bytes of memory space is consumed.

The array is mnemonically titled BRCFB().

Dimension	Contents
0	a Byte from the BDA
1	its Row in the screen display
2	its Column in the display
3	its Foreground colour
4	its Background colour

The idea is, each loop iteration, to compare the current BDA byte value with the contents of dimension 0 of BRCFB() and only redisplay the byte if it has changed. (Also update that byte in the array.)

Fig. 2 (to process the first 30 bytes of the BDA) provides an example of the comparison/update/redisplay coding.

Line 2 gets the current value directly from the BDA. Line 3 compares this with the stored value. If they differ line 4 upgrades the array, line 5 converts this newly stored integer to a hexadecimal string, line 6 moves the cursor to the stored row and column locations for this byte, line 7 sets the correct colours and then line 8 prints out the new 2-character hex byte value.

The offset 30-62 section of the BDA is processed separately due to the requirement of indicating where the head and tail (explained later) of the keyboard buffer are currently situated. The offset 63-255 section is processed in a similar manner to the offset 0-29 section.

This speedup method dropped loop time to 89.2ms. Due to the complexity of displaying the new position of the keyboard buffer head/tails symbols on the screen (and removing the former symbols) each time a new keystroke was entered, the offset 30-62 section was just redisplayed each loop.

The next level of improvement occurred when I realised that many bytes in the BDA were "static" (did not change while the program was running) so only certain bytes needed rechecking. This technique brought the loop time down to 52.2ms.

A major campaign of performance enhancement was then commenced. Things like only updating the on-screen time when the seconds value changes, only reprocessing and only

redisplaying the keyboard buffer when a change in the "Head" byte is detectedchecks are now performed. (It is important to realise that redisplaying info is a relatively slow process.) These changes plummeted the loop time to 1.70ms (.88ms compiled) even though extra features (display of the keyboard status word's 16 bits and a loop timing module & display) had been added.

There are two methods of storing the previous values of changeable BDA bytes between subprogram calls. The first method uses the BRCFB() array. Fig. 3 shows code at the start of the FDMotorCountdown subprogram (concerned with the redisplay of the byte at offset 64).

Line 2 get the current FD timer ticks from the BDA. Line 3 checks this against the value stored in the array. If they are the same then further operations in the subprogram are aborted. If they are different then the array is updated and the display is updated.

The second method makes the subprogram static which causes it to maintain variable values between calls to it. Refer to Fig. 4. Line 2 peeks at the same byte as the previous subprogram but with different intent. It divides the ticks value by 18.2 (the

```
1   SUB FDMotorCountdown
2       CurrentFDTicks = PEEK(64)
3       IF CurrentFDTicks = BRCFB(64, 0) THEN EXIT SUB
4       BRCFB(64, 0) = CurrentFDTicks
5       ... Further actions
```
Fig 3.

approximate number of ticks per second) and then converts this to an integer since the Countdown variable takes on the main program's default data type (integer; set by "DEFINT A-Z"). This also rounds the ticks off. In the Immediate window try:

CLS: X% = 10/3 : ? X%

(Note that you can't issue "DEFINT A-Z" in the Immediate window.) Now substitute "20/3" in the above line.

Line 3 compares Countdown against the PreviousValue variable which is maintained between calls. Being an integer equivalent to seconds, this causes the redisplay of the Countdown variable only once per second.

Overall Operation

See Fig 5. for a sample screen display and then refer to Fig. 6.

The program commences by poking zeros into the keyboard buffer (line 503) and resetting the head (offset 26) and tail (offset 28) bytes to point to the start of the keyboard buffer (offset 30; lines 505-506).

A dual-line frame is then drawn. The Frame program is overly elaborate for this application. I've designed it as a general-purpose frame generator. I suggest you use the F7 and F8 keys to work through this subprogram.

```
1   SUB LegendFDMotorCountdown STATIC
2       Countdown = PEEK(64) / 18.2
3       IF Countdown = PreviousValue THEN EXIT SUB
4       PreviousValue = Countdown
5       .... Further actions
```
Fig. 4
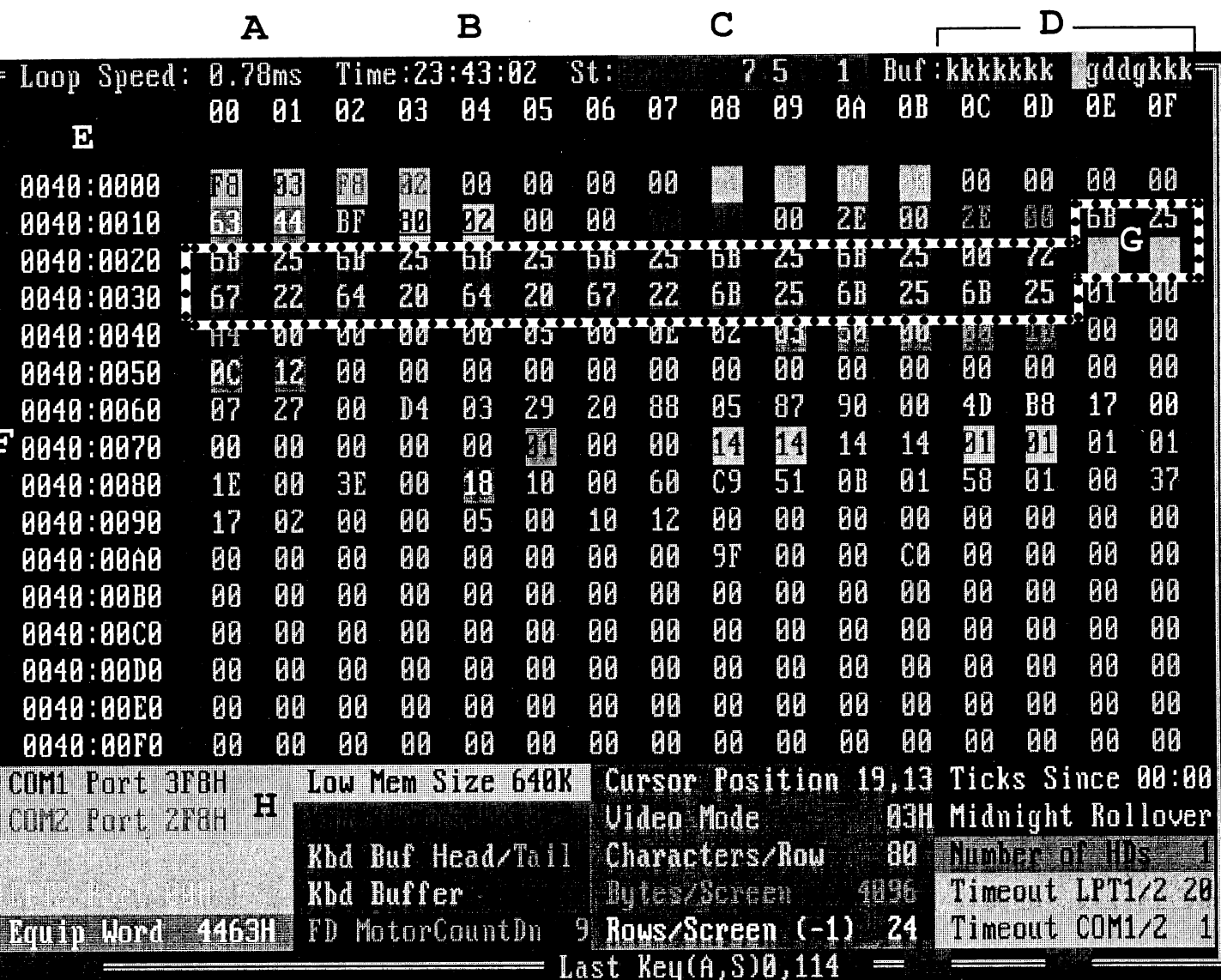
FIG-5 Sample screen display from BIOSDATA.BAS. Letters refer to notes panel.

Loop Speed: 0.78ms   Time:23:43:02   St: ? 5 1   Buf:kkkkkkk   gddgkkk

```
          00  01  02  03  04  05  06  07  08  09  0A  0B  0C  0D  0E  0F
0040:0000  F8  03  F8  ..  00  00  00  00  ..  ..  ..  ..  00  00  00  00
0040:0010  53  44  BF  30  32  00  00  ..  ..  00  2E  00  2E  00  6B  25
0040:0020  6B  25  6B  25  6B  25  6B  25  6B  25  6B  25  00  72  ..  ..
0040:0030  67  22  64  20  64  20  67  22  6B  25  6B  25  6B  25  01  00
0040:0040  ..  00  ..  00  ..  05  00  0C  02  ..  50  ..  ..  ..  00  00
0040:0050  0C  12  00  00  00  00  00  00  00  00  00  00  00  00  00  00
0040:0060  07  27  00  D4  03  29  20  88  05  87  90  00  4D  B8  17  00
0040:0070  00  00  00  00  00  31  00  00  14  14  14  14  31  31  01  01
0040:0080  1E  00  3E  00  18  10  00  60  C9  51  0B  01  58  01  00  37
0040:0090  17  02  00  00  05  00  10  12  00  00  00  00  00  00  00  00
0040:00A0  00  00  00  00  00  00  00  00  9F  00  00  C0  00  00  00  00
0040:00B0  00  00  00  00  00  00  00  00  00  00  00  00  00  00  00  00
0040:00C0  00  00  00  00  00  00  00  00  00  00  00  00  00  00  00  00
0040:00D0  00  00  00  00  00  00  00  00  00  00  00  00  00  00  00  00
0040:00E0  00  00  00  00  00  00  00  00  00  00  00  00  00  00  00  00
0040:00F0  00  00  00  00  00  00  00  00  00  00  00  00  00  00  00  00
```

COM1 Port 3F8H   Low Mem Size 640K   Cursor Position 19,13   Ticks Since 00:00
COM2 Port 2F8H   Video Mode   03H   Midnight Rollover
                 Kbd Buf Head/Tail   Characters/Row   80   Number of HDs   1
                 Kbd Buffer   Bytes/Screen   4096   Timeout LPT1/2 20
Equip Word 4463H FD MotorCountDn 9   Rows/Screen (-1)   24   Timeout COM1/2   1
                         Last Key(A,S)0,114

Notes on Fig. 5

A - *Self-adjusting main-loop timer* - TimingModule.

B - *Time from BDA ticks* - TicksToTime.

C - *16-bit representation of Keyboard Status Word.*
    If a bit is set it has a different colour - StatusWord2Binary.

D - *ASCII representation of keyboard buffer with current position of keyboard head and tail indicated by block(s)* - DecipherKbdBuffer, IsItHeadOrTail.

E - *Row and column headings* - Headings.

F - *Single or dual-line border* - Frame.

G - *Dynamically updated keyboard buffer section with head & tail block indicator(s)* - ClearKbdBuffer, ChangingKbdDataDisp, DispKbdBuffer, IsItHeadOrTail, UpdKbdBufferDisp.

H - *Colour-coordinated legend* - Legend, WordHex$, WordDec$, LeadingSpace$, LeadingZero$, Disp, LegendFDMotorCountdown.

J - *Shift keys deciphered from the Keyboard Status Word* - AnalyseStatusWord, RestoreFrame.

K - *ASCII and scan codes of last key pressed* - ASCIIandScanCodes.

L - *Toggle keys that are enabled* - AnalyseStatusWord, RestoreFrame.

The Legend subprogram is only called once so no special speedup techniques are needed. Inside this subprogram I've frequently used the Disp subprogram, invoking it using the short form of subprogram calling to save a little magazine space. The two forms are:

```
CALL SubProgram (Parm1, Parm2 ...)
```

or just

```
Subprogram Parm1, Parm2 ...
```

The call to the InitialArrayDisp subprogram is the only time (line 53) the full array is printed.

Operation then passes to ChangingDataDisp. It does not return from this subprogram until you terminate the main loop by pressing the Esc key (line 318). When you've finished experimenting and developing this program unrem line 56 so that the screen is cleared when you exit.

The BRCFB() array is shared (line 38) since many subprograms make use of its contents.

Bits and Pieces

Because the program is started in the IDE with the Shift-F5 keystroke, the keyboard status word (offset 23-24) will sometimes show that the L. Shift key (offset 23, bit 1) or the R. Shift key (offset 23, bit 0) was pressed. Even if the shift key is quickly released it can end up being stored in the BRCFB() array and will not be cleared until you later press a shift key.

Also, in the compiled version, the StatusWordToBinary subprogram will not display something until a change occurs. So you have to press a shift key to bring up the initial 16 bit display. To prevent these minor annoyances, bit manipulation techniques are used to set both the L. and R. shift key bits prior to filling the array and then remove them afterwards. The disparity between these two bits being set in the array and yet not set when they are checked later (lines 102-103) causes their cleared status to be recorded in the array (lines 104-105) and the screen display to be updated (lines 106-107).

Say we issue Shift-F5 using the L. Shift key. Say also that NumLock (bit 5) is on. The byte at offset 23 will be:

```
B7 B6 B5 B4 B3 B2 B1 B0
 0  0  1  0  0  0  1  0
```

In line 46 we POKE (write to) this byte with the result of ORing it with 3. ORing means that if either bit is high then the resultant bit will be high. Here is the value that is poked back:

```
OR operation
 B7  B6 B5 B4 B3 B2 B1 B0
128  64 32 16  8  4  2  1
  0   0  1  0  0  0  1  0
  0   0  0  0  0  0  1  1
---------------------------
  0   0  1  0  0  0  1  1
```

This is the value that is initially stored in the array. In line 49 we then ensure that this byte still has both B1 and B0 set high. (I'm not sure why but sometimes one of these bits had changed.) Then line 50 uses XOR to clear these two bits. XOR (Exclusive OR) works by setting the output high if either input bit is high, but not if both of them are high (unlike OR).

```
XOR operation
 B7  B6 B5 B4 B3 B2 B1 B0
128  64 32 16  8  4  2  1
  0   0  1  0  0  0  1  1
  0   0  0  0  0  0  1  1
---------------------------
  0   0  1  0  0  0  0  0
```

Now only the NumLock bit is set.

An more elegent method is to rem lines 49-50 and unrem line 51. This can be expressed as "POKE Offset, PEEK (Offset) AND (255 - Number to reset)". ANDing works by only having the output bit high when both inputs are high. ANDing a byte with 255 would always result in the original number since 255 is the decimal equivalent of having all 8 bits high. Here we are ANDing with 255 - 3 (every bit high except those equivalent to 3). First off, let's look as 255 - 2, bit-wise:

```
XOR operation
 B7  B6 B5 B4 B3 B2 B1 B0
128  64 32 16  8  4  2  1
  1   1  1  1  1  1  1  1   255
  0   0  0  0  0  0  1  1   3
---------------------------  --
  1   1  1  1  1  1  0  0   252
```

Above you can see that subtraction is equivalent to XORing. In the Immediate window try:

```
CLS: ? 252 XOR 3
```

Now we'll perform the AND:

```
AND operation
 B7  B6 B5 B4 B3 B2 B1 B0
128  64 32 16  8  4  2  1
  0   0  1  0  0  0  1  1
  1   1  1  1  1  1  0  0
---------------------------
  0   0  1  0  0  0  0  0
```

Again only the NumLock bit remains set.

Inside ChangingDataDisp

Line 303 kicks off the timing loop. Once the DO LOOP (lines 304-318) is commenced subsequent restarts of the timing loop are performed by a reset value of Start! (line 2809) being returned in the TimingModule's parameter list (line 315).

Initially Loops& is set to 500 (line 302). This will give an initial ball-park timing figure on a fast machine and won't take too long the first time on a slow machine. Once 500 main loops are executed the TimingModule is invoked and the Start! value is passed. Elapsed! should always be positive. If it isn't, it indicates that TIMER (the number of seconds since midnight) has passed through 00:00:00 during a timing loop so 86,400s (24 * 3600) is added to make Elapsed! positive (lines 2804-2805).

Say the 500 loops took 2s to run. Line 2807 prints out "4.00ms". Line 2808 then adjusts Loops& so that it will take about 12s on this machine before the TimingModule is again run. Line 2808 becomes:

500 / 2 * 12 = 3000 loops next time.

12s is selected to provide about 1% repeatability when faced with the timer tick's granularity of 55ms. Shorter time periods would produce loop timing figures that varied more. Longer time intervals would prejudice responsiveness. A fixed number of loops would either vary widely on a fast machine or would take too long on a slow machine.

Loops& is a long integer because, when I tried the compiled design on the 486/33 and 486/50 machines at work the Loop integer variable overflowed i.e. more than 32,767 loops occurred in 12 secs. You can use the timing loop figure to compare relative CPU/Memory performance of machines. You could also adopt a Ptolemic perspective and compare another machine's performance against with your own (by adding in a further divisor equal to your machine's typical loop-time). An appropriate performance figure might be the SRUM (Self-Relevant Unit of Measure) with your machine measuring 1.00 SRUMs.

TicksToTime

First off: this subprogram is needlessly complex. After checking whether the seconds had changed since the last invocation (lines 2705-2709) a new time display could be produced with just:

```
T$ = TIME$ CALL Disp(1, 29, 14, 0, T$)
```

However, I've used the raw BDA ticks because I think it is more educational. Note also that TIME$ produces a leading zero for a single-digit hour, whereas this subprogram is designed to produce a leading space.

The PC's timer oscillator operates at 1.19318 MHz. This is divided by 64K by the expedient of feeding the 1.19318 MHz

signal into a 16-bit decrementing counter (2^16 = 64K). So once every 64K times the counter reaches zero and then restarts counting down from the top again. 1.9318 M / 64K = 18.20648 times/sec. This is the tick - the PC's basic time unit.

Line 2707 extracts only the seconds component. Say SecSinceMidnight& is currently 4010.75. MOD 60 will divide this by 60 and return only the remainder as a rounded integer. In the Immediate window try:

```
CLS: ? 4010.75 MOD 60
```

The numbers in this subprogram end up as strings because these can be precisely formatted. When a positive number is converted to a string it has a leading space (to allow for a negative sign) so these are removed with LTRIM$.

In the Immediate window, to get hours from our example, type:

```
CLS: ? 4010.75 \ 3600
```

Integer division ("\") is used here because we are only interested in the number of whole times 3600 can be divided into 4010.75.

To get minutes use:

```
CLS: ? 4010.75 MOD 3600
'rounded whole seconds since last hour
? (4010.75 MOD 3600) \ 60
' whole mins in this
```

MidnightRollover

To see this occur temporarily unrem line 40. This may be BIOS dependent but on my machine the rollover byte remains set high for 2 seconds, but I've also seen it, on the same machine, remain set for 7 seconds after midnight. I believe with some BIOSes this bit is set but not reset so a continually running machine does not get its date updated at midnight.

AnalyseStatusWord

This subprogram presents an extended example of bit-level ANDing. A SELECT CASE structure is not be suitable as more than one key's bit can be set high at the same time. The start of the subprogram checks whether the status word has changed since the time the subprogram was last invoked. If it has then it sets the colour to Black on Red. It then goes and either prints out an appropriate key status message at the bottom or restores the underlying frame if the key has been released. To simplify the design this is done at all nine IF sections so many sections of the frame are needlessly redrawn. However key status transitions occur so infrequently it is clearly not worth the effort to make the design more sophisticated.

Say NumLock and CapsLocks are on. ANDing will output a high bit only when both input bits are high. The NumLock bit is B5 on the low byte (offset 23) of the status word (bytes 23-24). CapsLock is B6. To check if the NumLock bit is set, it is ANDed with 32 (2^5):

```
AND operation
B7 B6 B5 B4 B3 B2 B1 B0
128 64 32 16  8  4  2  1
  0  1  1  0  0  0  0  0    NumLock & CapsLocks On.
  0  0  1  0  0  0  0  0  Decimal 32 (2^5).
----------------------
  0  0  1  0  0  0  0  0    The result of the AND is 32.
```

Since this is "true" (not zero) line 162 is executed.

StatusWord2Binary

To assist comprehension this program shows the status of individual bits in the status word. To check this subprogram out run it in the Immediate window (most subprograms can be run this way):

```
CLS: StatusWord2Binary(24650)
```

In the EquipWord2Binary subprogram I've used powers-of-2 to generate Num& rather than the progressive division of 64K by 2 as I've done here. The division method is slightly quicker but I included both methods for variety.

Fig. 7 shows how to decode the status word.

EquipWord2Binary

This is a "hidden" subprogram. Due to lack of screen space it is not invoked. The information it displays is not that useful. To invoke it unrem line 2206 and rem out line 108.

Fig. 8 shows its bit values.

One use would be to detect a mono system:

```
DEF SEG = &H40
CASE SELECT PEEK(16)
CASE 48
  PRINT ''Mono''
CASE 32
  PRINT ''Color''
CASE Else
  PRINT ''Forget it''
END SELECT
```

ASCIIandScanCodes

The keyboard buffer stores keystrokes until a program requests them. It is usually 32 bytes in length and is situated at offsets 30-61. Before the buffer there are two words: the Head word (offsets 26-27); the Tail word (offsets 28-29). Usually you can safely ignore the high bits and just consider the bytes at offsets 26 and 28.

The keyboard produces a Scan code when a key is pressed (expect if the Alt, Ctrl or Shift key is pressed by itself). This is converted to a ASCII code by the ROM BIOS and both the ASCII code and the Scan code is stored as 2 separate bytes in the buffer.

Dec Offset 24	Bit 24	Meaning When Set
128	F	Ins pressed
64	E	CapsLock pressed
32	D	NumLock pressed
16	C	ScrollLock pressed
8	B	Hold State active (can't be tested in BASIC)
4	A	SysRd pressed
2	9	L. Alt pressed
1	8	L. Ctrl pressed
Offset 23		
128	7	Ins On
64	6	CapsLock On
32	5	NumLock On
16	4	ScrollLock On
8	3	Alt pressed
4	2	Ctrl Pressed
2	1	L. Shift pressed
1	0	R. Shift pressed

Fig 7. The meaning of the bits in the Keyboard Status word.

The buffer can be thought of as a ring with a movable "head" pointing to where the next 2 bytes will be stored and a "tail" pointing to where the next unused 2 bytes of data are stored. If all the keystrokes have been used the tail will coincide with the head.

Examples (ASCII/Scan in decimal):

```
      A - 65/30
      a - 97/30
Alt-A -  0/30
Ctrl-A - 1/30
```

As you can see, the scan code is the same for these keystrokes. Alt-A produces an ASCII code of Null - ASCII 0.

Ctrl-A produces the dark smiley face - ASCII 1.

```
      B - 66/48
      b - 98/48
Alt-B -  0/48
Ctrl-B 2/48
```

Notice how upper and lower case is separated by 32. This is used in some programming languages to convert case. In the Immediate window try:

```
'Convert to lower case
CLS
? CHR$(ASC(''A'') OR 32)
? CHR$(ASC(''a'') OR 32)
'Switch case
? CHR$(ASC(''A'') XOR 32)
? CHR$(ASC(''a'') XOR 32)
'Convert to upper case
? CHR$((ASC(''A'') OR 32) XOR 32)
? CHR$((ASC(''a'') OR 32) XOR 32)
```

BASIC already has UCASE$ and LCASE$ but it's handy knowledge to have.

Notice how ALT-B still has the same ASCII code as ALT-A while CTRL-B's ASCII code differs from Ctrl-A.

```
    F1 - 0/59
Shift-F1 - 0/84
  Alt-F1 - 0/94
 Ctrl-F1 - 0/104
```

You can see that function keys don't return ASCII codes. There are many interesting things to discover about the keyboard. To assist you the ASCIIandScode subprogram was added. Since the head points to the next position in the buffer to store new keystrokes you have to look 2 bytes before this to see the previous keystroke's ASCII and scan codes. So line 202 subtracts 2 from the present location of the head. A problem occurs here: what if the head is at the start of the buffer area (offset 30)? Minus 2 more bytes will miss the keyboard buffer. To overcome this line 205 redirects an offset 28 positioning back to offset 60. (Remember it's a ring.)

There are a few string funnies performed between lines 208-210 to close up spaces and then roughly centralise the ASCII/Scancode string.

ChangingKbdDataDisp

We now move on to the most complex section of the program. Without modularisation, this program would have been a GOSUB mariner's nightmare. With it, it's just a large collection of subprograms (any of which, when considered in isolation, appears relatively straightforward).

```
Dec  Bit   Meaning When Set
Offset 17
  128   F   Number of Printers installed (bits F,E)
   64   E   Number of Printers installed
   32   D   (Reserved)
   16   C   Game Adapter installed
    8   B   Number of RS-232 serial ports (bits B,A,9)
    4   A   Number of RS-232 serial ports
    2   9   Number of RS-232 serial ports
    1   8   (Reserved)

Offset 16
  128   7   No. of FDDs installed (bits 7,6)
   64   6   00=1, 01=2, 10=3, 11=4
   32   5   Initial video mode (bits 5,4)
   16   4   01=C040, 10=C080, 11=Mono, 00=None of these
    8   3   Amount of system board RAM (bits 3,2)
    4   2   Amount of RAM (Obsolete - Ignore)
    2   1   Math Coprocessor installed
    1   0   At least 1 FFD is installed
```

Fig 8. The meaning of the bits in the Equipment word.

If the head position has changed tis indicates that a keystroke has been entered so lines 403-406 are executed.

HeadAndTailOffsets

The HeadAndTailOffsets subprogram is very straightforward. It peeks into the BDA, stores the new head and tail info in the BRCFB() array and redisplays the new hex byte strings in offsets 26-29 (head and tail position info area).

DispKbdBuffer

This does a two-step around the buffer area. his is done because we need to consider the keystrokes as ASCII/Scancode pairs of bytes. Lines 904-905 updates the array then line 906 calls the UpdateKbdBufferDisp subprogram.

UpdateKbdBufferDisp

Based on the results of a quick trip to the IsItHeadOrTail subprogram, this program either:

Prints out 2 coloured blocks chars, 2 spaces, 2 coloured blocks (if this byte (and thus its associated scan code byte) is a HeadByte);

Prints out a similar sequence as above but with different colours (if it's a TailByte);

Prints out the offset's keystroke and its associated scan code in the default keyboard buffer color scheme (if it's a normal keystroke).

IsItHeadOrTail

If the BDA byte at the offset supplied in this subprogram's parameter list comes up trumps in the Head or Tail department the HeadByte and/or TailByte flag is set and returned by the same route.

DecipherKbdBuffer

This is invoked from the ChangingKbdDataDisp subprogram. Whereas the UpdateKbdBufferDisp is concerned with maintaining the Keyboard buffer's bytes in the main BDA 16 * 16 matrix display this subprogram displays a 16 byte strip at the top right that shows the ASCII equivalent keystrokes along with head and tail position indicators.

Operation is similar to `UpdateKbdBufferDisp` except only 1 character and no separating spaces are shown. Since the actual ASCII characters are being shown steps have to be taken to prevent the display of the screen disruptive characters Carriage Return (ASCII 13) and Backspace (ASCII 9). If they are present lines 616-617 translate their on-screen representation to the ''.'' character.

Other Items of Interest

Although there was not sufficient screen space to label everything in the BDA there are some other sections that should be mentioned. There are bytes to hold the location of the LPT 3/4 (offset 4-7) and COM 3/4 (offset 12-15) ports and their timeouts (offset 122-123 and 126-127).

The current cursor location is shown in the legend. This applies to video page 0 and Column info is stored at offset 80 and Row info at offset 81. The current position (Row 19, Col 13) comes about because the last characters printed, before the `FillArray` subprogram was called, were the heading characters ''0040:00F0'' and the cursor was just passed this string (with no Carriage Return due to the presence of '';'' at the end of the PRINT statement in line 1708).

To see how the positioning number scheme is referenced from 0 and to verfify the column is the first byte with the row coming second, unrem lines 45.

There is space for up to another 7 video pages' cursor positions with the info stored in offsets 82-95.

Most of the other data in the BDA is too technical for coverage here. The last 16 bytes (0040:00F0-FF) of this area has a special use. It's known as the Intra-Application Communications Area. The idea is that different parts of a program could share information by writing to and reading from this area. One of the few programs that does use it is the timing part of Norton Command Centre in the Norton Utilities (also its predecessor - TIMEMARK - in earlier NUs). This program can remember up to 4 different start times and they're stored here. This is why NCC can act as a stopwatch without remaining memory resident. If you have NCC, issue ''NCC /START:2'' and then check out the contents of 0040:00F4-F7.

Conclusion

This month we've seen how a complicated program is formed out of the combination of a number of relatively simple subprograms. The modular programmer's motto is ''Divide and Conquer''.

Next time we'll look at alternate video pages and creating pop-up windows.

❑

NOTE!
In all the listings the line numbers have been added to aid referencing in the text descriptions. They are not part of the code like in GW-Basic and must not be typed in.

FIG-6: BIOSDATA.BAS Full code listing

```
1  'BIOSDATA.BAS - Displays and deciphers the contents of the
2  'BIOS Data Area (BDA) situated from 0040:00 to 0040:FF.
3  DEFINT A-Z
4  DECLARE FUNCTION LeadingSpace$ (Strin$)
5  DECLARE FUNCTION LeadingZero$ (Byte$)
6  DECLARE FUNCTION WordHex$ (LowByteOffset%)
7  DECLARE FUNCTION WordDec$ (LowByteOffset%)
8  DECLARE SUB AnalyseStatusWord ()
9  DECLARE SUB ASCIIandScanCodes ()
10 DECLARE SUB ChangingDataDisp ()
11 DECLARE SUB ChangingKbdDataDisp ()
12 DECLARE SUB ClearKbdBuffer ()
13 DECLARE SUB DecipherKbdBuffer ()
14 DECLARE SUB Disp (Row%, Col%, FgCol%, BgCol%, Strin$)
15 DECLARE SUB Disp2 (Offset%)
16 DECLARE SUB DispKbdBuffer ()
17 DECLARE SUB DispRCFB (Offset%)
18 DECLARE SUB DispTicksWord ()
19 DECLARE SUB FDMotorCountdown ()
20 DECLARE SUB EquipmentWord2Binary ()
21 DECLARE SUB FillArray ()
22 DECLARE SUB Frame (CharType%,StartRow%,StartCol%,EndRow%,EndCol%)
23 DECLARE SUB Headings ()
24 DECLARE SUB HeadAndTailOffsets ()
25 DECLARE SUB InitialArrayDisp ()
26 DECLARE SUB IsItHeadOrTail (Offset%, HeadByte%, TailByte%)
27 DECLARE SUB Legend ()
28 DECLARE SUB LegendFDMotorCountdown ()
29 DECLARE SUB MidnightRollOver ()
30 DECLARE SUB RestoreFrame (NumberOfChars%)
31 DECLARE SUB StatusWord2Binary (StatusWord&)
32 DECLARE SUB TicksToTime ()
33 DECLARE SUB TimingModule (Loops&, Start!)
34 DECLARE SUB UpdateKbdBufferDisp (Offset%)

35 DEF SEG = &H40              'BIOS Data Segment
36 CONST False = 0, True = NOT False
37 CONST FrameStyle = 2
38 DIM SHARED BRCFB(0 TO 255, 0 TO 4)
39 CLS
40 'TIME$ = "23:59:50"
41 COLOR 7, 0
42 CALL ClearKbdBuffer
43 CALL Frame(FrameStyle, 1, 1, 25, 80)
44 CALL Headings
45 'LOCATE 3, 9
46 POKE 23, PEEK(23) OR 3    'The key status word now shows
47 'that both the L. and R. Shift keys have been pressed.
48 CALL FillArray
49 POKE 23, PEEK(23) OR 3         'Sets and then clears
50 POKE 23, PEEK(23) XOR 3        'both shift keys.
51 'POKE 23, PEEK(23) AND 252     'Alternative clearer.
52 CALL Legend
53 CALL InitialArrayDisp
54 CALL ChangingDataDisp
55 COLOR 7, 0
56 'CLS

57 'Specific color combinations. In threes: Offset, FgCol, BgCol.
58 'Used by the FillArray subprogram.
59 DATA 0, 8, 7, 1, 8, 7, 2, 9, 7, 3, 9, 7
60 DATA 8, 10, 1, 9, 10, 1, 10, 11, 1, 11, 11, 1
61 DATA 16, 15, 2, 17, 15, 2, 19, 0, 3, 20, 0, 3
62 DATA 23, 0, 4, 24, 0, 4, 26, 1, 4, 27, 1, 4
63 DATA 28, 2, 4, 29, 2, 4, 64, 6, 0, 73, 7, 5
64 DATA 74, 1, 5, 75, 1, 5, 76, 2, 5, 77, 2, 5
65 DATA 80, 11, 5, 81, 11, 5, 112, 11, 0, 117, 0, 6
66 DATA 120, 4, 1, 121, 4, 1, 124, 4, 7, 125, 4, 7
67 DATA 132, 15, 5

100 SUB AnalyseStatusWord
101 'Shows which Ctrl, Alt, Shift, NumLock etc.keys are pressed/toggled.
102    StatusWord& = PEEK(24) * 256& + PEEK(23)
103    IF StatusWord& = BRCFB(24, 0) * 256& + BRCFB(23, 0) THEN EXIT SUB
104    BRCFB(23, 0) = PEEK(23)
105    BRCFB(24, 0) = PEEK(24)
106    DispRCFB (23): PRINT LeadingZero$(HEX$(BRCFB(23, 0)));
107    DispRCFB (24): PRINT LeadingZero$(HEX$(BRCFB(24, 0)));
108    CALL StatusWord2Binary(StatusWord&)
109    COLOR 0, 4

110    LOCATE 25, 10
111    IF BRCFB(23, 0) AND 1 THEN
```

```
112        PRINT "R.Shift";
113    ELSE
114        CALL RestoreFrame(7)
115    END IF

116    LOCATE 25, 2
117    IF BRCFB(23, 0) AND 2 THEN
118        PRINT "L.Shift";
119    ELSE
120        CALL RestoreFrame(7)
121    END IF

122    LOCATE 25, 18
123    IF BRCFB(23, 0) AND 4 THEN
124        IF BRCFB(24, 0) AND 1 THEN
125            PRINT "L.Ctrl";
126        ELSE
127            PRINT "R.Ctrl";
128        END IF
129    ELSE
130        CALL RestoreFrame(6)
131    END IF

132    LOCATE 25, 25
133    IF BRCFB(23, 0) AND 8 THEN
134        IF BRCFB(24, 0) AND 2 THEN
135            PRINT "L.Alt";
136        ELSE
137            PRINT "R.Alt";
138        END IF
139    ELSE
140        CALL RestoreFrame(5)
141    END IF

142    LOCATE 25, 31
143    IF BRCFB(24, 0) AND 4 THEN
144        PRINT "SysRq";
145    ELSE
146        CALL RestoreFrame(5)
147    END IF

148    LOCATE 25, 60
149    IF BRCFB(23, 0) AND 128 THEN
150        PRINT "Ins";
151    ELSE
152        CALL RestoreFrame(3)
153    END IF

154    LOCATE 25, 64
155    IF BRCFB(23, 0) AND 64 THEN
156        PRINT "Caps";
157    ELSE
158        CALL RestoreFrame(4)
159    END IF

160    LOCATE 25, 69
161    IF BRCFB(23, 0) AND 32 THEN
162        PRINT "Num";
163    ELSE
164        CALL RestoreFrame(3)
165    END IF

166    LOCATE 25, 73
167    IF BRCFB(23, 0) AND 16 THEN
168        PRINT "Scroll";
169    ELSE
170        CALL RestoreFrame(6)
171    END IF
172 END SUB

200 SUB ASCIIandScanCodes STATIC
201    'Shows the ASCII and Scan Codes of the last key pressed.
202    Offset = BRCFB(26, 0) - 2
203    IF Offset = PreviousOffset THEN EXIT SUB
204    PreviousOffset = Offset
205    IF Offset = 28 THEN Offset = 60
206    ASCII = BRCFB(Offset, 0)
207    Scan = BRCFB(Offset + 1, 0)
208    Combined$ = LTRIM$(STR$(ASCII)) + "," + LTRIM$(STR$(Scan))
209    IF LEN(Combined$) < 6 THEN Combined$ = Combined$ + " "
210    Combined$ = STRING$(6 - LEN(Combined$), " ") + Combined$
211    CALL Disp(25, 51, 3, 4, Combined$)
212    COLOR 7, 0: PRINT " ";
213 END SUB
```

```
300 SUB ChangingDataDisp
301    'Runs subprograms that involve changing the screen display.
302    Loops&=500
303    Start! = TIMER
304    DO
305        Count& = Count& + 1
306        CALL ChangingKbdDataDisp
307        CALL FDMotorCountdown
308        CALL LegendFDMotorCountdown
309        CALL DispTicksWord
310        CALL TicksToTime
311        CALL AnalyseStatusWord
312        CALL MidnightRollOver
313        CALL ASCIIandScanCodes
314        IF Count& = Loops& THEN
315            CALL TimingModule(Loops&, Start!)
316            Count& = 0
317        END IF
318    LOOP UNTIL INKEY$ = CHR$(27)    'Press ESC to quit
319 END SUB

400 SUB ChangingKbdDataDisp STATIC
401    CurrentHeadPos = PEEK(26)
402    IF HeadPos = CurrentHeadPos THEN EXIT SUB
403    HeadPos = CurrentHeadPos
404    CALL HeadAndTailOffsets
405    CALL DispKbdBuffer
406    CALL DecipherKbdBuffer
407 END SUB

500 SUB ClearKbdBuffer
501    'Ensures the keyboard buffer is empty when the program starts.
502    FOR Offset = 30 TO 61
503        POKE Offset, 0
504    NEXT Offset
505    POKE 26, 30
506    POKE 28, 30
507 END SUB

600 SUB DecipherKbdBuffer STATIC
601    'Shows the keystrokes in the buffer as ASCII. Also
602    'shows the position of the head (and tail, if it does
603    'not coincide with the head) of the keyboard buffer.
604    LOCATE 1, 63
605    FOR Offset = 30 TO 60 STEP 2
606        COLOR 3, 4
607        KeyStroke$ = CHR$(PEEK(Offset))
608        CALL IsItHeadOrTail(Offset, HeadByte, TailByte)
609        IF HeadByte THEN
610            COLOR 1, 4
611            PRINT CHR$(219);
612        ELSEIF TailByte THEN
613            COLOR 2, 4
614            PRINT CHR$(219);
615        ELSE
616            IF KeyStroke$ = CHR$(9) OR KeyStroke$ = CHR$(13) THEN
617                PRINT ".";
618            ELSE
619                PRINT KeyStroke$;
620            END IF
621        END IF
622    NEXT Offset
623 END SUB

700 SUB Disp (Row, Col, FgCol, BgCol, Strin$)
701    'Prints out a string in the specified location and colour.
702    LOCATE Row, Col: COLOR FgCol, BgCol: PRINT Strin$;
703 END SUB

800 SUB Disp2 (Offset)
801    'Prints out, in hex format, a byte stored in the BRCFB array.
802    CALL DispRCFB(Offset)
803    Byte$ = HEX$(BRCFB(Offset, 0))
804    PRINT LeadingZero$(Byte$);
805 END SUB

900 SUB DispKbdBuffer STATIC
901    'Displays the contents, in hex format, of the keyboard buffer.
902    'Also shows the position of the keyboard head and tail.
903    FOR Offset = 30 TO 60 STEP 2
904        BRCFB(Offset, 0) = PEEK(Offset)
905        BRCFB(Offset + 1, 0) = PEEK(Offset + 1)
906        CALL UpdateKbdBufferDisp(Offset)
907    NEXT Offset
908 END SUB
```

```
1000   SUB DispRCFB (Offset)
1001     'Sets colour and location to values stored in the array.
1002     LOCATE BRCFB(Offset, 1), BRCFB(Offset, 2)
1003     COLOR BRCFB(Offset, 3), BRCFB(Offset, 4)
1004   END SUB

1100   SUB DispTicksWord
1101     'Displays timer ticks in hex format.
1102     FOR Offset = 108 TO 110
1103       TimerTicks = PEEK(Offset)
1104       IF BRCFB(Offset, 0) = TimerTicks THEN EXIT FOR
1105       BRCFB(Offset, 0) = TimerTicks
1106       CALL Disp2(Offset)
1107     NEXT Offset
1108   END SUB

1200   SUB EquipWord2Binary
1201     'Converts the Equipment word to 16 bits.
1202     EquipWord& = PEEK(17) * 256& + PEEK(16)
1203     LOCATE 1, 42
1204     FOR Bit = 15 TO 0 STEP -1
1205       Num& = 2 ^ Bit
1206       IF EquipWord& AND Num& THEN
1207         COLOR 15, 2
1208       ELSE
1209         COLOR 0, 2
1210       END IF
1211       PRINT LTRIM$(HEX$(Bit));
1212     NEXT Bit
1213   END SUB

1300   SUB FDMotorCountdown
1301     'Displays the FD motor-stop ticks in hex format.
1302     CurrentFDTicks = PEEK(64)
1303     IF CurrentFDTicks = BRCFB(64, 0) THEN EXIT SUB
1304     BRCFB(64, 0) = CurrentFDTicks
1305     CALL Disp2(64)
1306   END SUB

1400   SUB FillArray
1401     'Initially fills up the BRCFB array with data from the BDA,
1402     'location info corresponding to screen location and default
1403     'colours. It then stores specific colours for some elements.
1404     'LOCATE 20, 11
1405     FOR Row = 0 TO 15
1406       FOR Col = 0 TO 15
1407         Offset = Row * 16 + Col
1408         BRCFB(Offset, 0) = PEEK(Offset)
1409         BRCFB(Offset, 1) = Row + 4
1410         BRCFB(Offset, 2) = Col * 4 + 16
1411         BRCFB(Offset, 3) = 7      'Default colours
1412         BRCFB(Offset, 4) = 0      'are White on Black.
1413       NEXT Col
1414     NEXT Row

1415     'Specific colour combinations
1416     FOR ReadColour = 1 TO 33    'Read in data.
1417       READ Offset, FgCol, BgCol
1418       BRCFB(Offset, 3) = FgCol
1419       BRCFB(Offset, 4) = BgCol
1420     NEXT ReadColour

1421     FOR Offset = 30 TO 61     'Keyboard Buffer Area.
1422       BRCFB(Offset, 3) = 3: BRCFB(Offset, 4) = 4
1423     NEXT Offset

1424     FOR Offset = 108 TO 111   'Timer ticks 4 bytes.
1425       BRCFB(Offset, 3) = 14: BRCFB(Offset, 4) = 0
1426     NEXT Offset
1427   END SUB

1500   SUB Frame (CharType, StartRow, StartCol, EndRow, EndCol)
1501     'Draws a single or double-line frame on the screen.
1502     SELECT CASE CharType
1503     CASE 1
1504       HorzLine = 196
1505       VertLine$ = CHR$(179)
1506       TLCnr$ = CHR$(218)
1507       TRCnr$ = CHR$(191)
1508       BLCnr$ = CHR$(192)
1509       BRCnr$ = CHR$(217)
1510     CASE 2
1511       HorzLine = 205
1512       VertLine$ = CHR$(186)
1513       TLCnr$ = CHR$(201)
```

```
1514       TRCnr$ = CHR$(187)
1515       BLCnr$ = CHR$(200)
1516       BRCnr$ = CHR$(188)
1517     END SELECT
1518     LOCATE StartRow, StartCol + 1: PRINT STRING$(EndCol - StartCol -
           1, HorzLine);
1519     LOCATE EndRow, StartCol + 1: PRINT STRING$(EndCol - StartCol - 1,
           HorzLine);
1520     FOR Row = StartRow + 1 TO EndRow - 1
1521       LOCATE Row, StartCol: PRINT VertLine$;
1522       LOCATE Row, EndCol: PRINT VertLine$;
1523     NEXT Row
1524     LOCATE StartRow, StartCol: PRINT TLCnr$;
1525     LOCATE StartRow, EndCol: PRINT TRCnr$;
1526     LOCATE EndRow, StartCol: PRINT BLCnr$;
1527     LOCATE EndRow, EndCol: PRINT BRCnr$;
1528   END SUB

1600   SUB HeadAndTailOffsets
1601     'Stores and displays, in hex format, the
1602     'keyboard buffer head and tail bytes.
1603     FOR Offset = 26 TO 29
1604       BRCFB(Offset, 0) = PEEK(Offset)
1605       CALL Disp2(Offset)
1606     NEXT Offset
1607   END SUB

1700   SUB Headings
1701     'Displays Row and Colomn labels.
1702     LOCATE 2, 16: COLOR 15, 0
1703     FOR Column = 0 TO 15
1704       PRINT USING "0!  "; HEX$(Column);
1705     NEXT Column
1706     FOR Row = 0 TO 15
1707       LOCATE Row + 4, 4
1708       PRINT USING "0040:00!0"; HEX$(Row);
1709     NEXT Row
1710   END SUB

1800   SUB InitialArrayDisp
1801     'Provides the initial display of BDA data.
1802     FOR Offset = 0 TO 255
1803       CALL Disp2(Offset)
1804     NEXT Offset
1805   END SUB

1900   SUB IsItHeadOrTail (Offset, HeadByte, TailByte)
1901     'Determines whether a byte in the keyboard
1902     'buffer is in the head or tail position.
1903     HeadByte = False
1904     TailByte = False
1905     Head = PEEK(26)
1906     Tail = PEEK(28)
1907     IF Tail = Offset THEN TailByte = True
1908     IF Head = Offset THEN HeadByte = True
1909   END SUB

2000   FUNCTION LeadingSpace$ (Strin$)
2001     'Adds a space on the left if a string is
2002     'only character in length.
2003     LeadingSpace$ = STRING$(2 - LEN(Strin$), " ") + Strin$
2004   END FUNCTION

2100   FUNCTION LeadingZero$ (Byte$)
2101     'Adds an extra zero, if required, to a hex byte display.
2102     LeadingZero$ = STRING$(2 - LEN(Byte$), "0") + Byte$
2103   END FUNCTION

2200   SUB Legend
2201     'Displays labels and some values (those that don't change).
2202     'The short form of subprogram invocation is used to save space.
2203     Disp 1, 3, 7, 0, " Loop Speed:"
2204     Disp 1, 23, 7, 0, " Time:"
2205     Disp 1, 38, 7, 0, " St:"
2206     'Disp 1, 38, 7, 0, " Eq:": CALL EquipWord2Binary
2207     Disp 1, 58, 7, 0, " Buf:"
2208     Disp 20, 2, 8, 7, " COM1 Port ": PRINT WordHex$(0); "     ";
2209     Disp 21, 2, 9, 7, " COM2 Port ": PRINT WordHex$(2); "     ";
2210     Disp 22, 2, 10, 1, " LPT1 Port ": PRINT WordHex$(8); "     ";
2211     Disp 23, 2, 11, 1, " LPT2 Port ": PRINT WordHex$(10); "     ";
2212     Disp 24, 2, 15, 2, " Equip Word ": PRINT WordHex$(16); "     ";
2213     Disp 20, 21, 0, 3, " Low Mem Size": PRINT WordDec$(19); "K ";
2214     Disp 21, 21, 0, 4, " Kbd Status Word    "
2215     Disp 22, 21, 1, 4, " Kbd Buf Head"
2216     COLOR 7, 4: PRINT "/";
2217     COLOR 2, 4: PRINT "Tail ";
```

```
2218    Disp 23, 21, 3, 4, " Kbd Buffer        "
2219    Disp 24, 21, 6, 0, " FD MotorCountDn "
2220    Disp 21, 40, 7, 5, " Video Mode      "
2221    PRINT LeadingZero$(HEX$(PEEK(73))); "H";
2222    Disp 20, 40, 11, 5, " Cursor Position "
2223    PRINT LeadingSpace$(LTRIM$(STR$(BRCFB(81, 0) + 1))); ".";
2224    PRINT LeadingSpace$(LTRIM$(STR$(BRCFB(80, 0) + 1)));
2225    Disp 22, 40, 1, 5, " Characters/Row   ": PRINT WordDec$(74); " "
2226    Disp 23, 40, 2, 5, " Bytes/Screen     ": PRINT WordDec$(76); " ";
2227    Disp 24, 40, 15, 5, " Rows/Screen (-1) "
2228    PRINT STR$(PEEK(132)); " ";
2229    Disp 21, 62, 11, 0, " Midnight Rollover"
2230    Disp 22, 62, 0, 6, " Number of HDs  ": PRINT STR$(PEEK(117));
2231    Disp 20, 62, 14, 0, " Ticks Since 00:00"
2232    Disp 23, 62, 4, 1, " Timeout LPT1/2 "
2233    PRINT LeadingSpace$(LTRIM$(STR$(PEEK(120))));
2234    Disp 24, 62, 4, 7, " Timeout COM1/2 "
2235    PRINT LeadingSpace$(LTRIM$(STR$(PEEK(124))));
2236    Disp 25, 37, 7, 0, " Last Key(A,S)"
2237 END SUB

2300 SUB LegendFDMotorCountdown STATIC
2301    'Shows the FD motor-stop countdown in seconds.
2302    Countdown = PEEK(64) / 18.2
2303    IF Countdown = PreviousValue THEN EXIT SUB
2304    PreviousValue = Countdown
2305    Countdown$ = LeadingSpace$(LTRIM$(STR$(Countdown)))
2306    CALL Disp(24, 38, 6, 0, Countdown$)
2307 END SUB

2400 SUB MidnightRollOver
2401    'Alters the byte displayed at offset 112 if
2402    'the program runs past midnight.
2403    RollOver = PEEK(112)
2404    IF RollOver = BRCFB(112, 0) THEN EXIT SUB
2405    BRCFB(112, 0) = RollOver
2406    CALL Disp2(112)
2407 END SUB

2500 SUB RestoreFrame (NumberOfChars)
2501    'Redisplays the frame when a status key is released.
2502    COLOR 7, 0
2503    IF FrameStyle = 1 THEN
2504       PRINT STRING$(NumberOfChars, 196);
2505    ELSE
2506       PRINT STRING$(NumberOfChars, 205);
2507    END IF
2508    COLOR 0, 4
2509 END SUB

2600 SUB StatusWord2Binary (StatusWord&)
2601    'Converts the keyboard status word to 16 bits.
2602    LOCATE 1, 42
2603    Num& = 65536
2604    FOR Bit = 15 TO 0 STEP -1
2605       Num& = Num& / 2
2606       IF StatusWord& AND Num& THEN
2607          COLOR 7, 4
2608       ELSE
2609          COLOR 0, 4
2610       END IF
2611       PRINT LTRIM$(HEX$(Bit));
2612    NEXT Bit
2613 END SUB

2700 SUB TicksToTime STATIC
2701    'Ticks since midnight is stored in a DoubleWord (4 bytes).
2702    'But only 3 bytes is needed to span the number of ticks in 24hrs.
2703    'Therefore ticks since midnight = SecondHighestByte * 2^16
2704    '+ ThirdHighestByte * 2^8 + LowestByte.
2705    TicksSinceMidnight& = PEEK(110) * 65536 + PEEK(109) * 256& +
         PEEK(108)
2706    SecsSinceMidnight& = TicksSinceMidnight& / 18.20648
2707    Secs = SecsSinceMidnight& MOD 60
2708    IF Secs = PreviousSecs THEN EXIT SUB
2709    PreviousSecs = Secs
2710    Secs$ = LTRIM$(STR$(Secs))
2711    Hours$ = LTRIM$(STR$(SecsSinceMidnight& \ 3600))
2712    Mins$ = LTRIM$(STR$((SecsSinceMidnight& MOD 3600) \ 60))
2713    Hours$ = LeadingSpace$(Hours$)
2714    Mins$ = LeadingZero$(Mins$)
2715    Secs$ = LeadingZero$(Secs$)
2716    TimeString$ = Hours$ + ":" + Mins$ + ":" + Secs$ + " "
2717    CALL Disp(1, 29, 14, 0, TimeString$)
2718 END SUB

2800 SUB TimingModule (Loops&, Start!)
2801    'This loop timer self-adjusts so it will calculate a
2802    'new loop time every 12 secs, regards of the machine's
2803    'speed. It also survives a midnight rollover.
2804    Elapsed! = TIMER - Start!
2805    IF Elapsed! <= 0 THEN Elapsed! = Elapsed! + 86400
2806    LOCATE 1, 15: COLOR 7, 0
2807    PRINT USING "##.##ms "; Elapsed! * 1000 / Loops&;
2808    Loops& = Loops& / Elapsed! * 12
2809    Start! = TIMER
2810 END SUB

2900 SUB UpdateKbdBufferDisp (Offset)
2901    'Updates the display of two key buffer bytes in hex format:
2902    'Offset (a keystroke's ASCII code);
2903    'Offset + 1 (a keystroke's scan code).
2904    'If byte is a head or tail then it's shown as a coloured block.
2905    CALL IsItHeadOrTail(Offset, HeadByte, TailByte)
2906    IF HeadByte THEN
2907       LOCATE BRCFB(Offset, 1), BRCFB(Offset, 2)
2908       COLOR BRCFB(26, 3), BRCFB(26, 4)
2909       PRINT CHR$(219); CHR$(219);
2910       COLOR 7, 0: PRINT " ";
2911       COLOR BRCFB(26, 3), BRCFB(26, 4)
2912       PRINT CHR$(219); CHR$(219);
2913    ELSEIF TailByte THEN
2914       LOCATE BRCFB(Offset, 1), BRCFB(Offset, 2)
2915       COLOR BRCFB(28, 3), BRCFB(28, 4)
2916       PRINT CHR$(219); CHR$(219);
2917       COLOR 7, 0: PRINT " ";
2918       COLOR BRCFB(28, 3), BRCFB(28, 4)
2919       PRINT CHR$(219); CHR$(219);
2920    ELSE
2921       CALL Disp2(Offset)
2922       CALL Disp2(Offset + 1)
2923    END IF
2924 END SUB

3000 FUNCTION WordDec$ (LowByteOffset)
3001    'Converts a word (2 bytes) to a string of its decimal value.
3002    HighByteOffset = LowByteOffset + 1
3003    WordDec$ = STR$(PEEK(HighByteOffset) * 256 + PEEK(LowByteOffset))
3004 END FUNCTION

3100 FUNCTION WordHex$ (LowByteOffset)
3101    'Converts a word to a string of its hex value.
3102    WordHex$ = HEX$(PEEK(LowByteOffset + 1)) +
              HEX$(PEEK(LowByteOffset)) + "H"
3103 END FUNCTION
```
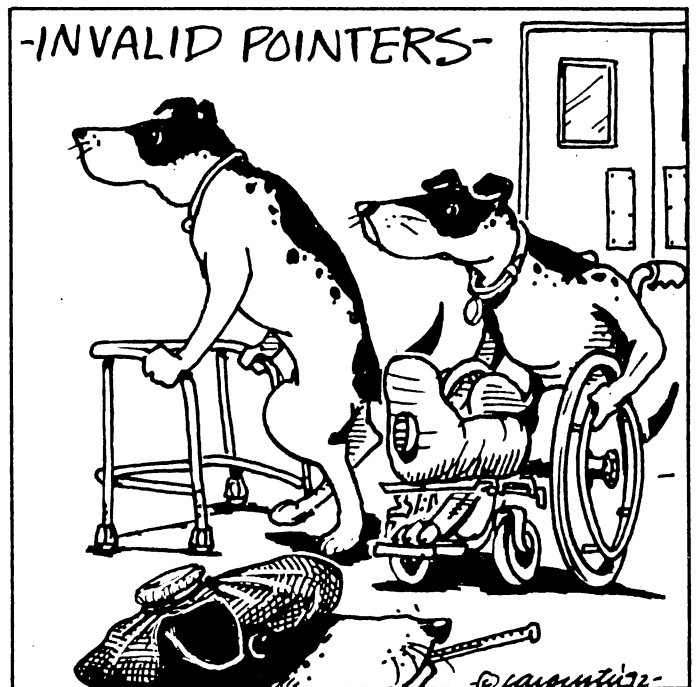
(End of listing)

-INVALID POINTERS-

■ WINDOWS TECH JOURNAL

Easy-to-learn -v- Quick-to-use

Geoff Harrod

A look at user interface or command systems over the years, how well they accommodate both new and expert users, and how the current Windows style of interface might be improved.

THERE is no doubt that the popular "point-&-pick" style of program operation is very easy to learn to use. So much so that any new program that doesn't use pull-down menus, pop-up dialog boxes and have mouse support, is unlikely to become popular.

The fully graphical style of interface as in Windows and the Macintosh extends the system even further. It might well be true to say that it is a more pleasant and friendly style of operation than the older styles. However, I think it is also true that the "point-&-pick" method imposes an upper limit on speed of operation. It is much faster to get working effectively with a new program, but once you have become thoroughly used to it, its interface mechanisms can themselves limit how fast you can operate the program.

The designers of Windows obviously realised this, and provided the "speed keys" facility so that expert users could bypass the menu mechanism. However, most users never notice them and continue to rely entirely on the menu system. They also mostly need two hands and don't cover all needs anyway.

Command driven systems

In the old days, computers were always controlled by typing command words at a prompt, and most still are, like DOS, Unix and VMS. The prompt gives no indication of what are valid options at that point. They are invariably cryptic, such as C> $ * or # (It's interesting how often computer makers like to use the $ sign for things!) Sometimes you could type HELP or ? and read some screens of explanation, and then get back to the prompt to type your command.

Older programs on all systems used the "type command at a prompt" command system also. Often the commands were single letters or two letter codes instead of words. That was to save typing and to be faster, but then you not only had to remember the command repertoire but a cryptic one at that. Once you had learned such a system it was very fast to use, but it took a lot of learning. One advantage of a command-driven system over a menu-driven system is that if there is a very large repertoire of commands and options it can often be faster to type the command (assuming you know it) than to wade through a sequence of nested menus. AutoCad is like that, but provides either option.

Text editors or word processors have always been a bit different to other programs in that there is a need to distinguish between the entering of text and the entering of commands. The crudest form were the "line editors" where you typed cryptic one-letter commands at a prompt and entered text after using commands like "i" for "insert" or "a" for "append". You never saw the whole body of text intact as you worked.
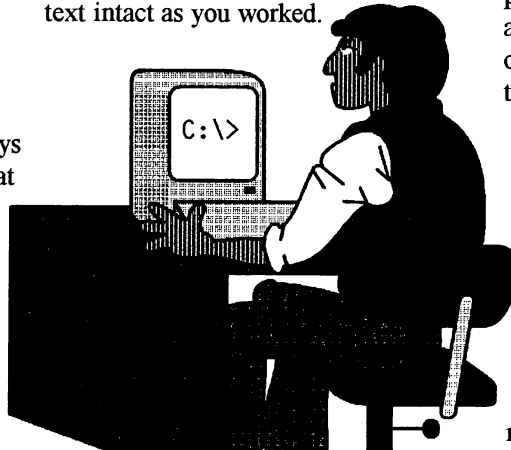
"Well go on dum-dum, don't just sit there. Tell me what to do!"

The universally despised EDLIN is a survivor of that era. It's called "user-hostile"!

Mainframes

That was the only possible method that would work on the old teletype terminals, where the display cursor could not be moved around, since they used a typewriter and paper instead of a TV screen. If you have ever operated a computer from a teletype terminal you will know why Unix and such systems have generally cryptic commands and messages. They had to keep them short to reduce typing, to reduce the time taken to print messages that you had usually seen a hundred times before -- and to conserve paper and minimise the noise! New text or command entry was always on the bottom line and the display just kept scrolling up. Mainframes mostly still rely on that style of operation even though they are now running on TV-tube terminals -- the programs have never been changed since teletype days.

Those mainframe systems that have implemented menu driven operation generally use the simplest form of menu -- a list of options, numbered, and the user types the wanted number. The problem is that outside the arena of PCs, Macs or specific Workstations, keyboards are not standardised.

One rather good menu system is that used by DEC on their "All-in-One" program control system under the VMS operating system. It displays full screen menus with the choices identified by short abbreviation words rather than numbers. The advantage is that none of the words repeat in other menus, so experienced users can type a sequence of menu choice words without waiting for each
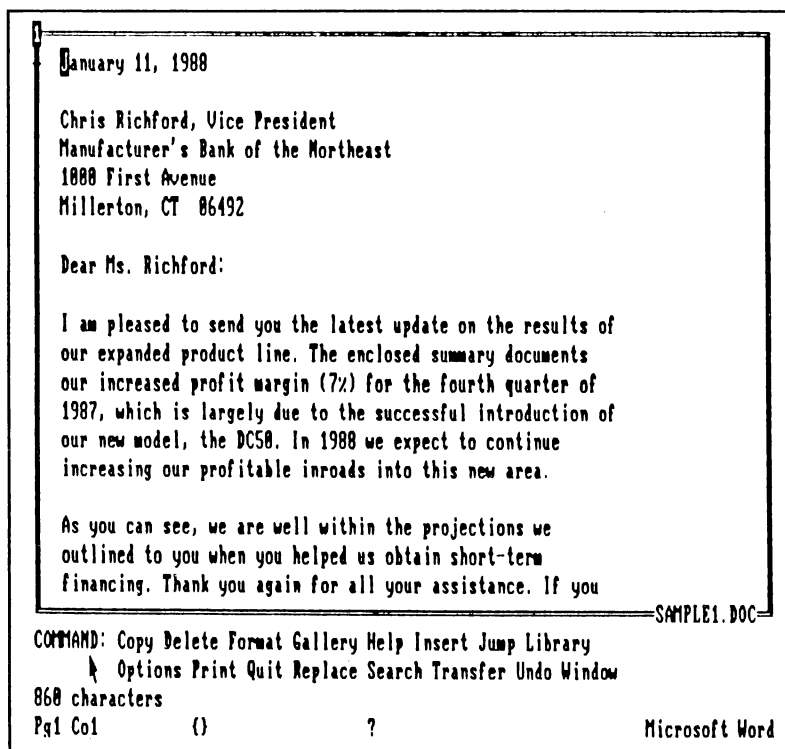
menu to get written on the screen. The system will respond to the commands and skip writing the menus. (The screen writing can be rather slow on a serial terminal or with an excessive number of users logged on.) This suits both new users and regular users and is quite an advance on the more common mainframe operations. Full marks, DEC!

Text editors

The next stage in text processors after the teletype-style "line editors" was the "dual mode" full-screen editors. These use full screen editing like we take for granted now, but all commands as distinct from entering text are done in a "command mode" introduced by some special key, after which you type command words that don't get entered as text. XY-Write was one of those, and is still very popular with journalists, although it has developed quite a lot since its original form. The classic instance is the famous (or infamous) Unix editor VI, which has an amazing muddle of command techniques, part control-key and part "command mode", and extremely lacking in logic -- very powerful but confusing.

The next generation of text editors, led by the famous WordStar, relied on a welter of cryptic control-key combinations -- that is, hold down the Ctl key while pressing two letter keys. WordStar introduced a continuously visible help panel which changed depending on the current context. It took up a fair proportion of the screen but certainly made operation easier. WordStar was actually very innovative in that the help display was "context-sensitive" and could be set to three levels -- (1) Full help permanently fully visible; (2) No first-key list shown but menus pop up if the operator fails to enter the second stage of a command quickly; (3) No help is shown unless requested. That way, regular users could have more of the screen available for text and didn't suffer the delays inevitably associated with redisplaying menus on the slow screens common on CP/M systems. The now deprecated "illogical" keys used by WordStar were devised to suit the prevailing keyboards that had no standardised function keys or arrow keys, and the keys did actually have some locational logic rather than keyface related logic.

The next major development was from Microsoft in their series of programs for the then new MS-DOS machines that

```
┌─════════════════════════════════════════════════════════┐
│ ▐anuary 11, 1988                                          │
│                                                           │
│ Chris Richford, Vice President                            │
│ Manufacturer's Bank of the Northeast                      │
│ 1888 First Avenue                                         │
│ Millerton, CT 86492                                       │
│                                                           │
│ Dear Ms. Richford:                                        │
│                                                           │
│ I am pleased to send you the latest update on the results of │
│ our expanded product line. The enclosed summary documents │
│ our increased profit margin (7%) for the fourth quarter of │
│ 1987, which is largely due to the successful introduction of │
│ our new model, the DC50. In 1988 we expect to continue    │
│ increasing our profitable inroads into this new area.     │
│                                                           │
│ As you can see, we are well within the projections we     │
│ outlined to you when you helped us obtain short-term      │
│ financing. Thank you again for all your assistance. If you │
│ └───────────────────────────────────════════════SAMPLE1.DOC═│
COMMAND: Copy Delete Format Gallery Help Insert Jump Library
         ▶ Options Print Quit Replace Search Transfer Undo Window
868 characters
Pg1 Col        {}              ?                    Microsoft Word
```

Microsoft WORD for DOS editing screen and command menu

were initially not standardised on keyboard layout. That system was used on Word, Multiplan, Graph and others. It survives to this day in the DOS version of Word, and is a very efficient system, even if not very elegant. It relies on the principle of introducing all commands with the ESCape key followed by however many letters are needed, each being the initial letter of a command or option. The menu area shows the full set of options and changes instantly as each letter is pressed. It is excellent for speed typists as apart from the lead-in ESC key, all command is from the main letter keys without any shifts, which is very fast for a touch typist.

In contrast, the system adopted by WordPerfect, that relies on function keys with shifts, ctl, and alt is an abomination in comparison with both the old WordStar and the Microsoft style in my view. You not only have to remember what all those forty numbered key combinations do (or interrupt your thought by looking at an awkward keyboard template), they are outside the touch typing keyboard area and thirty of them require two fingers. Even then, they are usually just the lead-in to other (rather crude) menus, some of them one-liners at the bottom of the screen, some of them full-screen. It amazes me such a system has become so widely patronised. More recently, WordPerfect grafted a pull-down menu system onto the original system, and, although it only serves as an alternative entry to the same

menu systems, it does at least avoid having to remember all those function key combinations and grope for them with two hands.

Lotus-123

The program that did more than any other to make the IBM-PC the success that it became, was Lotus-123. Not only did it perform its spreadsheet job better than its predecessors, it did it with a much faster response because of its direct screen writing, and it was that screen writing that made it work only on the IBM. It was so much better that everyone wanted the only MS-DOS machine that Lotus would run on, and it spelt the death of all the other MS-DOS machines; DEC, Ollivetti, NEC, Sperry, etc.

As well as the fast display, Lotus introduced a very simple, fast and effective command system, similar in many ways to the Microsoft one, but neater. This menu system even used a normal key to enter the menus, the slash, so was very good for touch typists. Even now, although the Lotus menu system is often considered worn out, I still think it is faster to use than the new graphic pulldowns. Its two-line design was originally to minimise screen rewriting to give instant response even on the old XT.

The Lotus menus could be operated, like the Microsoft ones, either by moving the highlight with the arrow keys and pick-

ing the wanted option with Enter, or by pressing the initial letter of each displayed option. The latter was much faster, especially if the user already knew the sequence. It provided three levels of speed versus ease: The slowest and easiest for new users -- move and select -- also showed a one-line preview of the next set of options for the currently highlighted one, or an explanation of its action. The next fastest was also for those who weren't sure what to do next -- read the options and press the letter. That didn't give the extra one-line help. The fastest, for those who knew the sequence, was to go and type the succession of option letters without waiting to see them appear. So it was a very effective system that adapted to different levels of user without having to select what level to use. Full marks in my book!

Text-based pull-downs

A later variant is the non-graphic pull-down menus such as are used in many shareware systems like Q-EDIT, and several Lotus work-alikes. Here you press a key (often ESC) to display the menu bar or transfer the cursor to it, then you can either move and pick or press the initial letters, like in Lotus. Most often the moving and picking is also only by arrow keys and Enter, but some support mouse ac-

```
A12:                                          MENU
Worksheet Range Copy Move FILE Print Graph Data System Add-In Quit
Retrieve Save Combine Xtract Erase List Import Directory Admin
         A         B         C         D         E      F      G      H
1  BUDGET EXPENDITURE BY YEAR AND MONTH
2  ANNUAL INCOME          30000
3  ==========================================================
4  CATEGORY            PERCENTAGE      ANNUAL   MONTHLY
5  ==========================================================
6  HOUSING                 0.3           9000     750
7  FOOD                    0.2           6000     500
8  TRANSPORTATION          0.1           3000     250
9  CLOTHING                0.1           3000     250
10 ENTERTAINMENT           0.3           9000     750
11 ==========================================================
12
```

The LOTUS-123 menu system. The second line shows a preview of the selections available for the highlighted item.

tuation also. The system is a bit more visually attractive than the original Lotus one-line menu but usually (not always) lacks the second line help. It makes more demand on the computer speed for saving the image under each pop-up -- remember Lotus was designed for 4.7Mhz Xts.

GUI pull-downs

The modern pull-down menu systems are certainly very easy and obvious to use, and visually attractive, but the need to continually save the image that they blot out and restore it after demands a fast machine for decent action. The original Macs showed that problem very clearly,

and anyone who has tried to run Windows on a slow machine knows all about it too. It's very annoying when a pull-down disappears leaving an empty patch that takes a while to get refilled with its original image.

Apart from the cosmetic difference between the graphic or text-based pull-downs and the Lotus-style two-line menus, the graphic-based ones run mainly with mouse operation. You can move a mouse around quite rapidly but it is still not as quick to pick a series of nested pull-down options as it was to type the succession of single letters for the Lotus menus. You didn't actually have to wait for the menus to become visible. The Windows menu system has its "Speed Keys", but they require a second finger to press Alt, and usually not all options have keys. The other factor is, a proper typist has two hands poised on the keyboard, and, despite what Apple might have wished, they are usually kept busy entering data by pressing letter and number keys. Having to manipulate a mouse and its buttons must perforce borrow one of the typing hands and so interrupts the flow of work.

There is some dispute about the two ways of implementing mouse operation with pull-downs. The Mac's "drag-down-&-let-go" method may be slightly faster than the usual Windows "pick, pop-down, pick" method.

I started writing this on Norton Desktop editor in Windows, just to practice with it. Having to grab the mouse frequently to do things like select text to move or copy, and to reform a paragraph is much less convenient

```
L 1      C 1    1A    462k    c:\data\articles\easy.txt

  File   Window   Block   Search   Print   Macro   Editing   Other   Quit

                mark Line
A look at user in  mark cHaracter   systems over the years, how
well they accommo  mark Kolumn      xpert users, and how the current
Windows style int  Copy block       roved.
                   Move block
There is no doubt  Delete            popular style of "point-&-pick"
program operation  Unmark            arn to use. So much so that any
new program that   mark Begin        wn menus, pop-up dialog boxes and
have mouse suppor  mark End          ecome popular.

The fully graphical style of interface as in Windows and the Macintosh
extends the system even further. It might well be true to say that it
is a more pleasant and friendly style of operation than the older
styles. However, I think it is also true that the "point-&-pick"
method imposes an upper limit on speed of operation. It is much faster
to get working effectively with a new program, but once you have
become thoroughly used to it, its interface mechanisms can themselves
limit how fast you can operate the program.

The designers of Windows obviously realised this, and provided the
"speed keys" facility so that expert users could bypass the menu
```

Q-EDIT's text-based pull-down menu system. It can be used like Lotus by arrow keys or by pressing the letters shown capitalised.
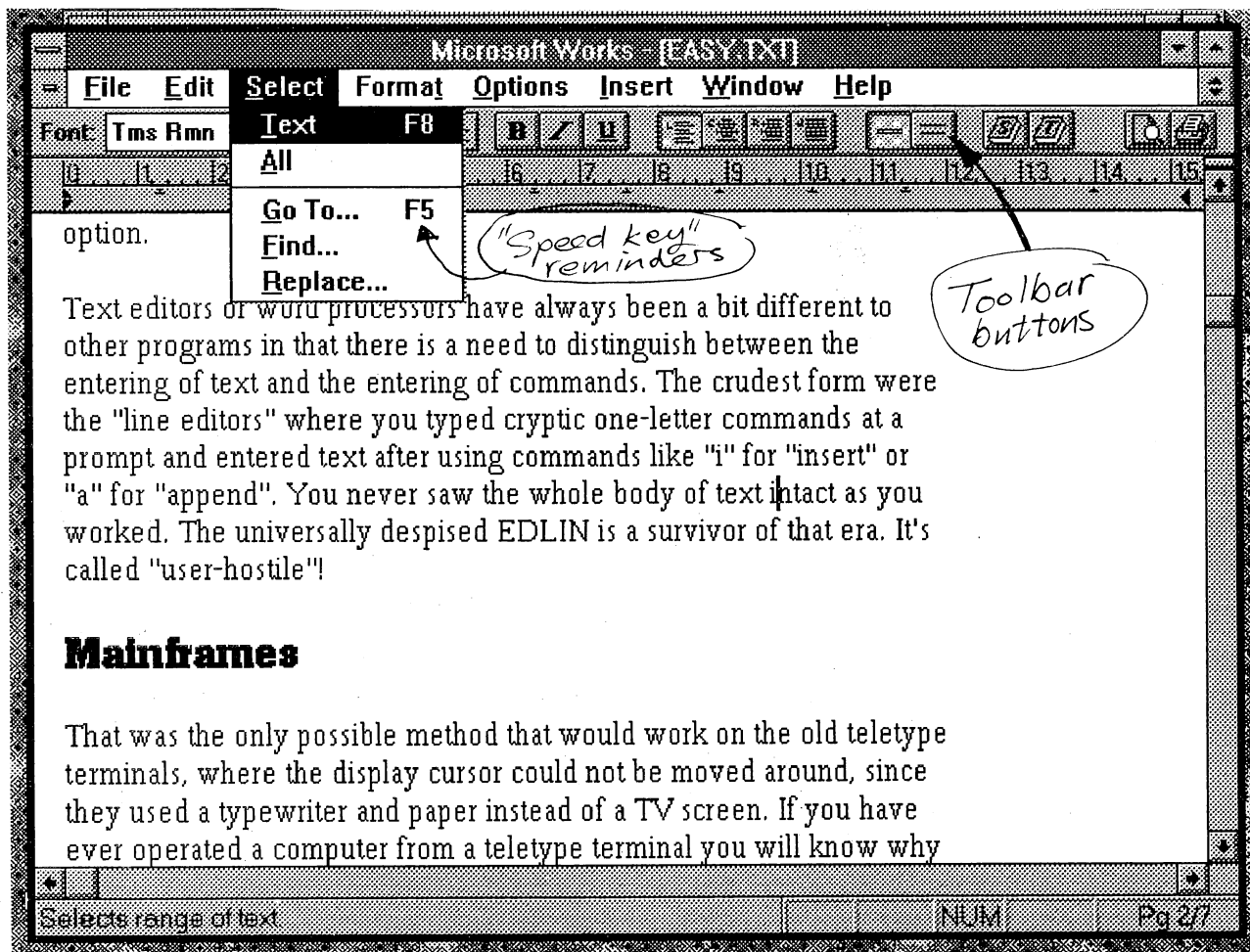
A typical Windows screen (Microsoft WORKS) with Pull-down menus and toolbar buttons.

than in Q-Edt on DOS, where the text-based pull-downs can be used like Lotus menus by the ESC,letter,letter action. I soon reverted to using Q-Edit.

The biggest enefit of the Mac and Windows systems is that all programs on those systems generally use the same command system and stick to the same conventions for common facilities like selecting files, so you don't need to learn and remember a different system for each program. Its just a pity they don't have a speed option as good as the old Lotus system.

Mouse use

For some applications, like drawing programs and desktop publishing of course a mouse is virtually the only useful way. In DTP there is so much positioning and option selecting to do that having to switch between typing and pointing is not such an issue. It was originally DTP and graphics that got most people into Windows. Although it is probably true that Excel has done almost as much for Windows as Lotus did for the PC. Excel offered so much extra over Lotus in quality of end result, and its capacity for data volume.

Lotus achieved its speed advantage over its predecessors by working only on data in memory, which on the 640k maximum XT was a limitation. The need for larger data capacity in Lotus was the prime driving force behind the development of EMS Expanded memory for the XT. Excel had the benefit of Windows' virtual memory system (disk overflow) and the XMS extended memory that is taken for granted with Windows.

There has been much derogatory comment about the supposedly "half-baked" Windows adaptation of the new Lotus, but I think it might really be a worthy attempt to merge the conventional Windows command methods with the speed of the traditional Lotus system. I'm not sure how well it actually works, as I haven't used it, but I think the speed user's needs is one area that should receive further attention in Windows and Mac development. The recent addition of user programmable "Tool Bar" buttons in many Windows programs is a step in the right direction, but they still require a mouse action which is an interruption in typing. And if taken to excess they become a jumble of buttons with not very obvious markings.

What new methods?

Maybe the future trend is toward voice operated speed commands, so that the hands can stay on the keyboard? That would probably be better than having a trackball set in your chair! Maybe a foot-operated "jumbo" mouse? I tried a brainwave operated pointer once. It was like a tennis headband, plugged into the computer. You used thought power to move the pointer! It did work, but was a bit like Zen -- it only worked when you stopped trying too hard. Not good for headaches either! Another possibility might be a screen pointer wand attached to your head. Any other brilliant, crazy or serious suggestions?

Of course the other option is not to use the keyboard to tie up the hands. We already have pen-based computers where you write instead of typing. It is considered the coming "big thing". We shall just have to wait and see, but I think the present Windows system still deserves some speed command additions.

❏

Set your PC's time from an atomic clock!

SETTIME.BAS   *by Doug Rickard*

Here is a useful little program from our member Doug Rickard, that checks the PC's date and time against the atomic clock service provided by AOTC (otherwise known as Telecom). This modem data service supplements their well-known speaking clock. It runs on a 1200 baud 8 data bits no parity format, and sends you a series of one line ASCII statements in the following "year-month-day hour:min:sec" format --

1992-11-20 12:10:34*
1992-11-20 12:10:35*

They keep repeating every second, but cut you off after about 20 repeats. Doug's program calls the service, displays both the PC time and the real time and resets the PC's clock.

The program is written in QBASIC, so you can see how it works, and all users of MS-DOS-5.0 have access to QBASIC.

As shown here, it dials the Brisbane number. Members outside Brisbane will need to prefix 07 thus: "ATDT072217033", or substitute the Melbourne number if closer. Anyone in an area that doesn't support tone dialling will have to use "ATDP..." instead of "ATDT...".

Correct clock setting is very important when using backup programs and on networks, and if, like me, you transport work between home and office and rely on the file date stamps to update the hard disk versions.

Doug worked on the development of the modem clock system for AOTC so is well placed to know all about it. For those who want to know exactly when the time is as it says, to the millisecond, it is at the stop-bit/start-bit transition between the CR and the LF codes at the end of the line, immediately after the star. If the star is replaced by a hash (#) then it is daylight saving time.

So, here it is, and it's on the BBS if you don't want to type it. If you don't have a modem to get it off the BBS that's no problem 'cos you wouldn't be able to use the program anyway!

-- Thanks Doug. (Geoff, editor)

```
100 REM Program:  SETTIME.BAS version 1.01
    REM         Doug Rickard     Tel:07-3458717
    REM         Software Technologies Pty Ltd
    REM         PO Box 127 COOPERS PLAINS, QLD 4108
    REM         29-Oct-1992
    REM In line 1000 change COM2: to the com port used.
    REM In line 1100 change the telephone number if reqd:
    REM Brisbane 07-221-7033, Melbourne 03-600-1641
    REM Keep in mind daylight saving!
    REM For:    MS-DOS V5.0 and MS-QBASIC
    REM Invocation :- C:> QBASIC /RUN [path]SETTIME.BAS

1000 REM Open the COM port for full duplex I/O. (1200 baud only!)
     OPEN "COM2: 1200,N,8,1" FOR RANDOM AS #1
     PRINT
     PRINT "SETTIME V1.01 30-Oct-1992 Set PC clock to AOTC time. Doug Rickard."
     PRINT
     REM Now send the dialing string to the modem.
1100 PRINT #1, "ATDT2217033"
1200 REM Check responses from modem til we get a CONNECT message.
     INPUT #1, A$
     IF A$ = "CONNECT 1200" THEN GOTO 2000
     IF A$ = "BUSY" THEN
         PRINT A$
         SYSTEM
     END IF
     IF A$ = "NO CARRIER" THEN
         PRINT A$
         SYSTEM
     END IF
     GOTO 1200
2000 REM Main loop: Receive the time string from AOTC,
     REM validate it, and if ok then set the PC clock.
     A$ = DATE$
     D$ = MID$(A$,7,4) + "-" + MID$(A$,1,2) + "-" + MID$(A$,4,2)
     PRINT " PC time before correction is -"
     PRINT "               ";D$; " "; TIME$
     PRINT
     C% = 0
2010 INPUT #1, A$
     IF A$ = "NO CARRIER" THEN GOTO 3000
     REM Set a flag if it is a valid string we received.
     F% = 0
     IF MID$(A$, 20, 1) = "*" THEN F% = 1
     IF MID$(A$, 20, 1) = "#" THEN F% = 1
     L% = LEN(A$)
2500 REM If string seems valid and is the right length then set clock.
     IF (F% = 1) AND (L% = 20) THEN
         REM Set the time.
         TIME$ = MID$(A$, 12, 8)
         REM Set the date.
         DATE$ = MID$(A$, 6, 2) + "-" + MID$(A$, 9, 2) + "-" + MID$(A$, 1, 4)
         REM Print out both times.
         B$ = DATE$
         D$ = MID$(B$,7,4) + "-" + MID$(B$,1,2) + "-" + MID$(B$,4,2)
         PRINT "AOTC time is now "; A$
         PRINT " PC time is now "; D$; " "; TIME$
         PRINT
         C% = C% + 1
     END IF
     REM Loop back until we have done it correctly 5 times.
     IF C% < 5 THEN GOTO 2010
3000 SYSTEM
9999 END
```

Safeguarding CMOS Setup Data

Geoff Harrod

In the November 1991 issue of Sig Bits there was an item by Nick Quigley on the problem of losing setup from a flat battery, and I wrote two little C programs to serve the need expressed. Several members have used those programs which are in our library, but some were a bit dismayed that the printed code was not useable by most members as it needed a C compiler. So I have now rewritten them as QBASIC programs, and they are listed here. If you are getting the ready-to-run program files from the library or BBS then you are probably better off using the EXE programs compiled from the C versions. The data file is not compatible between the two versions due to QBASIC limitations.

GETCMOS reads the CMOS setup data, except the date and time, into a file with an identifying header. PUTCMOS reads the file specified, checks that it starts with the correct ident, and if so writes the data to the CMOS memory in the PC. Then it reads it back and compares it to the data from the file again. If it matches it reports OK, else it warns that some error occurred.

I recommend that you take the precaution of writing down your CMOS setup before the **first** time you run these programs so that in the event of an error you can manually reset the CMOS. If there is no problem, then it will be safe ever after. This is just in case of some odd hardware variation from standard. The program works on all the machines I have run it on, but I will not accept any responsibility if it mutilates your setup. I can't anticipate peculiarities of every machine!

DON'T use it on any XT! This system only applies to ATs, 286, 386 and 486 PCs. XTs do not have any CMOS system memory and I have no idea whether the program would do anything awful on one.

To use the QBASIC version you need MS-DOS-5. Run QBASIC and type in the one of the programs and save it. You can run the program either by picking the Run menu while the program is on screen, or you can do it from the DOS prompt by typing

`QBASIC /RUN GETCMOS`

When asked for a filename I suggest you use A:CMOS.DAT to keep the data on a floppy disk. The idea is to run GETCMOS whenever you change your system setup, so that in the event of the setup data getting lost or mutilated due to a failing battery or such, you can easily restore it by running PUTCMOS. The main problem is usually that you cannot remember the hard disk setup details.

The GETCMOS data file should be written onto a formatted SYSTEM disk so that you can boot from that in the event that the setup loss prevents booting from the hard drive. After running PUTCMOS, the system should once again be able to boot from the hard drive. To make a system floppy, use a new disk and type the DOS command

`FORMAT A: /S.`

These files are on Library disk 8452, including the QBASIC, C and EXE versions, as well as all sorts of other odds and ends by me. You might be able to use it with GW-BASIC if you don't have DOS-5, by just adding line numbers, but I don't know for sure.

❑

```
' ---- GETCMOS.BAS  ver 1.0  -- 17-11-92 -------
' Geoff Harrod. Knightsbridge Software Developments
' PO Box 100 Toowong Qld 4066 Australia. Tel:(07)379-1747
' Written for QBASIC as equivalent to my GETCMOS.C
' See also PUTCMOS.BAS and see GETCMOS.DOC for more info.

DIM cmdat(64) AS INTEGER
DIM ident AS STRING * 10
DEFINT I-M
dataport% = 113
ctlport% = 112
ident = "CMOSQB10GH"
INPUT "Filename to save CMOS data onto: ", flname$
OPEN flname$ FOR BINARY AS #1
PUT #1, , ident
j = 14
FOR i = 14 TO 63
    OUT ctlport%, j
    cmdat(j) = INP(dataport%)
    j = j + 1
NEXT i
j = 14
FOR i = 14 TO 63
    PUT #1, , cmdat(j)
    j = j + 1
NEXT i
CLOSE
PRINT "CMOS data written to file."
SYSTEM
END
```

```
' ---- PUTCMOS.BAS  ver 1.0  17-11-92  -------
' See GETCMOS.BAS and GETCMOS.DOC for more info.

DIM cmdat(64) AS INTEGER
DIM ident AS STRING * 10
DEFINT I-M
dataport% = 113
ctlport% = 112
ident = "CMOSQB10GH"
INPUT "Filename to restore CMOS data from: "; flname$
OPEN flname$ FOR BINARY AS #1
GET #1, , ident
IF ident <> "CMOSQB10GH" THEN
    PRINT "*** INVALID FILE *** (Nothing done.)"
    SYSTEM
END IF
j = 14
FOR i = 14 TO 63
    GET #1, , cmdat(j)
    j = j + 1
NEXT i
j = 14
FOR i = 14 TO 63
    OUT ctlport%, j
    OUT dataport%, cmdat(j)
    j = j + 1
NEXT i
' Check the written data by reading it back & comparing...
k = 0
j = 14
FOR i = 14 TO 63
    OUT ctlport%, j
    m = INP(dataport%)
    IF m <> cmdat(j) THEN k = k + 1
    j = j + 1
NEXT i
IF k > 0 THEN
    PRINT "*** ERRORS OCCURED WRITING TO CMOS"
    PRINT "*** WARNING!   System setup may now be invalid!"
ELSE
    PRINT "CMOS setup restored OK."
END IF
CLOSE
SYSTEM
END
```

Checking whether files have been altered

Some members have asked me about a program to verify that a file has not been altered, by generating a verification checksum that can then be compared when run again at a later date.

Well, there is already one provided with the McAfee SCAN anti-virus distributions, which are always available from our library or BBS in their latest form. Here is the documentation for their checking program which is called VALIDATE.

There is another one, called VERIFY, I think, also in our library, that came from TUG, the Turbo User Group of Washington. That one has the Turbo Pascal source code for it also.
— Geoff Harrod, editor.

VALIDATE

Version 0.3

From McAfee Associates

VALIDATE is a file-authentication program that may be used to check other programs for signs of tampering. VALIDATE uses two discrete methods to generate Cyclic Redundancy Checks (CRC's), which are then displayed for the user to compare against the known value for the program(s) validated. The known validation data can be published by the author of the program or be obtained from a trusted information database. The dual CRC checking provides a high degree of security.

The Computer Virus Industry Association (CVIA) provides an online database of validation values for shareware authors at no cost. You are encouraged to call the CVIA's BBS at (408) 988-4004 to access current validation data for McAfee Associates' VIRUSCAN, California Software Concepts' SHEZ, Vern Berg's LIST, and other shareware programs.

To confirm that a program is in its original, untampered state, run the VALIDATE program on it, record the validation data produced, and compare it against the record in the online database. If they match, than it is highly improbable (less than one in sixty-four quadrilion) that the program has been modified.

To run VALIDATE, type: VALIDATE d:\path\filename.ext

The VALIDATE program will then display the following information:
```
Size: (#/bytes)
Date: (file creation date)
File Authentication
Check Method 1: (a four digit CRC)
Check Method 2: (a four digit CRC)
```

The VALIDATE program may be copied and distributed at no charge as long as it is distributed whole and intact and unmodified in any way, along with this file. Please report virus infections and reports of program tampering to:

Computer Virus Industry Association
4423 Cheeney Street, Santa Clara, CA 95054-0253, USA

The validation data for VALIDATE.COM is:

|	WITH CRC CHECKING	WITHOUT CHECKING
Size:	6495	6485
Date:	10-31-1989	10-31-1989
Authentication		
Check Method 1:	4637	CB21
Check Method 2:	1214	13B7

If you have an older version of VALIDATE, it may be ten (10) bytes shorter. This is because it was not processed by VIRUSCAN's CRC-checking feature, added in Version 66 of VIRUSCAN. The validation code can be removed from VALIDATE.COM by running VIRUSCAN against it with the /RV Remove Validation option. However, this is not recommended. ❑
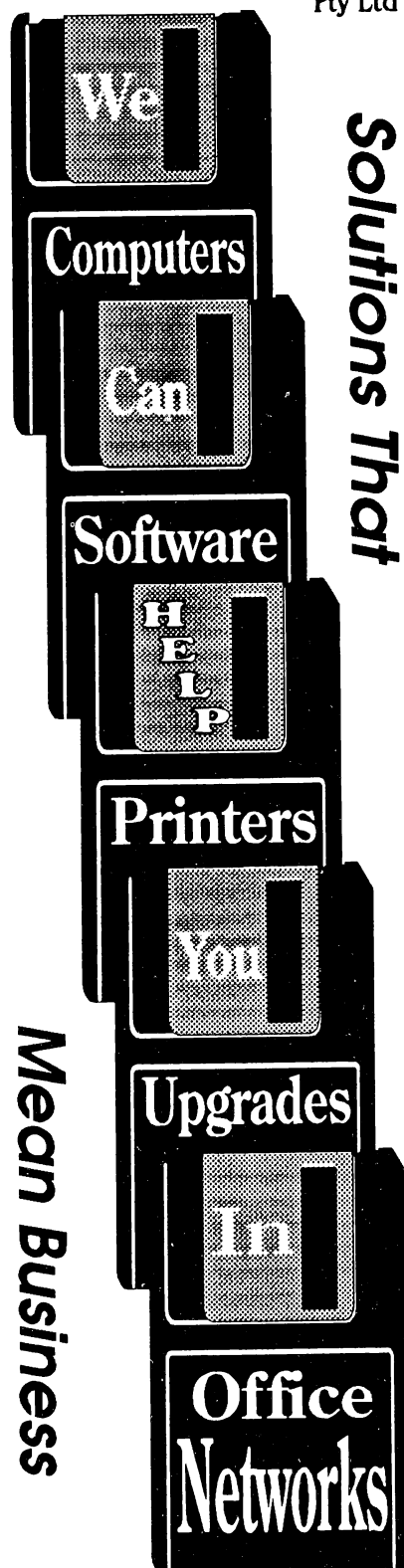
The OS/2 Column.

Paul Marwick

This time round, I intend to cover a few items of general configuration, with a view to optimising OS/2 once its installed.

The OS/2 installation system

The OS/2 installation does a fairly good job of setting the system up. There are a few bugs in the process (such as the fact that it will include paths and driver statements for WinOS/2 even if you elect not to install WinOS/2/), but generally the installation will produce a workable system which will then allow the user to get familiar with it before they have to consider delving into the operating system more deeply to optimise it.

The default installation will do a few things which can safely be changed, both to save a bit of memory, and also to improve performance a bit.

For example, by default, OS/2 will set the maximum number of threads that the system can handle to 256. While it is entirely possible that any OS/2 program may well use more than one thread (so you can't assume that the 256 figure translates to the number of active tasks), this figure is most likely well above the practical number needed on almost any OS/2 machine. Reducing this figure will save a bit of memory, and will also save a bit in the way of system resources. A figure of 60 to 100 for the threads parameter is almost certainly going to be more than adequate for most people.

Print spooling setup

OS/2 also sets aside memory for print spooling. This memory is very useful in giving fast results for printing (in fact, I suspect that the default value of 134K is probably too small if you do a lot of printing). However, OS/2 sets aside memory for 3 pint spools. Unless you have three devices that are spooling, this is somewhat wasteful. I would suggest that, if you do a lot of printing, but have only one printer attached to the machine, you change the PRINTMONBUFSIZE statement in CONFIG.SYS to something like the one below:

PRINTMONBUFSIZE=134,0,0

This has the spool for LPT1 set to its default, but instructs the operating system not to reserve memory for other ports.

The user also has control over print priority (though finding where to access it in order to change the priority is a little difficult). Entering the OS/2 System folder, then the System Setup folder will give access to the Spooler object. One of the items that can be changed in the spooler setup is the priority given to print jobs.

Task priorities

OS/2 is designed to be as dynamic as possible. While all tasks have priorities (which can be set either by an external utility, or by the programmer who produced the program in the first place), OS/2 will dynamically give a foreground task a boost in priority. While this is generally not a bad thing (it makes for a more responsive system from the user's point of view), it may be less than ideal if you have many tasks which are required to continue operating in the background, especially if those tasks are in any way time-critical. This is especially true if you are running something like high speed serial communications in the background.

There are two parameters which affect the dynamic nature of OS/2 (well, three really, but we'll come to the third later). First, there is

PRIORITY=DYNAMIC|ABSOLUTE.

For most well behaved applications, using PRIORITY=ABSOLUTE is probably unnecessary. However, if you are running something like a DOS communications task in the background, this may be necessary. Normally, OS/2 defaults to PRIORITY=DYNAMIC (and you'll not find any statement in the CONFIG.SYS covering this parameter). If you have trouble with something like high speed serial communi-

nications, or LAN traffic, this may be worth changing.

The second parameter which determines the dynamic nature of OS/2's multitasking is PRIORITY_DISK_IO=YES|NO. The default is YES, which will give a foreground task higher access priority for disk I/O than a background task. For high speed serial communications, its highly recommended that you change this default to NO.

The third parameter which affects the dynamic nature of OS/2's multitasking is TIMESLICE, which allows you to set the ratio of time given to foreground or background tasks. This parameter is difficult to assess, and is probably generally best left at default (whatever that default may be...).

Disk Caching

There are a number of other parameters which may affect overall system performance. OS/2 comes with built-in disk caching. There are, in fact, two disk caches provided as part of OS/2 - CACHE and DISKCACHE. The former works with HPFS partitions, the latter with FAT partitions. OS/2 will set the default values for disk caching depending on how much memory is installed in the machine, and how the machine's drives are configured (ie, all HPFS, all FAT, or a mixture). Given that either cache will use memory which can otherwise be used for other things, it is probably best if you set up your hard drive(s) to be either all HPFS or all FAT, and minimise (or eliminate) the need to allocate memory for the other type of file system.

HPFS or FAT files?

Making a choice between HPFS and FAT presents the user with a number of variables that need to be taken into account. First, if you need to access the drives from DOS, don't use HPFS (while DOS's FDISK will know that there are HPFS partitions, its the only part of DOS that will even be able to see them). In addi-

tion, the benefits of HPFS really only apply to fairly large partitions. The generally accepted figure is around the 60 megabyte mark - below that, FAT will provide better performance, but above it, HPFS will provide better performance. HPFS will consume more in the way of system resources than will FAT, so it may be a poor choice on a machine with limited memory (it will not normally install on a machine with 4 megabytes of memory, for instance).

As well as simple performance considerations, there are other factors to consider when making a decision regarding FAT versus HPFS. For instance, HPFS is resistant to file fragmentation (please note, RESISTANT, not immune). As a result, under normal use, an HPFS partition will tend to suffer much less from the performance penalties of file fragmentation.

Long File Names

The benefits of long file names are somewhat debatable - while it may well be possible to give files much more descriptive names when you are not limited to DOS's 8.3 (ie: 8-char name, 3-char type) file naming conventions, there are a number of programs which will not be able to use (or even see) filenames which don't follow the normal 8.3 convention. In addition to which, if you use long filenames, in one sense at least, you're making more work for yourself. Consider these two filenames:

```
Letter to Ron Lewis
LEWIS.LTR
```

Both mean the same thing, but the second is a lot less effort to type. Given my general level of laziness, I know which one I'd be using....

Allocation unit size

HPFS makes more efficient use of hard drive space (currently at least, all removable media, such as floppy disks, can only use FAT). Instead of the minimum 2K allocation unit, HPFS provides a 512 byte allocation unit. If you have a lot of small files, they'll fit in less space on an HPFS partition than they will on a FAT partition. One interesting side effect of the way in which HPFS works is that a zero length file on an HPFS partition will consume 512 bytes of disk space, even though it occupies zero bytes...

Decisions regarding the type of file system to use, or the mix of FAT/HPFS to

use need to be made depending on all these factors, which will differ from user to user. Personally, if it wasn't for the fact that I currently have to boot from a DOS disk to use DOS software to run my tape drive, I would almost certainly run the whole system as HPFS and be done with it...

Disk Partitioning

While on the subject of drives, you should give some consideration as to how you partition your hard drive. OS/2 when fully installed occupies quite a bit of hard drive space. It also requires space for its swapper file (which can grow quite rapidly under load).

After a fair bit of consideration, I've partitioned the drive on my machine to allow sufficient space for OS/2 and its swapper file on the boot partition, but not much else. 35 to 45 megabytes is quite adequate for this (less if you don't install all the extras that come with OS/2).

My reasoning for doing things this way is that, at least at the moment, I don't have any good method of backing up OS/2 itself. I have little other than OS/2 itself on the boot partition. If I do suffer some form of disaster, I can quite easily reformat and reinstall OS/2 from scratch.

While this does mean that I have to repeat the effort involved in cutomising the Work Place Shell, there are ways around this problem, and even if I don't use them, its not too much effort to do the customising work.

I have things like icons that I use saved to a backup directory on another partition (probably be better if I'd put them on a floppy disk instead), and things like colour customisation can be saved by Syscols (see my review a couple of months ago). With these tools, it doesn't take too long or take too much work to reinstall OS/2 from scratch if some disaster strikes. Not that it has recently, but during the beta testing cycle of OS/2, I got quite practiced at reformatting and reinstalling. A tool like WPSBKUP makes it even easier to do, since it will preserve all settings and program groups when it is reloaded.

Full or Partial Installation?

Another item that is probably worth considering is initial installation of OS/2. A full installation uses quite a bit of disk space, and there is a good chance that there are items that will be installed by

default that are unneeded. So it can pay to spend some time selecting which options are needed before completing the installation.

For instance, I could see no real need for Windows support on a BBS machine, so I elected not to install the WinOS2 environment. In the same way, there were several items in the system utilities that I didn't anticipate needing, so I did not install them. OS/2 comes with a terminal program. It may be very good (I can't really tell - it is both complicated and poorly documented). However, I didn't really have much use for it, so I didn't install it either. In addition, most of the games that come with OS/2 were of no interest to me, so I cut them out of the installation.

Going through the choices presented on initial installation can reduce the amount of disk space needed by OS/2 significantly. If you later find that you do have a need for something that you left out of the installation, it is relatively easy to do a selective install to add it in.

Limited memory options

There are also alternatives which may be attractive to people wishing to run OS/2 on machines with limited memory. The 4 megabyte minimum that IBM specify is not terribly realistic - while OS/2 will run with 4 megabytes, it will not run very well with such a limited amount of RAM. However, there are at least two possible alternatives which will allow better performance in limited memory machines.

The first of these is to change the line in CONFIG.SYS which reads

```
SET RUNWORKPLACE=C:\OS2\PMSHELL.EXE
```

to

```
SET RUNWORKPLACE=C:\OS2\CMD.EXE
```

This will mean that, instead of the Work Place Shell being loaded, a CMD window is started. From this, it is quite possible to use the ''start'' command to begin other tasks, and use ALT-ESC to toggle between tasks. While this is not going to provide all the bells and whistles of the full shell, it should reduce the memory requirements quite significantly, and allow better performance running on machines with limited memory.

Alternative Shell

The other alternative is to specify an alternate shell program. Some people have managed to use the text mode shell that

CHKDSK Bug

The following is being circulated on a major internal information system, and seems worth noting considering the potential for loss if true. The problem will only affect a few with particular sized disks though.

There is a bug in the CHKDSK utility with MS-DOS 4.01 or 5.0 and PC-DOS 4.0 or 5.0 which may cause the loss of all data on certain hard disks, when CHKDSK is used with its /F command option.

The bug is said to affect only hard disk partitions of about 128, 256, 512 and 1024 Megabytes as reported for each logical drive. You can discover whether you are risk by running CHKDSK without using the /F option. If the number shown for "Total allocation units on disk" is greater than 65,278 then your disk is at risk.

Microsoft and IBM have admitted the problem and have released a fix. For MS-DOS 5.0 it is Microsoft maintenance release 5.0A with CHKDSK.EXE dated 11 November 1991. For PC-DOS the fix is on IBM PC-DOS version 5.01.

Details of the problem:

If you use the /F switch to correct a problem with lost clusters you will as usual be asked whether to convert the lost clusters to files. If you answer NO you will find that 256 copies of the file allocation table (FAT) has been written over the first part of your hard disk from the start of the first FAT onwards, wiping out about 32 Mbytes of your data!

* * *

We at Brisbug suggest you do as suggested above and then enquire about getting the update if affected. The Microsoft Knowledge Base reference is 080496. The writer does not say what happens if you answer YES to "make into files" question.

By the way, regarding normal use of CHKDSK, it seems many quite experienced and knowledgeable people tell you that if you answer NO to that question CHKDSK doesn't do anything. That is not so. In fact there is usually not much point in saying YES unless there may be ASCII text data in the lost clusters that you want to try to recover with an editor. For other than plain ASCII data there is no chance of recovery. There is no point in saying YES and then deleting all the files called FILE0001.CHK etc, that it creates in the root directory, as some writer tell you. You get the same effect by just saying NO. However if this bug affects you and saying YES works OK then there could be a good reason to go that way!

— Geoff Harrod, editor.

Thanks to Cris Raisin for supplying this reference.

OS/2 Column, continued

came with the first versions of OS/2, though there are apparently some problems doing this. Another alternative is to use something like AV (ArcView) as an alternate command shell. This offers a number of extra facilities, and might be well worth trying in order to maximise performance on a machine with limited memory.

"Service Pack"

One final point for this month. The "Service Pack" is now available. This consists of 14 disks which are applied as an update to the original GA release of OS/2. The Service Pack includes all bug fixes to date, plus the addition of the new, 32-bit graphic engine for OS/2 and some support for SVGA cards in high resolution modes. The size of the Service Pack makes it impossible for many people to download, but if you are interested in obtaining a copy, leave me a message and we will make suitable arrangements.

❑

BBS NEWS

Paul Marwick

The new drives are still not fitted. One of them developed a problem before they were installed in the BBS machine (I suppose I should be grateful that it failed then rather than after it had been fitted and was running on the BBS, but, after close to 16 hours of work moving data from the existing Conner drives to the new drives, and a fair bit of work put into changing all the paths and setting the system up for use on the new drives, gratitude wasn't the emotion I was feeling when the new drive died...).

A replacement is expected within the next few days, so, hopefully, by the time this reaches you, Lines 1 & 2 will be running with the new drives. And, for a while at least, I may have sufficient space not to have to spend all my time trying to move things to make space for incoming files.

I'm intending to move Lines 1 & 2 to OS/2 at the same time as the new drives are fitted. Since the fitting will involve some downtime, I decided that I might as well do the whole job at once. This turns out to be a good idea anyway. The new drives are SCSI units, running from a bus-mastering SCSI host. Setting this host adaptor up to work with QEMM and DESQview looks as though it would be a long job, since there is a conflict in memory addresses, plus a conflict in DMA control to be resolved before it could be done. Fortunately, none of these problems exist under OS/2 - all that is required is the correct SCSI driver to support the Buslogic adaptor (which I already have, since Line 3 already runs one of these adaptors).

Depending on the amount of time taken to make the change over, I may attempt to do some major reorganization of the file areas at the same time. This, however, depends on the fitting of the new drives going without further problems. Otherwise, the changes will have to be made gradually over the next few months.

Note: The BBS is having a holiday over the Christmas period. I will be away from the 20th of December until the 9th of January. Hopefully the systems will continue to function in my absence. However, new user registrations will not be processed during this period.

❑

Background

Operating System Wars

by Stewart Adam
Reproduced from PCUpdate, Journal of the Melbourne PC User Group,December 1992, with permission.

There are presently several operating systems standing in the market for IBM compatible computers:

- MS-DOS from Microsoft

- DR DOS from Digital Research (Novell)

- OS/2 Version 2 from IBM, and

- UNIX from a number of suppliers under various brands such as Solaris from Sun Microsystems. ESIX, SCO, XENIX, and AUX 3.0 for Macintosh.

MS-DOS and DR DOS differ from OS/2 which provides a graphical enviromnent capable of multitasking DOS applications as well its own suites of programs on a 32-bit microcomputer. It is called a graphical environment because it provides inbuilt drivers able to manipulate high resolution colour screens and the quality of printer output. There is, of course, a lot more to it than that as I will later descrlbe.

Thirty-two-bit machines fall into one of three categorles:

- AT class, 386DX, 986sx, and 486 micros built to Industry Standard Architecture (ISA) specification

(IBM compatibles too numerous to mention)

- 386DX, 386SX, and 486 micros built to Extended Industry Stand ard Architecture (EISA)specifi-catlon (Compaq and other major suppliers)

- IBM Microchannel Architecture (MCA)32-bit machines based on Intel 386 and i486 central process ing chips; for example, PowerPro/ MC 486 from Applied Logic Research (ALR).

A Growth Industry: LAN

During 1991 some 74% of PC sales in Australia were 386equlpped. The XT had finally died. Many 386 micros were purchased for PC local-area networks, a market that has grown globally from $755 million in 1985 to $6 billion[1] in 1991, wlth predictions that it will be worth $12 billion by 1995.

Where The Money Goes

Figure 1 shows the breakup of company information technology (IT) budgets in

Australia for 1991, amounting to an expected total centralised expenditure of $7 million[2]. Centralised expenditure, as opposed to departmental expenditures, accounted for some 83% of total IT expenditure by the companies surveyed.

Apart from support personnel the latest expenditure category was processor hardware. Figures reported by the industry analyst IDC show Australia imported $3.4 billion worth of computers in the twelve months to September 1991, down from the $3.5 billion of the prior year. That report also ranks Australia ninth in per capita IT expenditure at $302, or some $4.8 billion in total.
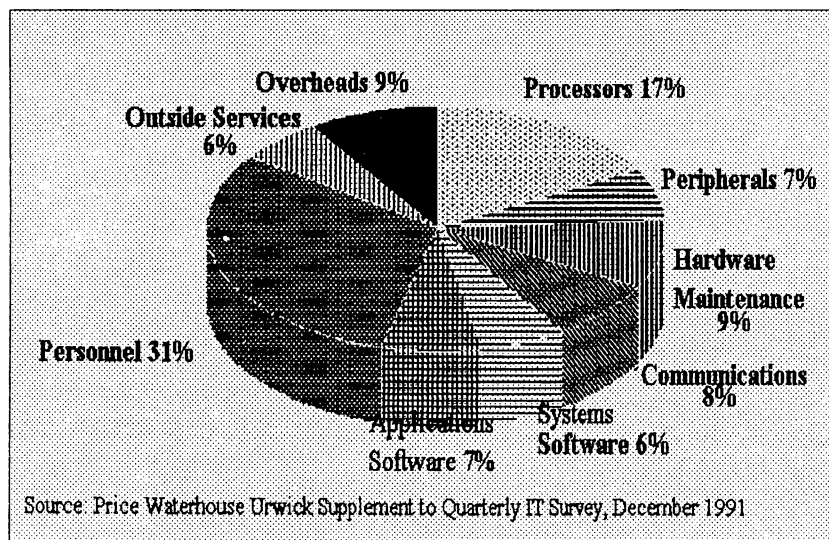
MS-DOS vs. DR DOS

MS-DOS and DR DOS compete in the market place as operating systems of the same kind: Microsoft has been in service for over ten years on IBM compatible machines, whereas Digital Research is more familiar to older users through CP/M. The Z80 processor on which CP/M was based is still widely used today in electronically controlled equipment, both industrial and domestic. MS-DOS IS.0 and DR DOS 6.0 have memory management for 32-bit machines, but neither allows users to multitask.

Multitasking

Multitasking, as allowed by OS/2 Version 2.0 and UNIX variants, means virtual 8086 machines are created, each capable of concurrently running an application written for its own particular operating environment. It is possible to boot one partition without affecting the programs running in other partitions. That is the most important feature for businesses where the aim is to get most usage for least capital cost.

It is not just the computer that can be given many things to do all at the same time. Peripherals can also be used in that way printers, plotters, modems, DataFaxes,

Flgure 1
IT SURVEY
published with permlssion

Source: Price Waterhouse Urwick Supplement to Quarterly IT Survey, December 1991

scanners, overhead projection, VCR, CD-ROM, laser disks, audio devices, and other more specialised equipment such as Quick Response technology used in retailing.

In the jargon of computer-business journalese, 'multiple users can have concurrent access to a single purchase of both hardware and software', which in ordinary English translates as: networking enables many users to use a single computer with its peripherals and software at the same time.

Hardware and software costs are thus minimised, and operating costs lowered because fewer support personnel are required. An additional advantage is that security can be maintained at various levels because all manner of locks are available to prevent misappropriation of software as well as data

IBM vs. Microsoft

From 1981, when IBM developed its first Personal Computer, Microsoft and IBM worked hand in hand in the development of MS-DOS and the IBM-badge version, PC DOS. There was a symbiotic relationship up until the late 19809 when tension between the two finally burst into a public eruption.

Microsoft had been involved with IBM in the development of OS/2 as well as early graphical user interfaces (GUI), such as Windows 286 and 386. GUI interfaces were designed to provide some of the point and shoot benefits of devices, such as the Mouse, built into the operating system of the highly Successful Macintosh.

When Microsoft released, the Windows 3.0 graphical environment in the late 1980s and then, in June 1991, Version 5.0 of the still-required operating system—MS-DOS—the relationship publicly came to a halt. Also, Apple was not amused when Windows 3.0 made an IBM-compatible almost as user-oriented as the Macintosh. In marketing parlance, they were belng flanked by the IBM-compatible OEMS thanks to Microsoft.

OS/2 vs. DOS

All operating system vendors rely on third parties to write software for their systems and thus make the operating system worth buying. The three most popular uses for the IBM compatible in the first decade

were provided by Lotus, dBASE and word processing software. It was the availability of such packages that made users perceive the need for a DOS based computer.

With the release of Windows 3.0 and 3.0A as well as Multimedia Extensions 1.0 Microsoft had unleashed its most powerful strategic weapon[3].

Microsoft claimed that globally some 65,000 programmers were writing applications to run under the Windows graphical environment, compared with only 4,000 under OS/2. There were some 5,000 Windows applications available world-wide by the end of 1991. MS-DOS 5.0 helped inasmuch as memory management, once provided by third parties, became available through proprietary drivers HIMEM and EMM386) bundled with the package.

DR DOS 6.0 also provided memory management for 32-bit computers, but used the internal structure of Compaq DOS Version 3.30.

The Task of Tasking

All had not been rosy for Microsoft in the mid 1980s given that some aspects of MS-DOS 4.00 and PC-DOS 4.00 were unstable—notably their first attempt at providing some semblance of a graphical interface, DOSSHELL. The version provided with MS-DOS 5.0 actually works and provides a low-memory alternative, particularly for those with 286 processors to *task*.

Tasking is simply a means of parking a running application in memory or on a data storage medium, such as a hard disk, while the user switches to another apphcation. That speeds up operations quite considerably. It does not allow the concurrent running of applications as mentioned earlier. Most importantly, it does not allow IBM-compatible or MCA machine users to employ cut and paste techniques between such programs as Lotus and MS-Word 5.

Macintosh users had benefited from such a feature for quite some time; it was enabled enabled by Motorola's 68000 series processor as well as the operating system. An even greater advantage sought by 32-bit computer users was the ability not only to cut-and-paste, but to have the capacity to transfer and simultaneously update data from one application to another.

Oblect Linking and Embedding

Such users want to ensure data from, say, a spread-sheet and pasted to a document (created by a word processing package) changes automatically when the original changes. For example, spreadsheet data is linked to a document file in order to create a table within the document; new data is entered into the spreadsheet and automatically changes the affected figures within the document without user intervention.

That kind of operation is effected by what is termed Object Linking and Embedding (OLE).

The feature, built into Windows 3.10, enables much more: blocks of external text, charts, graphics, or sound can be associated with an icon within a document. By clicking on the icon the linked external text, chart, graphic, or sound appears—a Hyper text concept taken into the Windows environment.

A Less Than Illustrious History

Three versions of OS/2 V.1 were released after Windows 3.0 and. as each failed to deliver one require-ment or another, OS/2 did not gain the support of business users in the numbers expected. Also, it was thought by many to be for use on only MCA machines. Third party software developers also stayed away in droves. OS/2 Version 1 offered just another graphical interface, but not multitasking.

IBM and Microsoft were seen to be going in different directions and it appeared that, after extensive involvement in development, Microsoft would not be supporting the product.

The unanswered question for many potential buyers, particularly those charged with administering IT budgets within companies, was whether or not IBM alone could support OS/2 and ensure its future development,

Sorry I'm Late

Trade journals carried reviews of the *Beta* version of OS/2 v2 in December 1991 - January 1992. but it was not until 30 March 1992 that it was released with the long awaited in-built multitasking benefits. The new OS/2 could multitask any of the three types of applications available: DOS, including graphics programs; applications written for the W i n d o w s

graphical environment: and OS/2 programs through IBM'S integrator, the Workplace Shell.

Enter Windows 3.1

Before the release of OS/2 v.2 Microsoft had adopted an attacking stance. Versions of Windows 8.0 had been developed and released in several European languages as well as Chinese, Japanese, and Korean.

In late 1991 Microsoft embarked on a travelling global trade exhibition, with much attendant publicity, to explain the direction they were taking.

The release of Windows 3.10 with increased speed, multimedia extensions, OLE, scalable fonts, upgraded drivers, 32-bit addressing of virtual memory, and other improvements were announced. There was also promise of a late 1992 release of Windows NT (New Technology) for 386DX and 486 32-bit processors with true multitasking and no visible DOS at all.

There would be two versions of Windows: Windows on DOS for low-order hardware (286 and 386SX), and Windows NT for high-end machines.

Windows on DOS would, it seems, be left to compete with low memory usage graphical environments such as the late 1991 release of GeoWorks Ensemble, while Windows NT would enter the shoot-out between UNIX variants using graphical interfaces and, of course, OS/2 with it's Presentation Manager. Each of the latter group run 32-bit code. Fast!

And In the Blue Corner ..

Microsoft used its travelling show to demonstrate the multiprocessor management abilities of Windows NT. Again Microsoft's strategy was to attack, this time aimed at beating their previous ally, IBM, to the punch. They remained almost non-committal on the matter of whether they would continue to support OS/2.

Microsoft earns its revenue from licence fees associated with operating systems and software spawned by the successful cumulative sales of some 10 million copies of Windows 3.0 (as at the launch of Windows 3.10); Excel for Windows, Word for Windows, and many others contributed to a 1991 revenue of US$2 billion.

IBM, on the other hand, suffered a revenue and profit drop in the latter part of the decade. IBM's fortunes moved with the global recession to the extent of a 1991 loss of US$2.8 billion.

Manufacturers are, no doubt, aware of changing buyer sentiment, as described by one commentator, "Today's computer users don't buy brand names. They did in the 60s, 70s and 80s and IBM won a loyal—if locked in—user base. Now business users want standard computer systems so they don't get locked in with one supplier."[4]

IBM is reforming itself into a series of operating companies by buying alliances with most major computer vendors. Wang and Groupe Bull, for example, at the mainframe end; and with the likes of Motorola and Apple with Methapor (Tallgent), Zenith Data Systems, and Intel at the micro end of the market. The Tallgent operation is designed to bring about a marriage of Apple and IBM technology using a common object-oriented operating system, code-named *PINK*, within a few years. Fujitsu is arguably their fiercest mainframe competitor, while an alliance of manufacturers of EISA standard micros are their main competitors in that market. As well, many Taiwanese, Korean, and Singaporean AT clone manufacturers have reduced pricing to the lowest possible level and command that part of the market.

Punch-up at the IBM Corral

Microsoft appears to be mounting an unprecedented attack on IBM'S fast declining position in the micro computer market. Rumours abound of an IBM tactic of specifying DR DOS 6.0 as the preferred operating system for their low-end 16 bit machines.

By late March 1992 Microsoft and IBM had stooped to trading such insults as the following exchange, reported Sun Herald of 29 March 1992: "Bloody Billion-dollar Battle Looming".

Bill Gates, Microsoft President "... better Windows than Windows claim (by IBM for OS/2) ... a big lie ... (by IBM) ...". The same article reports IBM Australia spokeswoman Kate Dennis as having told the industry newspaper, Computer Daily News, that OS/2 was a genuine, new operating system for 386sx computers and above, while Windows was simply a "DOS enhancer system", hobbled by "the limitation of Windows".

And What of the Future?

The end result of this battle of the giants might well be that the operating system market could fragment even further. Many large organisations could turn to UNIX for use on both mainframes and micros, a situation that might come about through IT specialists' desire for lower software licence costs and better presentation of mainframe data accessed via local area networks using workstation micros.

Such a scenario would leave OS/2 and Windows NT to compete for single user sites and workstations on small LANs.

On the other hand, in the present economic climate business managers—rather than IT specialists—are more likely to be in control of IT budgets. It is they who use applications running under Windows, both at home and in the office. Microsoft's bottom-up approach to the market might well see them win out over both OS/2 and the UNIX variants.

Any such speculation cannot ignore IBM/APPLE co-operative effort, Operation Pink and the many promised benefits from its object-oriented approach.

It must be said that in this market timing is all important. Whoever brings their product to market first should make the greatest inroads. However, it is Microsoft's direct marketing prowess that seems to be paying dividends at present.   O

REFERENCES

1. The term "billion" is used throughout in the American sense of one thousand million.

2. The Australian/Price Waterhouse Urwick Computer Opinion Survey 1991

3. To understand the MultiMedia PC Specification see Adam, S., Creative Labs Inc. Upgrade Kit, *PCUpdate*, May 1992.

4. Head, B., IBM's Polygamy Ploy for Market Penetration, *Australian Financial Review* 30 Jan 1992.

Club Activities

Brisbug Goes North   (All the way to Gympie)

On the first weekend in November, President, Ron Lewis and Librarian, Lloyd Smith, trekked noth to visit the quite recently formed Cooloola and District Computer Club, based in Gympie.

Cooloola Club had organised a full day of activities to publicise the fast-growing group, and we were pleased to be able to contribute to their efforts.

Introducing Brisbug

The day started with about 35 members and visitors gathered in the offices of Skillshare, a very comfortable venue with good lecturing facilities (not to mention the kitchen). Ron introduced Brisbug and outlined the access to Brisbug services that members of Cooloola could obtain. Lloyd demonstrated the library in some detail.

Dave Franklin, President of the Gladstone QRI Computer Club, then talked about the organisation and promotion of a relatively small club. He pointed out that member

education services, including regular "hands-on" sessions, were an essential feature of attracting new members. He is also a strong advocate of Bulletin Boards, locally based to minimise costs, as a means of communicating between members. (Gladstone is a rapidly growing club in a rural city similar to Gympie).

Ron then talked about how to buy or upgrade your computer and the pit-falls awaiting the unwary (or excessively budget-conscious). His examples of colour printer outputs evoked considerable interest which wained somewhat when prices were advised.

TAFE Progressive Learning

After lunch, a representative from Gympie TAFE introduced their innovative range of computer courses. These are the first "adult education" classes to be structured much along the lines of the formal diploma courses which have defined syllabuses and pre-requisites.

Viruses demonstrated

Ron's demonstration of some typical virus effects, and talk on how (not) to catch a virus provoked some lively discussion and questions. Gympie's rural location has obviously not insulated it from the virus-writing idiots, but some of the more "exotics" have not yet been encountered.

Throughout the day we played the "think of a number" game for copies of dBase IV, and several raffles of DR-DOS and Compuserve packs raised some welcome funds and kept the audience attentive.

The committee of Cooloola club reckoned the day a success, with six new members joining thier group. Although we specifically avoid "touting" for membership of Brisbug (you could not expect to be welcomed at a small country club if you arrived with the intention of poaching their members), two did join. A number of "locals" already belong to Brisbug.

While most of the Cooloola members were attending the meetings, a small, but highly organised, section of the library committee were busy copying some of the latest disks from our library to use in their fund-raising efforts.

They're a really keen bunch of great people, and we wish them well in their efforts to promote their club.

Brisbug President, Ron Lewis discusses upgrading options with the morning audience of about 35 enthusiasts

What a Reception from the Gold Coast SIG

Such a fine warm evening, it was a pity to waste it watching TV or playing Flight Simulator. "So why not whip down to Burleigh for the Gold Coast SIG?", I thought, "It's only about 45 minutes easy drive from my place".

The sky got hazier ...

The sky in the south was slightly hazy as I set off. By the time I got to Dreamworld (about halfway), there was a slatey band obscuring the horizon. At Nerang, the sky was black, and further south in the border ranges a series of stunning lightning ground-strikes suggested that now was a good time to install your new super spike arrestor (or more sensibly turn off and unplug the modem line).

As I pulled up at the hall where the GC-SIG meets, the breeze, very warm, was puffing towards the clouds. By the time I got to the door, the wind was howling about 40 knots in the opposite direction, gusting to about 60. Just as I said "Gidday" to Bill Harder, the night's Guest Speaker, at the door ... fizz ... pop ... bang ... rumble ... crumppp!! and the lights went out. Very theatrical, but utterly useless at a computer club needing electricity, not only to power the demo machine but also for essential purposes such as boiling the urn for coffee at "half-time".

By the glow of the emergency *EXIT* lights, we could see outside Huey trying to decide whether he was going to rain up, down, or consistently horizontal. Local identity, Frank Norris, who arrived at this stage, looked very much like he couldn't find the towel after his shower, but got dressed and came anyway. Eager to get going, Bill H retrieved his computer from the car in a plastic bag ... probably didn't realise he could have made a fortune renting the bag to members sheltering in their cars in the car-park.

One thing that struck me as very curious when I first arrived (a long while ago) in

> By the glow of the emergency lights we could see Huey trying to decide whether to rain up, down or horizontal ..

Queensland as a refugee from the cooler climes of NSW and NZ was that the rain is never cold, and the locals don't seem to mind at all getting wet. Locals will spend a great deal of effort looking for a shady tree to stand under to avoid the sun, but will ignore the same facility if it's raining. I guess I've caught the bug ... despite the deluging rain not uncommon in Brisbane in summer, I would have to look very hard to find my trusty raincoat which served me so well in Wollongong, Melbourne, Perth, Auckland, and other places I've lived.

No power, What now ?

But back to my story.

What does a computer club do without power? **Improvise of course!**

When Brisbug was small, and we all fitted in one classroom at Toowong High School, a good deal of our time was spent just sitting around chatting about matters computing (or should I have said "in free-form discussions"?).

And so it was at GC-SIG. Everyone having a say or redirecting the topic with a new question or different opinion. We talked of modems, (too risky to demo), of operating systems, of people and personalities involved in computing, and some of the interesting (or stupid, in my case) things we'd done with (or to) our computers.

In no time at all it had gone from 7:00pm to 8:45, and SEQEB, having removed most of the trees that had blown down on their power lines, had given us back the necessaries for boiling the billy.

And then there was light

Bill H finally got to do his interesting demo of database programs he had written. Following question time, the meeting finished about 10 pm leaving me to drive back to Brisbane under an indigo sky studded with stars blazing like only a pre-washed SE Queensland sky can . Not even a hint of a breeze, and it had cooled to about 22 degrees, so the air conditioner stayed off.

The storm had swept through southern Brisbane as well, touching my home at Sunnybank Hills, but had apparently vented most of its strengh on Burleigh ; my pot plants, a fine indicator of wind strength, were still upright.

Thanks Gold Coast SIG for a great evening and the chance to turn back the clock and remember with pleasure the roots of Brisbug.

Ron Lewis

SIG Reports

I didn't get any this month! ..That is, except for one concerning a newly formed SIG for accounting. Its off-beat tone sounds like a gust of fresh air may be blowing through the musty corridors of accounting! The only other one is for the DTP SIG since that's my own thing. I don't know what happened to all the others. Maybe the problems with my modem system being off-air perhaps, but there was nothing on the Brisbug BBS either. Anyway, here's what we have...

— (magazine editor, Geoff Harrod)

Accountancy SIG

After two hours of intense discussion, the inaugural meeting of the newly formed Brisbane Beancounters (Accountancy) SIG failed to come up with even one addition to the worlds smallest book - ACCOUNTANCY HUMOUR.

Our mirthful little group did reach consensus, however - sort of - on our mutual goals. These being to embark on a voyage of accounting discovery, to boldly seek out and evaluate accounting software. Our holy grail is the perfect(ly elusive) accounting software package which is user-friendly, inexpensive, suitable for all occasions, and designed for users with limited accounting skills. In other words, does everything and costs nothing.

Anyone out there know of any such animal? If so, bring the little fella along to our January meeting, and we'll dissect him along with a few other specimens.

Most of us were keen to get started earlier than January, but the assertive vocal minority in our group insisted that we should join in the general festivities at the December meeting, and stuff our faces with Christmas cake instead. How could that

be more fun than an in-depth accountancy conference?

Perhaps we can compromise with a xmas jelly bean counting competition. The winner must come up with a computer program to:

- Count a large jar of jelly beans

- Dissect the grand total into separate categories, ie red, green, etc

- Post all totals to a general ledger, and produce a trial balance

- Carry out proper stock control so they don't get eaten first.

In any case it looks as though we have plenty of enthusiasm to bring to our meetings. Our main priorities will be to get to know each other better (that doesn't mean you have to give your tax file number to the member who happens to be an accountant from the tax office), to help members who need a bit of assistance with computer bookkeeping and accounting, and to help each other in the search for the perfect program. We might even have a laugh or two along the way!

See ya at the next meeting.

Carol Kloske.

DTP SIG

This was originally convened some months back by Ralph De Vries, then became the venue for a group to assist with magazine production. That didn't work out for various reasons, but meetings had continued informally.

Last month I told Bernard (SIGs coordinator) that I would see if there was interest in a formal DTP SIG. Well as it happened, when the advertised first meeting came close, I got a business invitation for the same time and the way things are I just could not pass it up for a spare time activity, and so I was not able to get to the meeting. That situation is quite likely to recur, so perhaps I was unwise to make

such a commitment.

The meeting was at 6:30 on Friday 13 November (the Friday just before the Sunday main meeting) at sPrintout, Toowong. That is a Do-It-Yourself DTP studio business operated by our member Chris Pritchet. There are four large screen PCs running Pagemaker, Corel Draw, Micrographics Draw and MS Word, and with scanning facilities That makes it a very good venue for a DTP group, at least if they are interested in Pagemaker based DTP. We are very grateful to Chris for making it available. Since I was not able to so, I asked Chris to demonstrate Micrographics Draw, and to ask those who came about their interests.

It seems about 10 turned up, but most were interested in using the Windows graphic based word processors for DTP type of tasks, and few had the use of Pagemaker or any other true DTP program. That puts a different slant on it, and moves away from my own area of expertise, as I don't use word processors at all. I prefer to use a simple text editor and a DTP program.

After discussion with Chris, it seems more appropriate for such a group to meet on the Sunday at 3 o'clock like the other SIGs. Possibly their interests might be quite well served by the present Windows SIG.

We (Chris and I) agreed that we would hold another meeting at sPrintout on the Friday before the December main meeting (11 December) since that formula had already been announced, but probably none after that. It sounds like what is more in demand is a SIG for advanced use of WYSIWYG Windows word processors, and it would be more sensible to find a leader who knows about that. So that's probably the end of the DTP SIG experiment for now. Anyone interested in these topics is welcome to contact me or the SIGs coordinator Bernard Speight (349-6677).

Geoff Harrod. 378-8534

MR FIX-IT

The Case of the Lazy Tower

with Ron Lewis

This story involves my own main PC, the tower case 486-33 that I occasionally bring on Sundays when I want to demonstrate CD-ROM readers or co-processor video boards or caching hard drive controllers.

The Phantom Reboot

I was preparing it recently to take up to Gympie to demonstrate Multi-Media applications (the 386-40 mini-tower I normally use doesn't have all the fancy bits), and at the same time trying to finish off a couple of articles for the magazine. All was proceeding normally until I happened to touch the front of the case near the speaker with my toe ... instant reboot. This was annoying, but not disastrous, as I have learnt by hard experience that when printing from Windows you save the item first in case Windows comes up with a UAE (or its Version 3.1 equivalent).

It was always possible that my "kick" just happened to coincide with a power "sag" (a drop in voltage to the point where the power supply quits) causing a reboot, so I pressed on, wanting to finish the magazine so I could set up for Gympie. Unlike their predecessor MFM and RLL types, hard drives these days can withstand much more than a gentle nudge before the heads snag the recording surface causing reboot.

However two hours later when a similar toe tap caused another reboot, it was time to switch off and investigate. Took the case off, and laid the computer down so I could see better in my somewhat cramped office. There was no sign of anything loose, frayed, kinked or otherwise "dodgy", so after a quick clean of all the card connectors (the gold-plated fingers which fit in the slots on the motherboard), I switched back on to see if I'd accidently solved the problem, although I'll admit to being far from confident that a mere clean would be sufficient.

It works laying down ...

The computer performed flawlessly. No amount of tapping, prodding and flexing could cause so much as a flicker.

Oh well, might as well stand the computer up, put the case on and carry on as normal (Note: it is good practice to turn the computer off first before you stand it up). Got the computer half-way up to vertical, and it rebooted and froze. Turned the computer off, laid it down and restarted (all normal), but as soon as I tried to sit it up ... reboot and hang. Now I checked all hard drive and floppy drive cables and main power leads. *All apparently normal.* Even replaced the controller and video cards in case one of them had cracked a dry joint ... no better. It was now time to go to Gympie, so I asked Lloyd to bring his tools, so we could check the motherboard and power supply for dry joints.

It worked fine laying down ... but went completely dead when stood up

---

Check the Joints

As Lloyd will tell you, the standard of soldered joints in power supplies is notoriously bad, and as some joints are required to mechanically support fairly heavy components in a tower case, cracked joints can give problems.

On Saturday when we arrived in Gympie we proceeded to pull the power supply apart and redo all suspect joints (quite a number). The motel owner, a relatively inexperienced PC owner was amazed how much equipment could be pulled out of one box and spread across his carpet.

All this attention still failed to cure the

computer's vertigo ... it worked fine laying down, but hung as soon as it was stood up (I am resisting the temptation to compare this machine with some ladies I knew as a callow youth).

So the whole day's presentation at Gympie was done with the computer prone.

Time to find out for sure

When I got it home, I was determined to find the cause, so decided to pull out all the cards and the motherboard to check for cracked tracks.

And there's the cause

As I removed the motherboard the cause was immediately apparent. A metal serial port blocking piece (a piece of pressed metal about 50x10mm) had managed to get into the case, fall down between the underside of the motherboard and wedge against the metal backing plate. The screw used to secure the blocker in its rightful place at the back of the case was still attached, and in fact was acting as an axle. When the computer was lying down, the blocker flopped harmlessly away from the motherboard. On standing it up, the flap rotated and shorted out a couple of pins *on the main processor.*

The most likely result of this short is instant (and perhaps fiery) death of the CPU ... a $1000 bang, so I was very lucky. Where the blocker piece came from, I don't know - I've never lost one! At no stage could I hear anything rattling - it was firmly wedged.

How it got loose from wherever it was I could guess. I had taken the computer to the Brisbug meeting the week before and it had been handled a few times. But how it got there in the first place and remained undetected for over a year, during which time I had changed most components in the case, I just don't know

Sometimes you have to be lucky?　O

Importing Program Code into Pagemaker

Geoff Harrod

Generally Pagemaker is quite accommodating in its prerequisites for text files that it will import, but there are a few points to watch when wanting to print program code listings in a typeset article.

WHEN I used to use Ventura I always had to take special care to thoroughly vet and specially edit all text files before running Ventura to avoid getting into difficulties during page layout. Pagemaker's import filters and especially its ASCII filter are a great improvement. However, there is one case where it is a bit picky, and that is importing program code listings, a thing that we quite often need to do here at Sig Bits.

Must use a fixed width font!

Firstly, I hold very strongly to the assertion that program listings must always be printed in a monospaced font. Many journals make the mistake of using the normal proportional fonts and the important punctuation marks and space characters get very hard to distinguish as they are usually given an exceedingly narrow width. Particularly it is almost impossible to tell for certain whether a space exists or not or whether there is more than one space. These things are often vitally important in a program. So rule one is: ALWAYS use a monspaced font for listings. That's just a general caveat, not peculiar to Pagemaker.

Separate code files

Usually it is best to have program code and its accompanying explanatory text as separate files, and if they come as a single file, I always cut out the code sections to separate files. This is for two reasons.

First, the code usually has lines too long to fit within the normal magazine column width and it is very confusing to print the lines broken. In most program languages it would in any case make the code invalid to do so. So the code sections need to be printed in their own inset boxes running over two column widths or more.

Second, the text will be printed in the magazine columns by reflowing the lines of each paragraph to fit the column margins. This requires the "Strip returns at end of line" option to be selected in the ASCII filter. The paragraphs must be indicated in the original text file by having a blank line between them, which that option strips out. Program code on the other hand must have its lines kept intact so that option must not be ticked. Therefore they must be in different files.

Quote mark options

So far, nothing peculiar to Pagemaker. Now, this is the odd part. One of the text import options in Pagemaker (as in other DTP systems) is to convert typewriter quote marks ("xxx") to proper left and right paired typeset style quotes ("xxx"). This is usually desirable for text but must *not* be done for program code. In Pagemaker, the option to control this is on the initial import-file pick box, not in the ASCII filter options box. The odd thing is that the quotes option check box gets disabled if you override Pagemaker's normal automatic filetype recognition system, and then you can't unselect it.

This filetype overriding usually becomes necessary with code files because they have extensions that Pagemaker does not know about. Pagemaker uses the filename extensions to recognise various text or graphic file formats that it knows how to process. The repertoire depends on the filters you installed. You have to override the automatic file extension recognition in order to be able to pick files with unrecognised extensions. You do that by typing * . * into the filename box and pressing enter. Then the list box shows all files in the directory, rather than only the ones with extensions that Pagemaker recognises.

Then when you pick a file such as ABCDE . C Pagemaker pops up a box saying "I don't know how to process that. Select the file format to be used.", and a list of supported formats appears. You pick "ASCII Text" and get the usual ASCII filter option box. This will then import the ABCDE . C program listing as ASCII text which should be OK. How-ever, the "Convert Quotes" option was preselected and was not able to be turned off when you typed in * . *, so the file is imported with quotes converted, which is not desirable.

Furthermore, the monospaced fonts such as Courier and Letter Gothic (also known as Monospaced or Lucida Sans Typewriter) usually do not have typesetter's quotes defined (since they are essentially typewriter styles). Pagemaker overcomes that by using two graves (` `) and two apostrophes (' ') instead. That looks very odd indeed, and would certainly generate errors if anyone copied the printed listing exactly into a program. So we need to force Pagemaker not to substitute for the typewriter quotes.

The best way I have found to do this, is to rename the code file to extension TXT. Then there is no need to enter * . *, Pagemaker will recognise it as needing the ASCII filter automatically, and you get the opportunity to uncheck the "Convert Quotes" option. The only other way is to manually go through the imported text and type in the keyboard " key in place of all the substituted ones, which is very laborious and easy to miss some. If you do import without automatic quote conversion and then want to change some to proper quotes they can be typed in by Ctl-Shift-[for " and Ctl-Shift-] for ".

Width and Leading

Finally, I usually find the standard form of monospaced fonts is excessively wide and hard to fit the typical code lines in the widths available. So I use Pagemaker's facility to change the character width. I define a style called CODE that uses Corel 3.0's "Monospaced" TrueType font, a size of 9 point, a leading of 9.5 points, set its width to 70% and set the paragraph spacing before and after to zero. That prints quite legibly and compactly, and is also good for little bits of code within the text or for command line examples in the text. ❏

FUNCTION KEYS

How to program keys to do things you want them to.

WHEN I first started using the IBM compatibles I used to wonder what was the use of all those keys across the top of the keyboard. You know, the ones with F1, F2 through to F12. They seemed to do nothing in general but I did notice that some programmes let you use them. DOS had a limited use also, just the F1 through to F6 keys could produce a little action.

I thought: "Well, why can't I use them too; there must be some way to get them to do what I want". I asked around but was told "You can't use them" or "You can but you have to be able to program first".

Then I noticed in the MS-DOS User's Guide and User's Reference version 4 on page 302 that it showed the codes used by ANSI.SYS to redefine the keyboard keys. In the usual fashion the book may have given the codes but they were not going to give away how to use them.

The next problem was now that I had the codes, how was I going to use them, let alone get them to work? Then by chance a month or so later, I came across a couple of old articles in two different magazines which talked on how to reprogram the function keys or any of the keys on the keyboard for that matter. I will not bore you about how I finally worked it all out, but will instead show you how to set up your own keys for whatever you want.

If you are like me sometimes prone to make the occasional typing mistake when calling up a favourite program or maybe just a simple DIR command then you may wish to read on...........

Somewhere on your keyboard (usually across the top) are a row of keys with F1, F2.. through to F10 and also maybe F11 and F12. There are some programs that we may use that call upon these keys but on exit they basically do nothing. Test it: When at the DOS prompt, press F1 through to F12. Did anything happen? If it did, "Can you use it?". If the answer is no then I will show you how to make those keys work for you.

Note (1)

DEVICE=ANSI.SYS should be in the CONFIG.SYS file. The file ANSI.SYS should be in the root directory of the disk that you boot from or you need to prefix the path to the name.

Let us dream that it would be nice to push say F11 and have the computer give us a directory wide listing or push F12 and have a normal directory listing with a pause at each full screen. If you type the following exactly as shown then that dream key can happen.

You can use any text editor that allows you to insert an ESC character. The one I will refer to is EDLIN which comes with all versions of DOS.

[NOTE from Sig Bits editor: It is easier to use EDIT in DOS-5, or Q-EDIT that Brisbug can supply. Don't use any word processor as that will rarely work for this. Barry's instructions that follow apply only to EDLIN. The ↵ charcater at the end of each line is used here to mean "press ENTER"]

STEP (1) Load Edlin with a "program name" that is suitable. Example :- `EDLIN FUNCTION.KEY`

STEP (2) When the * prompt appears press I (for insert) ↵

STEP (3) Type:-
```
^V[[0;133;"DIR/W";13p↵
^V[[0;134;"DIR/P";13p↵
^V[[0;135;"A:";13p↵
^V[[0;136;"B:";13p↵
```
press CTRL+C   (tells EDLIN to stop inserting)
press E ↵

A file is now written to your disk or hard drive called `FUNCTION.KEY` You should now be at the dos prompt.

Note (2)
To get ^V press CTRL+V (V the capital letter. This is our ESC character)
To get [[press the left square bracket twice.
To get 0;133 type as shown (this is key F11).
To get "DIR/W" type as shown (command for DIR wide).
To get ;13p type as shown (small letter p forces auto return).
To get 0;134 type as shown (this is key F12).
To get 0;135 type as shown (this is shift+F11).
To get 0;136 type as shown (this is shift+F12).

To use other function keys change or add to the key code.

What we have set up with the four lines of code is this :-
F11 = DIR/W (will give automatic directory listing wide)
F12 = DIR/P (will give automatic directory listing with pause)
F11+shift = A: (calls up the A drive prompt)
F12+shift = B: (calls up the B drive prompt)

To get the code to the keys enter :- `TYPE FUNCTION.KEY`

If nothing appears to happen then all may be well. Nothing should come on the screen. Try pressing F11 or F12 to see if you get a response. If they work that's it. If not, redo the exercise and watch for mistakes. The keys will stay programmed until you switch off the computer but if you like what you see they can be loaded at start up by placing the command `TYPE FUNCTION.KEY` near the end of the AUTOEXEC.BAT file. If you place FUNCTION.KEY in the DOS directory then don't forget to add in the path... `TYPE \DOS\FUNCTION.KEY`

If you have done the code as I explained above try this, but put a disk in Drive A first. Press SHIFT + F11 then F11. You should

have jumped to A drive then got a wide directory listing.

How many times have you hit the SHIFT+COLON key only to find that you let go to soon and typed a SEMICOLON instead. If you want to swap them around you may wish to try this:-

^V[[58;";";p↵ {code 58 is the colon key}
^V[[59;":";p↵ {code 59 is the semicolon key}

Maybe the F1 key can be more useful if we program it so we can jump into GWBASIC:-

^V[[0;94;"GWBASIC";13p↵ {code 0;94 is CTRL+F1}

Note (3)

While in GWBASIC your function keys will be lost but return on exit. So don't try to program one key with "SYSTEM" on it.

You may also find programs that want to use the keys will overwrite them giving them back on exit. I did have an instant when I had programmed F10 to do whatever, but I found that one program needed F10 to exit so I was unable to get out except by a reset. To avoid a possible conflict, don't reprogram the straight F1 to F10 keys, but combine them with the shift, ctrl and alt keys.

Reference information :-

PC PERSONAL COMPUTING OCT 89 Pages 27-28-30
(English Book)

THE AMSTRAD USER FEB 89 Pages 46-47
(Misprint in codes)

ANSI KEY CODES - MS-DOS 4.01 Page 302			
Key alone	shift	ctrl	alt
F1 0;59	0;84	0;94	0;104
F2 0;60	0;85	0;95	0;105
F3 0;61	0;86	0;96	0;106
F4 0;62	0;87	0;97	0;107
F5 0;63	0;88	0;98	0;108
F6 0;64	0;89	0;99	0;109
F7 0;65	0;90	0;100	0;110
F8 0;66	0;91	0;101	0;111
F9 0;67	0;92	0;102	0;112
F10 0;68	0;93	0;103	0;113
F11 0;133	0;135	0;137	0;139
F12 0;134	0;136	0;138	0;140

Below are the current settings of my keys and they all work fine from the DOS prompt.

```
F11 ............ ^[[0;133;"DIR/W";13p
F12 ............ ^[[0;134;"DIR/P";13p
SHIFT + F11 .... ^[[0;135;"A:";13p
SHIFT + F12 .... ^[[0;136;"B:";13p
CTRL + F11 ..... ^[[0;137;"C:";13p
CTRL + F12 ..... ^[[0;138;"D:";13p
ALT + F11 ...... ^[[0;139;"xtg";13p  (calls up a batch file)
ALT + F12 ...... ^[[0;140;"pct";13p  (calls up a batch file)
CTRL + F1 ...... ^[[0;94;"gwbasic";13p
CTRL + F2 ...... ^[[0;95;"exit";13p
```

Have fun, *Barry*

Windows Shareware

Reviewed by John Massey

Windows Mekanix

Version 1.0 Author: David R. Green

A collection of stand alone utilities for Windows 3.x. Please note that Vbrun100.dll is required for these programs. The author recommends copying the group-s.dat file and PIFs to your Windows sub directory.

Metricalc

A neat and tidy metric conversion calculator.

Sprint

A print utility for text files, designed to dump files to the printer. It does not manage Write, Word for Windows, binary or other formatted documents. The program links to the Windows Control panel to provide selection of the default printer.

Mekbase

The author states that this is a database with 11 fields capable of holding 4 Billion records. I haven't bothered to attempt to put in that many to check out his claim. Fields' 1-10 are alpha numerical and will hold a maximum of 40 characters. Field 11 is alpha numerical and capable of holding 80 characters, primarily for use as a memo field. A proprietary format (bds) is used for the database structure. The program gets rather upset if you attempt to read *dbf files. Quite a nice little database, make it dbf compatible and I'll be interested. Now where do I find 4 Billion records?

Mekclock

Another clock complete with date and alarm. It joins the collection of clocks and trash cans. The program works quite well but I don't need another clock.

Mekfiler

A quick and simple file manager that provides the basic functions for files and directories. It deletes, copies, runs, moves , renames and provides basic information on files makes and removes directories.

Mekzipr

Possibly the pick of the bunch in this collection of utilities, Mekzipr is an archive manager for the PKZIP and LHA utilities. It has a nice interface with clearly defined source and destination boxes. You can Zip, Unzip, Add or extract from a lzh file, Copy, Move, Delete, Rename, remove or make a directory, Test a Zip file and view zip or lzh file formats.

Comments

I'm impressed by the neat and tidy appearance of the utilities. Simple and straight forwarded in appearance. The Help screens are particular nice and to the point without piles of rambling. The database and archive manager are impressive. Convert the database format to dbf and I'll be even more interested. The author offers a Bonus disk of goodies to registered users.

Files from Brisbug PC Users Group BBS

Maths Co-processors

Geoff Harrod

After reading Colin McIntyre's item in September Sig Bits about fitting a co-processor, it occurred to me that as one who works with systems that always require a copro (CAD and Engineering software) I overlook the fact that most PC users have no experience of them. Colin's words were certainly all correct but confined to his particular situation. It might be useful if I explained a few things about them in the most general sense.

NOW that copros have become so much cheaper more members might feel inclined to get one. There are some traps though...

First, make sure the software you use does in fact recognise and use a copro if one is found to exist. Most common office software does not, except for some spreadsheets. If your software doesn't make use of a copro, then it's a total waste of money to buy one. The promotions for them can give the impression that they speed up everything and many glib salesmen, who wouldn't know a copro from a UART, even tell people they will speed up Windows screens!

Basically it is only maths intensive software that can benefit, and only if written to do so. Some very maths intensive software such as CAD and Engineering design systems like Finite Element Analysis will not work at all without a copro. Spreadsheets like Lotus and Excel will show a benefit but it will only be really noticeable when being called upon to do intensive maths such as iterative convergent series and statistics.

Get the right one

Make sure you buy exactly the correct copro for your machine type, CPU type, clock speed and type of copro socket. Generally it must be at least as fast as the CPU. The old rule for the earlier ATs and XTs that the copro ran at 80% of the CPU speed ceased being generally true some years back.

A 386SX must have an 80387SX copro and a 386DX must have an 80387DX copro. Usually the wrong one wouldn't fit anyway. SXs are normally the side contact square type whereas DXs are usually the square pin grid type -- but check!

Some early 386s would only take an 80287 not an 80387. A few odd 286s had no copro socket at all! The Kaypro for example needed a special adapter board that plugged in place of the CPU. You probably can't get that now.

Installing

Be extremely careful inserting it. The pin grid 80387s are not as difficult but the square snap-in 80387SXs are easy to get jammed in crooked and are extremely easily damaged when trying to get them out.

> **If a pin is bent under or suchlike they can burn up and even melt the pins off or blow a crater out of the top!**

The rectangualr (DIP) 80287s and 8087s are very easy to get in with a pin bent under without noticing even on careful examination, and it is also very easy to bend the pins when extracting. Straightening a bent back pin usually results in it breaking off and rendering the chip useless. With the 80287s you have to straighten the splayed-out pins first and you should do this against a metal surface rather than an insulating one, and avoid touching the pins with your fingers as much as possible.

Make very sure it is the right way round! Read the motherboard book to check. The square ones have three wrong ways and it can be quite hard to be sure of the right one. The chips are marked with the pin-1 corner reasonably clearly, but the sockets often are not.

Some have one corner a slightly different shape to the other three but some rely on

board printing. Occasionally the socket and the board marking disagree! Then ring the agent. I did one once where the markings and the book disagreed, and it turned out the book was wrong!

For the DIP 287s usually all the chips are alligned the same way. The chip markings can be ambiguous. A groove on the end or a tiny dimple in one corner takes precedence over big round moulding marks on the centreline near the ends.

For copros in laptops there are special difficulties. Not only are they usually in impossible places needing major dismantling of the whole thing, but they often must use a special low current CMOS type that is much more static sensitive and so needs extremely careful handling. Usually it is best left to the agents. Many make no provision for a copro at all.

Many 386DX machines have a copro socket that seems too big. That's because it can accept either an Intel 80387 copro or equivalent, or the much higher performance Weitek copro which is larger, and very, very much more expensive (like over a grand!). You have to leave one unused row of holes all round when using an 80387 chip. It is very easy to insert it in the wrong rows of holes in the larger socket, and the result when power is turned on can be fatal for the whole motherboard. (How do I know?)

Settings

Some machines require you to flick tiny DIP switches to tell it about the copro, others need you to alter the CMOS setup, others require both those, and others figure it all out themselves. You just have to read the motherboard book and maybe the BIOS book. ("What book?", did you say?) Make sure you have one before embarking on this! Oh yes, and make sure the book seems to match the actual

motherboard! The boards with Weitek provision invariably need a switch set to say what sort of copro.

If the socket is in a place that is even slightly difficult to reach (not just absolutely impossible), it is best to extract the whole motherboard. Believe me, that's true! It's easier in the end. Benefit from my costly mistakes!

Testing

After inserting the chip and setting whatever has to be set, and reassembling things, make sure the monitor is on first, then apply power and watch the monitor. If it fails to display anything, or stops during the normal startup messages, switch off immediately and investigate if the chip is in right way round or what.

If it does start up normally, feel the chip after a few minutes. They get rather warm, (and often extremely hot while processing hard) but shouldn't get to finger burning stage while idling. If so, turn off. If a pin is bent under or suchlike they can burn up and even melt the pins off or blow a crater out of the top!

If all seems well, it is best to run a test program. Some copros are supplied with a test disk. Otherwise use whatever you can find, such as one of the public domain diagnostic disks, or run a program that won't run without a copro like AutoCAD, if you have such.

If a program that uses a copro runs OK, but occasionally stops dead, hanging the computer without any error message at all, and it never happens when running non-maths programs, that may well indicate a copro fault. It could be an insertion problem or a manufacturing fault (which is fairly rare) or the wrong speed rating.

Some early 80386DX-20 CPU chips had faults that only show up on protected mode operation and with copros. They were mainly found in early IBM and Compaq 386 machines.

The more common reason is the copro chip not being pushed in far enough, or having popped up slightly. It requires very hard force sometimes to get them to click right down.

486s

A final word regarding 486s. The 80486DX has a maths copro built in, so you never need to fit one. Most 486 machines can accept a Weitek copro but they could only ever be justified for comercial use doing intensive 3D rendering and animation.

The 80486SX lacks the in-built copro, and although 486SX machines have a copro socket I don't think you can actually buy one. In any case it would be cheaper to get a proper 486DX in the first place. So don't let salesmen talk you into a 486SX if there's any chance at all of you ever needing a copro.

In fact, I reckon the 486SX is a silly machine, as one who needs 486 performance often needs a copro. A 386DX-40 is a better buy in my opinion, if you can't afford a 486DX-50. You save the cost of the copro if you don't need it, can add one if your needs change, and it's faster than a 486SX for similar money. Some may see it differently, but that's my opinion.

❑

Help wanted!

How to Measure a Visual Analog Scale?

Moya Conrick

I am sure that there must be someone out there who can find an easy way to measure a Visual Analog Scale (VAS). I suppose a good start would be to explain just what a VAS is.

Well a VAS is an evaluation tool which has been developed to enable an assessment of those behaviours given as anchoring criterion. The student or person being assessed is able to reflect on those anchors after an interaction and score their performance. A VAS is used with the assessor (self or other) choosing a

point between the two qualifiers which best represents or indicates the performance of the person. There are two fixed points on the scale - requiring more guidance at one end and totally satisfied with the performance at the other or any other qualifier felt appropriate. Succinctly stated, a VAS is a unidimensional scale quantifying only one area.

An assessment sheet with instructions would look something like the panel below.

My problem is to measure where the line has been cut by the assessor. The line itself is 10 cm long with the assessor cutting the line at a point where he or she feels the student behaviour is at; ie, at any point on the line. This point needs to be quantified to assign a grade. I have achieved this successfully using a photocopied rule but when this involves some 100's of documents with approximately 20 lines it becomes quite a chore. Can this be done electronically?

SAMPLE VAS

Please indicate your rating of each of the following student behaviours by cutting the line with a vertical line eg ——————/————————

	Totally Dependent	Totally Independent
Carries out an assessment of the client and situation before communication with individuals or groups		
Uses effective communication strategies to interact with individuals and/or groups		
Acts effectively as a group member/leader		

SOFTWARE LIBRARY NEWS

CHRISTMAS LISTINGS

Once again the Festive Season is upon us. Another year of Brisbug is drawing to a close. Elsewhere in this issue is a listing of our latest games selection which have been included in the library over the past twelve months.

Brisbug also has a selection of games in our Kits. If you haven't tried our Games Kits, I suggest you give them a try.

CHRISTMAS MEETING

At the December meeting, the library will close at 3.00 p.m. to allow the library workers and staff to enjoy the Christmas festivities planned for this meeting. Members must ensure that all orders for disks etc. are placed by 2.15 p.m. and are collected before the library closes at 3.00 p.m. If you plan to come to the meeting, place your orders early to avoid dissapointment.

CHRISTMAS VACATION

Mail and Telephone orders for library disks will close on the 16th December, and all orders will be despatched in time to reach you before Christmas (depending on Australia Post). Please place orders early to avoid disappointment. The Library will re-commence from the 11th. January 1993.

LIBRARY CHARGES

Disk copying charges are still the same

5 1/4" disks — $ 4.00 each

3 1/2" disks $ 5.50 each.

Packing and postage

up to 8 disks - $ 3.00

over 8 disks - $ 5.00

Catalogs

Upgrade $ 2.00 with an order or at meetings

$5.00 without an order

$10.00 if old catalogs are not returned.

MINIMUM CREDIT CARD ORDER is $25.00

MERRY CHRISTMAS
AND A
HAPPY NEW YEAR TO ALL

GUILTY ??

Well ... *er .. ummmmm ... er ... I've ... er ... ummmmm .... got this here ... er ... ummmm ....bird*

What is our Chief Librarian up to ??

See over ▶

"It sits on my hand to feed ...

But I wish it would sit on a branch to POO!!!"

Wildlife lovers please note: The bird was always free to fly away ("shoo, shoooo", was a common sound around Lloyd's workshop), and has now rejoined its wild bretheren.

EXPLANATION

Lloyd's wife Lyn, alias the Director of the Chief Librarian, found this barely feathered Leatherhead chick which had apparently fallen from a nest. Knowing it wouldn't survive unaided, Lyn brought it home for Lloyd to aid.

An experienced Grandad, Lloyd had little trouble coping with 2-hourly feeds.

Rumour has it that Lloyd's dog, BJ, reckoned that it bore a delicious resemblance to a quail, and offered to instantly remove the need to feed it.

Library customers who were puzzled by the odd background noise when ringing orders through to Lloyd, can now be reassured that the quality of their telephone service is no worse (or no better) than usual.   O

Library Special Listing

GAMES FOR XMAS LEISURE TIMES

ADVENTURE GAMES

It's Holiday time - Christmas is just around the corner - NO ... Christmas is at the corner. This is the time to think of relaxation - especially on your computer. Children of all ages (even grown-up children) love a challenge, and WOW! have we got some challenges for you!

Brisbug has a large collection of GAMES in our library. No matter how sophisticated and complicated computer programs can be, a good game can be a challenge to all.

The listings below contain details of a number of games included in the library over the past 12 months - this is by no means all the games included on our extensive catalogs - if you want to look at all our games, I suggest you ask "LOOKFOR" to search your catalogs for "Games" and print out the listings. (By the way you'll need plenty of paper in your printer, as the list goes on and on...)

Some of these programs are two disk sets, so make sure you order both disks to get the complete game. Also, a number of games have been issued in "Kits" -check these kits out for additional enjoyment.

To assist in your selection, the games have been categorised.

BBUG 2505 COMMANDER KEEN MAROONED ON MARS Volume 1

*CLASSIFICATION * Games * Hard/ Floppy Disk * EGA*

COMMANDER KEEN "INVASION OF THE VORTICONS" - MAROONED ON MARS features ultra high-speed smooth-scrolling EGA graphics and superb sound effects. The animation and scrolling is updated at nearly 40 frames per second, for comparison, motion picture quality cartoons are filmed at only 24 frames per second.

The story of Commander Keen is epic, and in the style of the memorable matinee serials, like Flash Gordon. You play the role of Billy Blaze, eight year-old kid genius who builds an interstellar ship when not working at home on his college fast-track degree. Among other household objects, Billy uses his Nintendo joystick for flight control and his mom's vacuum cleaner (heavily modified) for his ship's ion propulsion system (with pile height adjustment).

At the hint of galactic trouble, Billy dons his brother's football helmet and becomes "Commander Keen"Ddefender of Earth! Ever on the side of justice, fairness, and high calorie junk food, Keen dispenses justice with an iron hand.

Keen's first adventure takes you to Mars, where the Vorticon invasion force is planning their conquest of Earth. While Keen is exploring Mars the Vorticons steal pieces of his ship and hide them within their cities. Can Keen recover all the pieces and repel the Vorticon invasion? You'll explore many dangerous cities, packed with diabolical traps and hideous creatures, both of Martian and Vorticon origin. Use your pogo stick to reach high ledges and jump deadly pits, and use your ray gun to stun the Vorticon invaders. Can you find the secret city?

BBUG 2573 THE LAST HALF OF DARKNESS

*CLASSIFICATION * Games * CGA * Hard/Floppy Disk*

Do you like graphic adventure games with sharp pictures, mouse support, save and restore game functions, and spine-shivering puzzles to solve? Then THE LAST HALF OF DARKNESS is for you!

When the game starts, you find yourself in front of your recently deceased aunt's mansion. In order to gain the title to her fortune and estate, you must find the ingredients to a potion she was working on before she was killed. It won't be easy as there are many strange denizens in the old mansion. Some will help you in your quest, while others would just as soon finish you off!

Choose one of the listed commands with either the keyboard or mouse. Use speaker sound or Covox's Speech Thing. Examine everything, take what you can, and don't forget to save your game before you do anything dangerous which, in this game, can be a frequent thing.

What are you waiting for? Dust those cobwebs off your trusty old map notebook and take a journey to THE LAST HALF OF DARKNESS!

BBUG 2746 QUESTMAKER Version 2.1

*CLASSIFICATION * Games * Hard Disk * EGA/VGA*

Welcome to an exciting new program where you can play, modify and make your own Animated Adventure games. QUESTMAKER is a program that allows you to create your own adventure games using the QUESTMAKER editors in conjunction with a graphics editor like PC PaintBrush for the creation of graphic screens with a .PCX format.

QUESTMAKER is the first integrated graphics-based adventure game creation tool of its kind. QUESTMAKER uses EGA 640 X 200 16-color resolution graphics. Most other Adventure Games use only 4-color graphics or the lower EGA resolutions.

QUESTMAKER also makes an excellent educational tool where you can create subject specific games that make learning fun for your family and friends. The adventures you create are limited only by your imagination.

You will find QUESTMAKER packed full of functions that would normally cost you hundreds of dollars. In just a few hours you can learn to modify the existing game to create your own exciting, graphics based adventure game. It takes a team of programmers almost a year to create a complete game from scratch, but you can create a complete game with QUESTMAKER in a matter of days. No programming experience is required to create your own games. However, a working knowledge of DOS is recommended as well as a little experience with a .PCX format Paint program.

QUESTMAKER comes with a complete sample tutorial game called the "Adventures of Hero Harry." This game demonstrates most of the program functions. You won't need to worry about details such as Save and Restore operations, character movements, game Help, speed control, and inventory management since they are already built in. These automatic functions will reduce your game development time. Create a complete game in a couple of days instead of a couple of years.

BBUG 8910   COSMO'S COSMIC ADVENTURES (Disk 1 of 2, also 8911)

*CLASSIFICATION * Games * Hard Disk *EGA/VGA *Joystick * 286/386/486 ***
NOTE: COSMO REQUIRES an 80286 or better system to run. *

What's green with red spots, has suction hands, and has an overbite like Bart Simpson? Of course, the answer is COSMO! A young alien on his way to visit Disney World with his parents. That is, until their ship is struck by a blazing comet, forcing them to land on an uncharted planet. While his Dad repairs the ship, COSMO heads off to explore the strange planet. Upon returning, both his

Mom and Dad are gone— and big, scary alien footprints are all around his ship! Oh no...has COSMO's parents been taken away? Possibly to be eaten?! Well, COSMO is off to the rescue.

COSMO's Cosmic Adventure is an epic journey across a forbidden planet full of dangers and surprises. Can he save his parents in time? COSMO is a lovable extra-terrestrial (alien) with a special ability, he has hands that work like suction cups! He can cling to walls, ledges, and all sorts of things.

BBUG 8942   PAGANITZU Episode 1

*CLASSIFICATION * Games * CGA/EGA * L/Floppy/Hard Disk * Joystick Optional*

Journey into an Aztec pyramid and survive the adventure of a lifetime! No other game forces you to die in order to complete it! That's just one of many incredible plot twists in this excellent puzzle-oriented arcade/ adventure game.

In Paganitzu you'll guide your character, Alabama Smith (Al), into a vast and dangerous Aztec pyramid. Indiana Jones never had it so tough! Inside, you'll confront traps of increasing perplexity, and creatures you never dreamed existed.

In episode one, "Romancing the Rose", Al discovers that the ancient Aztec pyramid, known as "Paganitzu", holds many dark secrets. Al inadvertently releases a spirit of immense power, who's desire is to ravage the world. This is a genuine adventure—not just a series of levels to conquer. You can follow different routes to achieve the winning goal. In fact, you can finish Paganitzu and still have missed many of the game's intriguing situations or animated sequences.

Phenomenal animated sequences carry you through the entire pyramid and to a dramatic conclusion.

Paganitzu is an innovative arcade game. It tests your mind more than your finger speed. Each part has new puzzles, new

graphics, and stunning story surprises. You won't be bored!

Exciting features:
~ High-speed animation
~ Many full-screen images
~ Dramatic animated sequences
~ Arcade quality sound effects
~ Over 1 Meg of graphics.
~ Built-in hints
~ Often hilarious game
~ Save and restore up to five games
~ Many secret rooms and treasures
By the way: "Paganitzu" is Aztec for "Temple of the Gods".

BBUG 8944 WOLFENSTEIN 3-D   (Disk 1 of 2, also 8945)

*CLASSIFICATION * Games * Hard Disk * VGA Only * Mouse/Joystick * Soundblaster * 80286/386/486 system*

WOLFENSTEIN 3-D is simply a technology breakthrough! The first person perspective 3-D gameplay you'll be viewing is the fastest of any PC game game—much faster than that seen in Origin System's The Stygian Abyss! Incredible Sound Blaster digitized sound effects are used throughout the game.

You're William J. "B.J." Blazkowicz, the Allies' bad boy of espionage and a terminal action seeker. Your mission was to infiltrate the Nazi fortress Castle Hollehammer and find the plans for Operation Eisenfaust, the Nazi's blueprint for building the perfect army. Rumors are

that deep within the castle the diabolical Dr. Schabbs has perfected a technique for building a fierce army from the bodies of the dead. It's so far removed from reality that it would seem silly if it wasn't so sick. But what if it were true?

You were never given the chance to find out! Captured in your attempt to grab the secret plans, you were taken to the Nazi prison, Castle WOLFENSTEIN, for questioning and eventual execution. Will you be able to escape and finish your world-saving mission?

As an escaped prisoner in a Nazi war prison, you will move smoothly through a 3-D world full of amazing detail and animation. Unlike other 3-D games, you'll move SMOOTHLY through a sensational and realistic 3-D environment, with intelligent moving guards and opponents.

This is a high-action game. Use your rapid fire machine gun to mow down a line of enemies, or sneak up on a guard with your knife so you don't waste your limited ammunition.

PARENTAL WARNING: WOLFENSTEIN 3-D, due to its intensely realistic visuals, is recommended for children above 12 years of age. For younger players we recommend parental approval. We have voluntarily rated this game PC-13, (Profound Carnage!), which equates to violence seen in a PG-13 movie.

BBUG 8945 WOLFENSTEIN 3-D (Disk 2 of 2, also 8944)

BBUG 8951 HUGO III - JUNGLE OF DOOM! (Disk 1 of 2, also 8952)

*CLASSIFICATION * Games * Hard/L/ Floppy Disk * EGA/VGA*

Once again, Hugo is in trouble. Having survived a crash in the jungles of South America, his beloved Penelope is bitten by a giant tree spider. Hugo must find the antidote and save his lady friend.

HUGO III, JUNGLE OF DOOM! is the third and final episode of this hugely popular trilogy of colorful 3-D animated EGA adventure games. Having successfully outwitted the evil occupants of HUGO'S HOUSE OF HORRORS in episode one, and having solved the murder mystery in HUGO II, WHODUNIT? we join our intrepid heros once more.

HUGO III, JUNGLE OF DOOM! features spectacular graphics, a new "turbo" button and built-in hints. Will HUGO outwit the evil Witch Doctor, find the mysterious Pool of Life and finally defeat his archenemy the old man? The answer is yes, and much more besides!

BBUG 8952 HUGO III - JUNGLE OF DOOM! (Disk 2 of 2, also 8951)

BBUG 8953 COMMANDER KEEN IV - GOODBYE GALAXY! (Disk 1 of 2, also 8954)

*CLASSIFICATION * Games * CGA/EGA/ VGA * Hard Disk * Joystick/Mouse * Sound Card*

Eight year old Kid genius, Billy Blaze, is in his backyard fort testing out his newly built Photachyon Transceiver. Simply put, it's an instantaneous radio that can pick up signals anywhere in the galaxy.

While listening to an alien sitcom, "My Favorite Garg", Billy hears a disturbing message. Bzzt...grdddz...blow up...ferrrt...zzz...galaxy and... buzzt...rule...pzzzr...bip! "So the Shikadi are planning to destroy the galaxy, huh?", thinks Billy. "Sounds like a job for... Commander Keen!"

In this episode, "Secret of the Oracle", Keen rockets to an alien planet to rescue the Keepers of the Oracle, who are the only ones capable of helping Keen find out more about the Shikadi. Who are the Shikadi and why are they planning to use our Galaxy as target practice!

"Secret of the Oracle" is packed with exciting features which include: Incredibly smooth scrolling and animation, Titled perspective—gives all levels the appearance of depth. 1.6 Megs graphics for episode one, Ad Lib soundtrack. Episode one has 5 songs, 14 creatures in episode one, Three skill levels, which can add new creatures to the game! You can finally save ANYWHERE in the game, even inside levels. Amazing ending animated sequences. Star Wars-style text scrolling! Terminator-style opening sequence! Hundreds and hundreds of screens to explore, with HUGE levels. Keen has new abilities, such as hanging onto ledges and pulling himself up. Self-running demonstration mode. Joystick support. More fun than you can probably live with!

BBUG 8954 COMMANDER KEEN IV - GOODBYE GALAXY! (Disk 2 of 2, also 8953)

BBUG 8955 JILL OF THE JUNGLE Version 1.0

*CLASSIFICATION * Games * Hard Disk * CGA/EGA/VGA * Sound Card optional * 80286 or faster processor recommended*

JILL OF THE JUNGLE is the hottest shareware game release ever! Epic MegaGames brings you a new era in computer entertainment with this 256-color VGA arcade-adventure game which is up to par with the top Sega Genesis and Super Nintendo hits. Features digital sound effects and a musical soundtrack for the Sound Blaster and compatible cards!

Guide the beautiful Jill through sixteen huge smooth-scrolling levels, each filled with vivid new scenery and animated creatures. Not only can Jill run, jump, and use objects — she can also magically transform into other creatures such as birds, fish, and frogs. In fact, you will do quite a bit of hopping, flying, and swimming to solve this game.

Jill also supports CGA and EGA cards, but the real thrill of this game is the spectacular 256-color VGA artwork and animation. In fact, games like Duke Nukum could learn a few tricks from the smoothly-animated Jill.

BBUG 8960 SECRET AGENT Version 1.0

*CLASSIFICATION * Games * EGA/VGA * Floppy Disk*

SECRET AGENT -THE HUNT FOR RED ROCK ROVER.

To agent 006 - For your Eyes only Government scientists have been working on a secret project: A ruby powered laser sattelite with ability to pinpoint and fire on any target from Earth orbit, code named RED ROCK ROVER. Two weeks ago the blueprints were stolen by the Diabolical Villain Society (DVS) which will then use them to build the ultimate terrorist threat.

You've been chosen by the bureau to infiltrate DVS headquarters and secure the blueprints. The headquarters are located on a series of islands in the Pacific basin.

Your mission, should you chose to accept it, is to bring back the secret blueprints to the "Red Rock Rover" project. You will be isolated from outside help.

You should be warned that this misson is of global importance and must succeed in order to maintain a balance of world power.

BBUG 8962 DENARIUS AVARICIUS SEXTUS Ver 1.5

*CLASSIFICATION * Games * Hard Disk * EGA/VGA * Mouse (optional)*

DENARIUS AVARICIUS SEXTUS - A Roman Graphical Adventure Game. Back in good old A.D. 79, there lived a patrician Roman named Avaricius (Avvy to his friends.) He was about 26 years old and about six foot three. He had married a woman named Arkata, which was a mistake he lived to regret- she never stopped nagging him. His few slaves were so lazy he hardly ever saw them, except for one named Crapulus, who was always at least inebriated, if not downright drunk- apart from reading Avvy's mail (amazing! he could read) and doing the washing-up, he preferred to spend his time with an amphora of wine down at the "Canis et Anas" (his local.)

You'd think Avvy had problems enough. However, he also lived in a pleasant seaside resort you may have heard of, called Pompeii, and he was unaware that in a few hours' time he would be buried alive. Well, maybe. Perhaps, with the guidance of his guardian angel from the twentieth century (that's where you come in) he might escape both Arkata and the volcano. The date is... 24th August, A.D. 79.

ADVENTURE GAMES TEXT

BBUG 2581 FIGMENT - THE IMAGINATION PROCESSOR Version 2.46

*CLASSIFICATION * Games * Graphics Card * Hard/L/Floppy Disk*

FIGMENT is multi-media authoring system for interactive fiction. It is a tool for manipulating text under computer control either to present information or to create an illusion. This makes it good for developing certain types of simulators, role-playing trainers, and certainly for entertainment. FIGMENT has special features for modeling character development which makes it a unique tool for character and plot modeling as well.

FIGMENT is a spread-sheet/ word processor/ debugger for interactive fiction. You can write, play, and debug your work all in one package. No tedious compiling or loading is required. You can run your work immediately. FIGMENT brings the logic out to the user level where you can modify it or do whatever you want with it. The editor displays all the data structures for you to modify.

Play roles in existing interactive fictions or write them yourself. FIGMENT does all the hard work of developing an interactive story so you can concentrate on the creative aspects. You declare the objects, define the attributes, write the appropriate messages, and develop the logic. Programming is easy and quick with the full-screen editor and complete Help system.

BBUG 2684 SHERLOCK Version 1.1

*CLASSIFICATION * Games * Floppy Disk * EGA/VGA * Mouse*

SHERLOCK is a game of deduction. It is your task, based upon the information available in provided clues, to determine the locations of 36 blocks.

Every puzzle can be solved by using the clues to eliminate possibilities until the location of a specific block can be determined. SHERLOCK may be played by a SINGLE person, or a TOURNAMENT may be set up, with each person in the TOURNAMENT attempting to solve the same puzzle as quickly as possible.

A TIME LIMIT may be set if desired.
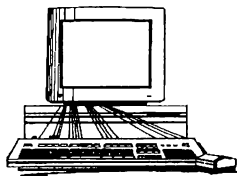
BBUG 2691   T-ZERO
Version 1.02

CLASSIFICATION * Games * Floppy Disk

T-ZERO is Time Travel - a text adventure in the grand style, mixing elements of fantasy and science fiction while exploring the nature of time. Scenes take place in a rustic but disturbing present, a bustling prehistoric era, and a damaged, bureaucratic future. Your task is to locate six round objects scattered across eras and landscapes, transport them to progressively future time-zones, and manipulate them in a fashion that will right the troubled times.

This game is dedicated to all gamers saddened by the premature death toll sounded for text adventures.

BBUG 2742   THE CASE OF CRIME TO THE NINTH POWER
Version 1.5

CLASSIFICATION * Games * Floppy Disk

THE CASE OF CRIME TO THE NINTH POWER is the first in the series featuring Cliff Diver, a hard-boiled, ex-cop private eye who lives and works in San Francisco.

You must help Cliff escape from the Zamboni crime family's secret headquarters. Along the way, you and Cliff will face snarling Dobermans, two of Zamboni's goons (named Flash and Bonzo), and many other twists and turns. A captivating mystery to solve.

This is THE AVENTURE TOOLKIT's 1990 Text Game Winner. The game features a 400 + word vocabulary, a pop-up Help system, and a Save/Restore feature. THE ADVENTURE TOOLKIT is contained on BBUG # 1230 and # 1231.

BBUG 2769   THE HOUSE AT THE EDGE OF TIME
Version 1.0

CLASSIFICATION * Games * Floppy Disk

THE HOUSE AT THE EDGE OF TIME, a puzzle of time and space. Your eccentric uncle has died under mysterious circumstances and left you fortune—that is, IF you can survive a night in his enormous Pseudo-Tudor-Greco-Gothic-Byzantine mansion, where time and space are not

exactly what they seem. In this text adventure, typed commands allow you to move around the mansion, interact with those you meet, and find the key to —well, you'll find out.

This game can be played more than once, because it's never the same game twice.

BBUG 2796   SKYLAND'S STAR Version 3.2

CLASSIFICATION * Games * 2/Floppy/ Hard Disk

SKYLAND'S STAR is a science fictional text adventure game which draws its inspiration from classic prose adventures.

The Earth is in desperate peril. The rapid growth in population and need for energy has all but depleted the world's fossil fuels. Science has been unable to replace them with a safe and reliable alternative.

The player, a member of a small group of scientists, is recruited to travel into the future to witness how the problem was solved - in the past. The bulk of the game takes place here, in a major metropolis of the future. The player must discover how the future solved the problem and retrieve the necessary information and items for the present to survive the crisis, so that the future he witnessed can exist.

The game is intended for anyone who wants a challenging, intelligent diversion from reality.

BBUG 8839   THE ADVENTURE GAME TOOLKIT

CLASSIFICATION * Games * Hard Disk

Have you ever had a wish that you could write your own adventure game but you didn't have the knowledge or ability to write a program to run your game?

Well... you don't have to wish any more. The ADVENTURE GAME TOOLKIT is designed to allow you to create and play your own text adventure games. Once created, your adventure games can be shared with and enjoyed by others — even if they do not have a copy of the ADVENTURE GAME TOOLKIT themselves.

The ADVENTURE GAME TOOLKIT has a number of features that make it a very comprehensive adventure product. These features make The ADVENTURE GAME TOOLKIT more powerful, more professional and easier to use than any

previously available Adventure Game development system. Some of these key features are:

POWERFUL - Big, complex games with up to 200 locations, 100 inanimate objects (e.g., treasures, swords, lakes, trees, books, etc.) and 100 animate objects (e.g., people, animals or creatures). Large standard vocabulary with potential to define many more words unique to a specific adventure. Typical games can have a vocabulary of 500 words or more.

Sophisticated parser that can understand (1) complex input commands including pronouns (IT, HIM, HER, THEM, MY and ITS), and (2) compound commands separated by AND or THEN or punctuation symbols, and (3) commands addressed to characters within the game. Here are a few examples of commands The ADVENTURE GAME TOOLKIT can handle with ease: *GET THE FLASH LIGHT AND THEN SWITCH IT ON DROP THE FOOD, THE KEY AND THE BOTTLE THEN UNLOCK THE DOOR WITH THE BRASS KEY AND THEN LEAVE PUT ON THE CLOAK, THEN EXAMINE IT; READ ITS LABEL PLACE THE GREEN ROCK AND THE SMALL PEBBLE BEHIND THE TREE ENTER THE HOUSE; GET ALL; EXIT; SOUTH; SOUTH THEN DOWN SULU, SET A COURSE FOR ALPHA 14 SCOTTY, BEAM DOWN A TRICORDER AND THE QWERTY MODULE*

Special, English-like meta-language (especially developed for writing Adventure games) that gives the game designer total control and flexibility in the development of his/her games.

PROFESSIONAL - "Look and feel" of Infocom adventure games with similar screen layout and standard vocabulary and routines. Automatic screen adaptation to use either a color or a monochrome monitor. Color combinations may be specified by the game designer or by the player during the game.

Predefined function and cursor keys to input frequently used commands and move directions.

SCRIPT and UNSCRIPT commands to echo game output to printer.

EASY-TO-USE - Large library of completed games that can be enjoyed simply as great entertainment or used as a platform by the game designer to build upon and/or learn from.

ARCADE GAMES

BBUG 2527   DAVE'S GAMES

*CLASSIFICATION * Games * Floppy Disk * CGA/EGA/VGA * Mouse optional*

DAVE' GAMES is a collection of mind-taxing games for both adults and children of all ages.

PENTRIX version 1.32 is a strategy game for two players which will test your thinking. Based on the game of GO-MAKU, two players pit their abilities to place five pieces in a row. Sounds easy, but it's not. Help screens explain all the rules. Works with or without a mouse and is great on EGA/VGA monitors.

DOUBLECROSS Version 4/91 is another strategy game for two players. The object of the game is to build a bridge that connects your sides of the board while preventing your opponent from doing the same. Works with both mouse and keyboard.

BOGGLER Version 4/91 is a word game for any number of players. The game displays a 4x4 square of letters. All playes must try to build the longest and most unique words in three minutes time. Great for get-togethers —very addictive!

BBUG 2535   JUMPJET Version 1.04

CLASSIFICATION * Games * Floppy Disk * CGA/EGA/VGA * Sound Card Supported

For those who want to BLOW things up after a hard day of classes or a hard day of work, JUMPJET may be the remedy for you. JUMPJET is more or less a shoot'em down type of arcade game where the you can test your shooting skills and rake up a high-score.

Your mission: seek and destroy three enemy bombers. This is one of many missions that will let you find out if you have what it takes to fly a JUMPJET. Good arcade style graphics make it easy to play. Sounds simple? Well maybe. Give it a try. May be addicting.

SHOOT - EM - UP

BBUG 2670   CARR'S GAMES

*CLASSIFICATION * Games * Floppy Disk * VGA * Joystick*

MINELAYER Version 1.2. A colorful fast-scrolling arcade game with on-line documentation. Your high speed mine-layer can move in eight directions across a huge 24-screen ocean. Your mission: destroy (by ramming) all of the enemy bases. Your only defense against the enemy rammer ships are the mines you deploy. The advanced version has many variations that will keep you challenged, busy, and addicted for a long, long time.

If you liked Tetris, you'll love MIX AND MATCH Version 1.2. In Tetris, the goal is to arrange the blocks in the time allowed. In MIX AND MATCH, the goal is to match the random color in the fewest tries. Match the color by choosing the correct intensity of the three primary colors of light (red, green, blue). A game the whole family will love! You'll also learn something useful — how the colors of light are made. A great 640 by 480 high-res VGA game!

ISLANDS OF DANGER Version 3.1. Your mission — Take your killer hover-craft, pass the Twenty Islands of Danger (and their missile launchers), and rescue Jean. Sound easy? Guess again, Rambo! Control your ship's path with one hand and shoot missiles with the other. Dodge enemy missiles and attack their launchers. The game can be played at different speeds for different abilities and also supports a joystick. Arcade fun at home!

BBUG 2673   EGL_RISE Version 6/91

*CLASSIFICATION * Games * Floppy Disk * Graphics Monitor*

EGL_RISE comes is made up of two large games. Twenty game levels are similar to other arcade games such as Pac-Man, Donkey Kong, and Space Invaders. Each level is different enough to be a game in itself. The 25-level adventure series is called the "Rise & Fall of the Human Race". Both games offer excellent graphics.

On each level you have a different objective to accomplish — collect all the treasures or objects, find your way to a certain destination, destroy all the monsters, defuse a bomb, etc. The level ends when you

are hit by a monster or trapped so that you cannot escape. Some levels have a timer and you must complete the level before the time runs out. Some games are played like an arcade game, but in others you must take your time in order to plan your strategy.

BBUG 2710   TECHSTAFF GAMES Volume 1

*CLASSIFICATION * Games * Floppy Disk * Graphics Monitor*

TECHSTAFF GAMES is a collection of four games plus a small file viewer program, which includes:

KENO — A game where the computer chooses twenty random numbers from a possible eighty. A player may choose from one to eleven numbers, and after each turn, the number of successful guesses is displayed.

WILDCATTER — An oil drilling game. Guess where and how deep to drill, based on available geology reports. Site location is random, but the depth you drill to is determined by the reports.

SEA BATTLE — A battleship game where you must seek and destroy a submarine located in the depths below. Fire three depth charges for each torpedo fired on your ship.

BBUG 2711   TECHSTAFF GAMES   Volume 2

CLASSIFICATION * Games * Floppy Disk * Graphics Monitor

TECHSTAFF GAMES contains a collection of popular games for all ages including:

HIQ1 — A puzzle with 32 pegs arranged in a cross with the center position empty. The object of the game is to remove all but one peg by jumping across pegs horizontally or vertically.

PCMAN1 — Another version of the popular game PacMan. Choose between one to four ghosts.

WHEEL3 — A version of the game Wheel of Fortune, for one to three players. A hidden phrase is given, and each player is given a turn to guess a consonant or buy a vowel.

STATES1 — A States and Capitals quiz game. Questions can be True -False, multiple-choice, or fill-in-the-blanks.

ERULET 1 — The game of European Roulette for one to four players. Thirty-six possible outcomes are on the wheel and each player makes bets on which number might come up next.

BBUG 8811 CRYSTAL CAVES Version 1

*CLASSIFICATION * Games * EGA/ VGA * Hard/Floppy Disk*

Enter an underground world of treasures and traps. This colorful EGA game rivals any commercial game with its arcade quality, puzzles and graphics. As Mylo Steamwitz, you'll enter cave after cave of adventure, gathering the treasures of each, while evading hazards galore! This game features the smoothest animated graphics ever seen in a game.

Mouse support Included !

The game begins with Mylo rocketing to the Altairian star system on a simple treasure hunt. But what happens is far more dangerous than even Mylo bargained for. He enters an underground world of chambers full of alien technology and traps. Strange alien creatures and robots inhabit the caves, protecting the priceless crystals from money-greedy explorers. Variety is also evident in Crystal Caves. On some levels Mylo will even walk upside-down! Other levels have such low gravity that the recoil from Mylo's laser pistol can knock him into other dangers! Some levels are without lights, and others are packed full of falling hammers, egg-dropping alien bats, free roaming slither eyes, web-shooting alien spiders, and much, much more. Each level has all new graphics!

Mylo is a lovable character who just wants to strike it rich! Every get-rich scheme he's tried has led to disaster, like when he sold Regulan Blood Stones to the vampire dwellers of Ghoulbone IV. It seems the vampires' teeth break when they try to suck blood! Now, with half the planet's vampire population hunting him throughout the galaxy, Mylo is in search of more easy money...
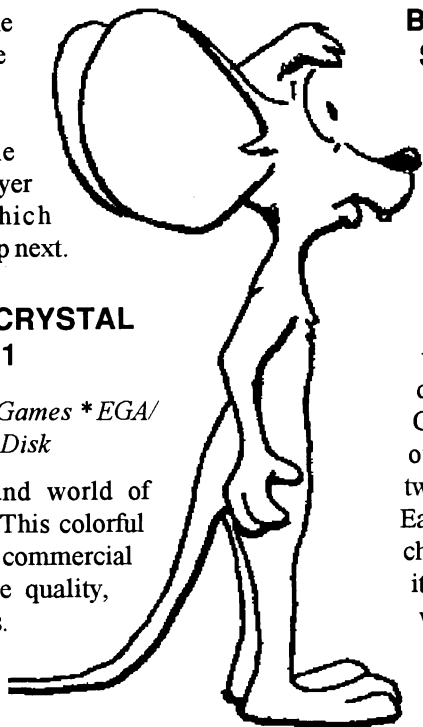
BBUG 8833 SUPERFLY Version 1.1

*CLASSIFICA- TION * Games * Floppy Disk *EGA/ VGA * Mouse/Joy- stick optional*

SUPERFLY is an action game that also requires strategy to win. Chase and swat flies and other bugs through twenty different levels. Each level is a different challenge and you'll find items along the way that will help or hurt your chances.

The game has colorful hi-res graphics and fast action even on slower machines. Includes three levels of difficulty, sound effects, hall of fame, boss mode. Upon registration, users receive the latest version along with a handy set of hints for all twenty rounds. Supports, keyboard, mouse and joystick play.

BBUG 8834 SHOOTING GALLERY Version 2.2

*CLASSIFICATION *Game *Floppy Disk * MCGA/VGA * Mouse*

SHOOTING GALLERY is a colorful arcade game with several different rounds to test your shooting skill. Included is a traditional carnival shooting range, skeet shooting, quick draw target shooting and a wild west SHOOT

BOARD GAMES

BBUG 2520 REVERSI Version 4.1

*CLASSIFICATION * Games * Floppy Disk * CGA/EGA/VGA*

The ancient game of REVERSI developed over the years to become todays well known game - Othello. A wise player who once commented "Othello - A minute to learn, a lifetime to master!" never played this computerised version of REVERSI.

The original game started on the same 8X8 board as Othello, but with none of the centre squares occupied. The rules of REVERSI state that the first four moves must take place in the four centre squares, which gives rise to either the parallel formation or the checkered centre formation. In this computerised version of REVERSI, the game will instruct a beginner or frustrate a master with many hours of enjoyment. The game provides three levels of play which make the game more interesting as you progress from beginner to "?" master. A great game of strategy for all ages.

BBUG 2558 POWER CHESS Version 6.0

*CLASSIFICATION * Games * Floppy Disk * Herc/CGA/EGA/VGA * Mouse*

So you think you can play chess - eh! Well you haven't tried POWER CHESS. POWER CHESS is one of the best chess playing games on the market today. Conforming to the international rules of chess with exceptionally clear screens, POWER CHESS can be highly recommended for chess classes.

POWER CHESS is filled with outstanding features. It obeys international chess rules, en'passant, 50-move drawing rule, three repetitions of a position recognizes stalemate, and technical draw. The screen displays the chessboard, as well as playing time for both Black and White, with an index of both the last 21 moves, and all possible moves concerning the position on the board, announcement of a check mate in N moves, and computer hints for the next move.

You can even have the computer play against itself, if you want to, and chess moves can be forced and even taken retracted, if you change your mind. Depending on your skill, you can change different levels of difficulty, from beginner to highly advanced. The chess board can be set up in special positions so you can experiment with different types of play.

POWER CHESS provides a library of games and interesting positions which can be easily extended. POWER CHESS can be your own private chess tutor, providing you with hours of enjoyment and learning.

BBUG 2647 MORAFF'S ENTRAP Version 2.0

*CLASSIFICATION * Games * Floppy Disk * Graphics Card*

MORAFF'S ENTRAP is a game of mental skill to entrap the enemy robots which block your path. The player is provided with a spectacular three dimensional view of the maze-like playing field guarded by enemy robots that are programmed to capture you. Your object is to reach the far end of the pathway and avoid capture.

BBUG 2648 MORAFF'S SUPER BLAST Version 1.1

*CLASSSIFICATION * Games * Floppy Disk * Graphics Monitor*

Hers is the sequel to the ultimate bricks and paddles game. SUPER BLAST has 34 levels and up to 17 simultaneous balls. The game contains many special bricks that do things like move, multiply, eat balls, and explode into eight balls. Also included are one way bricks, tunnels to other levels, and paddle expansion and contraction bricks.

BBUG 2663 CHESS FOR WINDOWS Version 1.01

*CLASSIFICATION * Games * Windows * EGA/VGA * L/Floppy/Hard Disk*

CHESS FOR WINDOWS - Just what the Windows user wanted - a simple attractive chess program to tempt your skills as a chess master. CHESS FOR WINDOWS features four skill levels and although there is no on-line help, a hint feature has been included which can suggest the next move for you to try.

CHESS FOR WINDOWS appeals to both the experienced and beginning players. But it's also for the novice C programmer. Source code is included, and if you so desire you can modify the program.

BBUG 2712 TRAINBALL Version 6/90

*CLASSIFICATION * Games * Floppy Disk*

TRAINBALL is a model train layout similar to pinball. A game for all age groups. You can create layouts with switches, tunnels, bumpers, and other features. Three trains can be designed with up to seven cars to a train. Objects on the user-designed screen affect the direction of the trains, which can fire missiles at other trains. Switching is randomly controlled by the computer but train speed is controlled by the user. If any of the trains collide, there is an explosion and the game ends.

BBUG 2765 MINE FIELD Version 1.0

*CLASSIFICATION * Games * Floppy Disk * VGA * Mouse*

MINE FIELD is a graphical game of logic and deduction.

Your job is to mark all of the mines in a mine field so that your troups can make it through safely. There are 15 differect boards to choose from and you can select how many bombs to put on each board.

You have to figure out where all of the bombs are and mark them by clicking on them with the right button. This turns the tile red and prevents you from uncovering it with the left button.

If you change your mind about weather or not there is a bomb under a red tile then you can click on it again with the right button and it will turn back to a normal square and you will then be able to uncover that tile with the left button.

The game is over when you mark all of the bombs or when you uncover all of the safe tiles.

BBUG 8895 CHINESE CHECKERS Version 1.1

*CLASSIFICATION * Games * EGA/VGA * Floppy Disk * Mouse*

This extraordinary game of CHINESE CHECKERS for one to six players features animated graphics and brings you all the challenge of the traditional board game.

As in the board game, to win you must be the first player to move all your marbles to the opposite side of the board.

The six players (represented by animated icons, a Dragon, Wind, Flower, Mantis, Tiger and Peacock) can be played by people or by the computer.

YO ... Games to Go !!

XMAS GAMES HERE

BBUG 8897 TEAR DOWN THE WALL - PACMANIA

*CLASSIFICATION * Games * Floppy Disk * Joystick/Mouse Optional*

TEAR DOWN THE WALL is a strategy game where players are awarded points for destroying the most bricks in a wall. Bricks have different point values and hardness. The hardness determines how the wall crumbles. Play against a human opponent or against the computer. This is a stratagy game for kids and adults.

PACMANIA Version 1.1 - another version of the well known Pacman Game. In PACMANIA, you use either the keyboard or a joystick to guide a pacmaniac through a maze, trying to score as many points as possible before he is caught by one of the four ghosts that are chasing him. When the pacmaniac is caught, he loses one of his lives. The game ends when he has no more lives left. The pacmaniac receives one extra life when you score 10,000 points.

BBUG 8909 BATTLES ON DISTANT PLANETS Version 1.0

*CLASSIFICATION * Games * Windows * Hard Disk * EGA/VGA * Sound Blaster*

STARDATE 2140.2: BATTLES ON DISTANT PLANETS The objective of this First Battle scenario, is to destroy all the opposing force units before the opposing force destroys all of the unit you control.

There are BLUE and RED units in this scenario, which mostly conform to the technology of warfare found in 20th century planet Earth armies. There are Main Battle Tanks, Recon Tanks, AFVs (Armored Fighting Vehicles), MLRSs

(Multiple Launch Rocket System), Attack and Transport Helicopters and Ground Support Jet Aircraft. And of course, squads of armed troops (Mech Squad).

The battlefield is a world of several islands in a planet covering ocean. The BLUE forces are occupying the north east island, called Northland. The RED units have landed two tanks on Northland in an attempt to take control of the island from the BLUE forces.

BLUE Air support is available from the BLUE base on the island of Centerland, which is in the center of this planet's ocean. RED Air support and assault infantry are available from the RED base on the isle of Homeland, which is due east of Northland.

CARD/DICE GAMES

BBUG 2501   LAS VEGAS EGA CASINO   Version 2.0

*CLASSIFICATION * Games * Floppy Disk * EGA * Sound Card (Optional)*

Visit a casino and maybe you will get cleaned out (your money, that is), but take home LAS VEGAS EGA CASINO and you could be a winner.

LAS VEGAS CASINO Blackjack is a simulation of the table game, as played in the casinos, Video Poker is a re-creation of the popular video poker machines also played in casinos, while Dollar Slots (MicroBucks) is a colorful visual game of the three-across one-armed bandits.

BBUG 2522   UNOSCORE

*CLASSIFICATION * Games * Floppy Disk * CGA/EGA/VGA*

NOTE: This game does not run under DOS 5.

UNOSCORE is a another version of UNO also known as ONE. The game loads four sets of numbered cards, each set having a different colour and both the computer and the player are dealt seven cards each. The fifteenth card is dealt face up and the object of the game is to match the card either by number or colour. If you cannot match the card, you must draw a card from the remainder of the deck. To win, you must be the first to discard all your cards.

UNOSCORE is easy to learn, and a challenge for players of all ages. It can be used to teach small children how to match patters and colours, while still having fun.

Who shall triumph, Computer or Human?

BBUG 2534   SIC BO Version 1.0

*CLASSIFICATION * Games * Floppy Disk * EGA/VGA * Mouse*

You've played all the western gambling games, now is the time to play one of the eastern variety. SIC BO is one of the predominating Oriental casino games found in many of your major gambling establishments. The game is played with three dice.

The object of the game is to select the individual numbers or combinations of numbers that will appear on the dice after they're shaken and exposed. The betting layout of SIC BO has a variety of 50 different possible wagers and the payoff for each. The payoffs vary from even money to 150 to 1. A player may bet on a single die outcome, on two of a kind, on three of a kind, or on different combinations of two or three of the dice.

BBUG 2705   MEMORY and SYMBOL-QUEST

*CLASSIFICATION * Games * Floppy Disk * EGA/VGA * Mouse*

MEMORY Version 2.0, is a very old and well known game of memory and concentration. At the beginning 50 cards (two series with each 25 pictures) were shuffled and layed out face down. Both players have to try to find two matching cards.

After the deck of cards is layed out, the first player has to move the cursor around to turn a card over. The player repeats this procedure to turn over a second card. If the two cards match, one point is awarded and both cards will be removed; the player tries again. If both cards don't match, the other player tries to find a matching pair and so on. MEMORY shows always the score of both players and which player has to choose cards. Play against a

friend or five different levels of the computer.

SYMBOL-QUEST Version 1.0, simulates the mathematical problems you know from many magazines. The PC computes a problem and encodes it by replacing every number by a symbol; your task now is to solve this problem. In the horizontal direction there are three additions, in the vertical direction three subtractions.

BBUG 2722   BACCARAT PROFESSIONAL   Version 3.0

*CLASSIFICATION * Games * Floppy Disk * Colour Monitor*

Most gamblers are very conversant with Poker, Black Jack and most other card games, but when it comes to Baccarat, this game is almost unkonwn outside of the European Casinos. Now you have a chance to learn the game without loosing your shirts!

BACCARAT PROFESIONAL is a computerised version of this game. Baccarat is normally played with eight decks of cards. Each deck consists of a standard 52 card deck, making a total of 416 cards. The cards are dealt from a shoe. There are only three bets available on the Baccarat layout. A player can wager on the Banker hand, the Player Hand or on the Tie bet. BACCARAT PROFESSIONAL will teach you all you need to know, with detailed instructions and clever graphics, you'll soon become an expert, ready to take on the computer for high stakes and still 'keep your shirt'.

New committee member? No, an innovative bit-map for Windows wall-paper

BBUG 2737   POKER SLOT
Version 2.00   (Disk 1 of 2, also 2738)

*CLASSIFICATION * Games * Hard/L/ Floppy Disk * EGA/VGA * Mouse supported*

POKER SLOT is a gambling game widely playerd in casinos in Nevada and New Jersey. Playing one of these slot machines is easy, but before playing POKER SLOT, you should choose one of four variations of the game — Second Chance Poker, Joker Wild, Deuces Wild, or Double Down.

The object of the game is to get a poker hand of Jacks or better before you can win any money. You will be paid off according to your poker hand. The better the hand, the more money you'll win. Just like the real POKER SLOT machine you must first insert some money. You'll be playing the dollar Poker Slot, so each coin will be worth $1.00. You will be dealt five cards in each round and you may choose which ones to hold or discard.

Have fun and WIN!!!

BBUG 2738   POKER SLOT
Version 2.00   (Disk 2 of 2, also 2737)

BBUG 2759   THINKING MAN'S SOLITAIRE Version 1.0

*CLASSIFICATION * Games * L/Floppy/ Hard Disk * EGA/VGA*

Are you familiar with the standard Solitaire game that builds a stack of cards from Ace to King? It's not so hard, especially if you don't have to stick to one suit. THINKING MAN'S SOLITAIRE presents a new twist: the order isn't as simple as Ace, 2, 3. In fact, you build four different stacks, each in a different order. Have trouble remembering what card comes next? Ask THINKING MAN'S SOLITAIRE to keep the order posted on your screen.

The documentation on the disk makes it easy to get started.

Watch the colorful deck magically shuffle three times, cut, and stack. Deal the cards one by one, and see each one move to the stack you designate as your score mounts. If you have a mouse, you may use it. Otherwise, the keyboard does just fine. The hardest part of this entertaining game is stopping.

BBUG 2767   MORAFF'S STONES Version 1.0

CLASSIFICATION * Games * Floppy Disk * Graphics Monitor

Here you are in a tavern on Moraff's World, the only Terran in the place. Don't worry, discrimination is against the law on this world. You're sure that the players (?) - Aliens, ETs, BEMs, or whatever... beckoning you to play STONES - a strategy gambling/barter game - with them are nice enough creatures who just need a fourth player. You join the game and take a seat at the STONES table.

After playing a couple of games - you've done quite well and you've just wiped out one opponent who leaves the game. Who's this taking her place? You gradually realize that each time one player gets wiped out, it gets replaced by somebody smarter and nastier.

BBUG 8885   TAIPEI and BLACKJACK

*CLASSIFICATION * Windows * Games * Floppy Disk*

TAIPEI Version 3.50 is a game very similar to Mahjongg. Playing TAIPEI is simple. The object of the game is to remove all

of the tiles from the board. Tiles are removed from the board in matching pairs. Tiles can be removed only if they are free. A tile is free if it has no tiles on top of it, and you can "slide" the tile out to the right or left. The mouse cursor will indicate which tiles are free.

Simply select two tiles, click on them with the mose. The will dissapear and reveal any tiles that might have been hidden beneath them. BLACKJACK for Windows. To all card players BLACKJACK requires no introduction. If you've tried the DOS versions - try this one and weep!

BBUG 8896   POKER SOLITAIRE Version 2.0

*CLASSIFICATION * Games * Floppy Disk * EGA/VGA * Mouse*

POKER SOLITAIRE, sometimes called Poker Squares, is a solitaire card game that rewards both lucky guessing and accurate calculation of odds.

Card games, by their very nature, are very well suited for computer adaptations, since the computer can take care of tedious tasks such as dealing the cards, keeping track of legal moves, and score-keeping, leaving the player free to concentrate on the game itself.

Secret agent 006 is about to parachute onto the island to begin the search for Red Rock Rover.
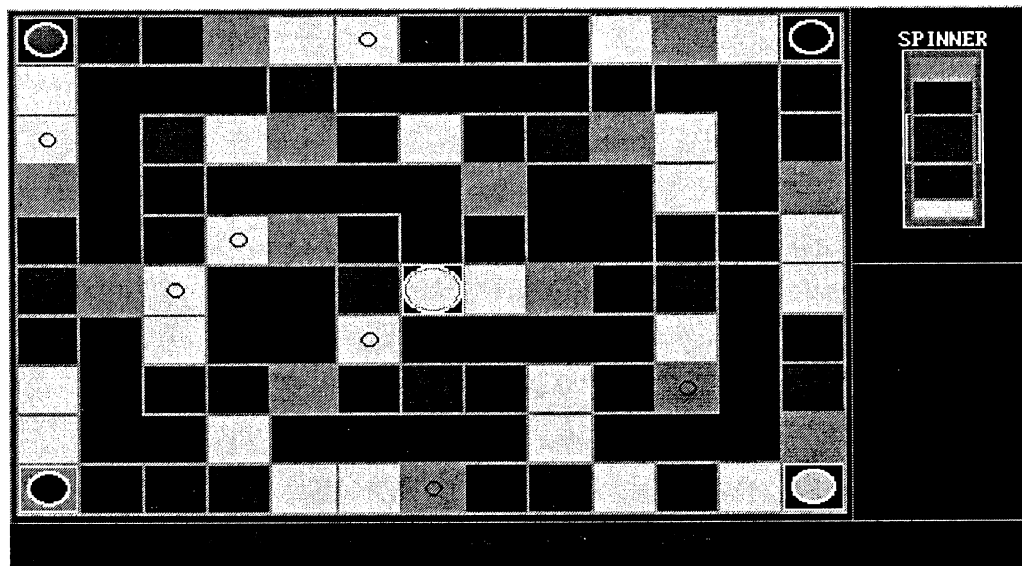
PALLANDRA - A game of counting, positioning and strategy for the smaller fry. The computer can play against you if human opponents are temporarily available

BBUG 8898   SORRY! Version 2.0

*CLASSIFICATION * Games * Floppy Disk * EGA/VGA*

This MS-DOS adaptation of the game of SORRY! is played intuitively, using the same rules as the board game - with only ONE Option: Since the rules for SLIDES is a bit ambiguous when it comes to an 11 or a Sorry Card, the following variable has been made: '

Answering Yes to the Option allows a player, who during a Card 11 Exchange or a Sorry Card Bump lands on the beginning space of a different colored Slide, to Slide to the end of that Slide.

Answering No voids this Option. When in doubt about your response, answer YES - it is much more exciting that way!

BBUG 8965   SIMPLE PLEASURES Version 1.01

*CLASSIFICATION * Games * EGA/VGA * L/Floppy/Hard Disk * Mouse*

SIMPLE PLEASURES is a collection of six challenging and addictive solitaire games in one easy-to-play, integrated program. All the games share a smooth, elegant, and consistent push-button interface and the same powerful, enjoyable features.

A few of the many features of SIMPLE PLEASURES are the following:

A flexible multi-player capability that can accommodate up to ten player's statistics and preferences.

A five-level undo capability.

A "move alert" option lets the player know if any more moves are possible.

A "Hint" button.

Fully-configurable screen background and border colors.

Eight full-color cardback designs to choose from.

Enhanced sound options.

EDUCATIONAL GAMES

BBUG 2669   BRANDON'S BIG LUNCHBOX Version 1.0

*CLASSIFICATION * Educational * Games * Floppy/Hard Disk * CGA/EGA/VGA*

The entire BRANDON'S LUNCHBOX series on one diskette! 18 fun educational modules for children ages 3 to 7.

Beginning and pre-readers learn keyboard skills, drill on upper/lower case alphabet, number sequences (greater than/less than), counting, problem solving, memory games, simple arithmetic, sight word drills with 184 different "sight" words — you can create your own custom word lists! Practice counting by two's or fives, learn

US geography, watch your little ones discover deductive reasoning!

Plenty of flashy colors, wild sounds, and fun rewards like dancing bears Mardi Gras parades!

BBUG 8908 WORD RESCUE

*CLASSIFICATION * Games * EGA/VGA * Ad Lib/Sound Blaster * Joystick*

WORD RESCUE - APOGEE'S FIRST EDUCATIONAL GAME! Built with a similar system that was used to create Duke Nukum, WORD RESCUE is an incredible adventure for kids who want to rescue all the stolen words from the mean ol' Gruzzles. The Gruzzles can't read, and they don't want anyone else to read. So, they've stolen the words out of all of our books!

Benny Bookworm needs your help to stop the Gruzzles. He needs you to reunite the stolen words with their meanings. Once you join all the words with their pictures, Benny will put them back into the books. Even "grown-ups" will like WORD RESCUE!

WORD RESCUE is designed for a range of players of all ages: Easy level: Ages 4 - 7 (Even pre readers can play the game.) Medium level: Ages 7 - 10 Hard level: Ages 10 and up (A challegne for adults, too!)

Play as either a girl, or a boy! You get to choose you which character you wish to play, either male or female. Either way,

Another bit-map from Paul's private collection

you'll visit amazing locations on your word finding adventure. As you hunt for all the missing words you'll visit dark caves, rocky cliffs, deserts, happy towns, scary haunted houses, funny factories, creepy dungeons, and many others.

SMALL CHILDRENS GAMES

BBUG 2640   ANIMATED SHAPES   Version 8/90

CLASSIFICATION *Educational *Games * EGA/VGA * Hard Disk * Mouse

Teach your child to identify shapes and colours with ANIMATED SHAPES. The colorful menu system is designed for children pre-school through the first grade. Each shape correctly identified combines with other shapes to create a picture. When complete, the picture becomes an entertaining cartoon.

BBUG 2709   BALLOONS and DRAWSOME

CLASSIFICATION * Games * Floppy Disk * CGA/EGA/VGA * Mouse optional

BALLOONS Version 3.8 - is a simple, easy to use program designed to help young children become familiar with the computer and have fun at the same time. It provides visual delight for children 18 months and up and hands-on experience with the computer. Balloons appear as any key is struck and may be enlarged until they pop into a rainbow as "Twinkle, Twinkle Little Star" plays.

DRAWSOME Version 2.4 - is a simple, easy to use program designed to help young children become familiar with the computer, mouse, and mouse operations and to have fun at the same time. Children from 18 months experience visual delight as they draw lines on the screen by moving an image of a hand with the arrow-keys or with the mouse. Line color is selectable by keys or by clicking the mouse buttons. The program also draws various flowers, circles, triangles, and squares.   An excellent program for developing mouse

skills, finding the location of certain keys, and learning basic geometric shapes.

BBUG 8959   PALLANDA Version 1.6

CLASSIFICATION * Games * EGA/VGA * Floppy Disk * Mouse optional

This is a fun game for the "little people", with enough strategy to make it challenging for Dad and Mom. Prince Pallanda can be included as one of the four players. The name, PALLANDA, comes from 'Pal Land' where everyone plays happily together and King Pallanda makes sure everyone plays fair. PALLANDA is designed so even youngsters that aren't reading yet can learn to play well.

The object is to land in the winner's circle by moving to the closest color shown on the spinner. It sounds simple. However, the nearest matching color is often in the wrong direction and sometimes you must choose between squares that are the same distance away. There are hidden surprises along the way with pictures you can watch being drawn.   O

BBUG 2763   PHONE by VISION COMPUTING Ver 2.10

*CLASSIFICATION * Database * Hard Disk * Printer*

PHONE is a program that can be used by anyone with a personal computer to keep track of names, addresses, and phone numbers.

It can be used by business for a sales tool and mailing list manager. PHONE can print labels, and you can select which records you want labels for. Certain post codes, only one state, only records tagged by you, or even label codes which can, for example, be a sales representative's number. PHONE can also be used to keep track of directions, spouse and children names, birthdays, etc.

PHONE is programmed with special network awareness, allowing multiple users to access the records at the same time. It can run on a network, or an individual PC. PHONE can be customised for your own choice of screen colors, your printer, and your name on reports, and will even back up your records for you.

BBUG 2765   MINE FIELD Version 1.0

*CLASSIFICATION * Games * Floppy Disk * VGA * Mouse*

MINE FIELD is a graphical game of logic and deduction. Your job is to mark all of the mines in a mine field so that your troups can make it through safely. There are 15 differect boards to choose from and you can select how many bombs to put on each board.

You have to figure out where all of the bombs are and mark them by clicking on them with the right button. This turns the tile red and prevents you from uncovering it with the left button. If you change your mind about weather or not there is a bomb under a red tile then you can click on it again with the right button and it will turn back to a normal square and you will then be able to uncover that tile with the left button.

The game is over when you mark all of the bombs or when you uncover all of the safe tiles.

BBUG 2767   MORAFF'S STONES Version 1.0

*CLASSIFICATION * Games * Floppy Disk * Graphics Monitor*

Here you are in a tavern on Moraff's World, the only Terran in the place. Don't worry, discrimination is against the law on this world. You're sure that the players (?) - Aliens, ETs, BEMs, or whatever... beckoning you to play STONES - a strategy gambling/barter game - with them are nice enough creatures who just need a fourth player. You join the game and take a seat at the STONES table.

After playing a couple of games - you've done quite well and you've just wiped out one opponent who leaves the game. Who's this taking her place? You gradually realize that each time one player gets wiped out, it gets replaced by somebody smarter and nastier.

BBUG 2768   LABELS PLUS! Version 2.2

*CLASSIFICATION * Printing Utility * Floppy Disk * Printer*

LABELS PLUS! takes all the tedium out of addressing envelopes. Just the program to use if you are sending out your Christmas Cards or have to hand address invitations to a party.

LABELS PLUS! will print and address envelopes, labels and even post cards. You c a n
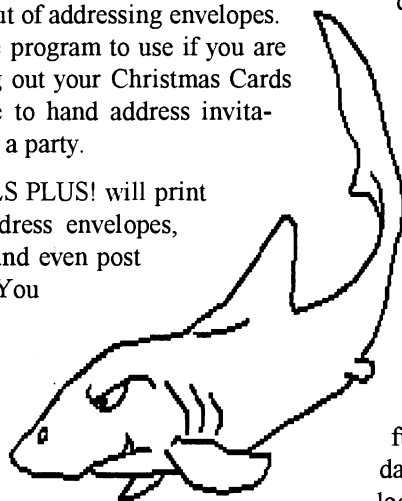
Snap up a tasty program

design your own special labels, save them and then print the labels when needed. Up to 1000 names and addresses can be stored in the database.

BBUG 2769   THE HOUSE AT THE EDGE OF TIME Version 1.0

*CLASSIFICATION * Games * Floppy Disk*

THE HOUSE AT THE EDGE OF TIME, a puzzle of time and space.

Your eccentric uncle has died under mysterious circumstances and left you fortune—that is, IF you can survive a night in his enormous Pseudo-Tudor-Greco-Gothic-Byzantine mansion, where time and space are not exactly what they seem. In this text adventure, typed commands allow you to move around the mansion, interact with those you meet, and find the key to —well, you'll find out.

This game can be played more than once, because it's never the same game twice.

BBUG 2770   EQUATOR Version 1.0

*CLASSIFICATION * Educational * Hard Disk * CGA/EGA/VGA * Printer*

The EQUATOR Equation Processor was designed to quickly process mathematical equations and graph the results on the screen or on a pen plotter. EQUATOR facilitates quick and easy entry, storage and evaluation of equations. The program automatically decodes the equation entered on to screen, recognizing functions and standard constants. Greek and special characters are available.

Once entered, the equation is stored in a categorized file for easy access in the future. Graphs of the results or other text data files may be plotted with linear or logarithmic axes on the screen graphics printer or on an HPGL plotter. The program helps by calculating optimum ranges

for the axes which the user may accept or redefine before plotting the graph.

Some of the features available include: Symbolic equations, Report-quality linear or logarithmic graphs, Inspection of each graph data point with cursor, Trigonometric and hyperbolic functions, Complex numbers, Greek and special characters, Variables and constants stored for reference, Context sensitive help system and Automatic graph scaling.

EQUATOR is menu driven, and will print graphs on HP Laserjet, IBM and Epson printers.

BBUG 2771   AN OUNCE OF PREVENTION   Version 1.00

*CLASSIFICATION * Utilities * Hard Disk*

AN OUNCE OF PREVENTION is worth a TON OF CURE or so the saying goes!

AN OUNCE OF PREVENTION (OZ) protects your data by preserving deleted and overwritten files so that you can recover them. Provided that you have some unused disk space, this function is far more powerful than that provided by "unerase" programs such as those found in Norton Utilities or PC Tools

OZ also performs other valuable tasks related to disk and file safety, including: Protection against attempts to format your hard disk(s). Optional protection against all attempts to write to a hard disk. Trapping critical DOS errors, providing additional information about them, and more power to recover from them.

OZ offers several levels of data protection: File Security - OZ automatically preserves deleted files so that they may be instantly restored if needed Up to eight generations of each deleted file can be preserved, all under the same name.

Reformat Trapping - OZ prevents accidental or malicious attempts to reformat a hard disk.

Write Protection - OZ allows you to write-protect a disk if you suspect the presence of a virus, or other rogue program, that might try to damage your system.

Full-Disk Protection - OZ traps "full disk" conditions and offers you a helpful set of options to free some space for your work . Critical Error Handling - OZ recognizes a number of critical disk errors, tells you what is wrong, and offers a range of options for dealing with them.

BBUG 2772   ARJ Version 2.30

*CLASSIFICATION * Archive * Hard Disk*

ARJ is the newest file compression program with compression and speed as good or better than PKZIP. It has started to gain popularity on BBSs because it does a very good job of tightly archiving files. Watch out PKZIP, there's a new kid on the block!

Ranks with the best in compression in terms of size reduction. Particularly effective with database files, graphics files, and large documents.

Major features include; Archive and individual file comments with option of inputting comments from a file. 32-bit CRC file integrity check. DOS volume label support. Option to test new archive before overwriting the original archive. Archive multiple volumes with one ARJ command. Backup a full hard disk drive to multiple floppies. File re-ordering facility. Sort by file size, file extension, CRC value, date-time modified, filename, pathname, compression ratio, file attribute and more.

The self-extraction feature internal to the ARJ runfile. The SFX module is full-featured with a built-in Help screen.

BBUG 2773 ALBUMMASTER Version 6.60

*CLASSIFICATION * Database * Floppy/Hard Disk * Printer*

So your record/CD collection is a mess! Now you can organise your valuable music collection into a well ordered library, simple to use and even more simple to find just the tune you have been looking for.

ALBUMMASTER is a custom database manager and entry of titles, artists and even composers is a breeze. You can edit, sort and search as well as print catalogs, lists and special labels for each disk. ALBUMMASTER is well thought out and can make an album collector's chores almost fun.

BBUG 2777   GRAPHICS SCREEN DESIGNER Version 09/90

*CLASSIFICATION * Drawing * Floppy Disk * Hercules Monitor * Printer*

Now you can create your own pictures or graphs using lines, circles and boxes. The program provides many different fill patterns and you can select different line widths. Graphs, such as line 2-D or 3-D, bar or pie can also be created and saved for future editing.

The program provides many useful features - reverse video, page switching and the ability to scale your image as well as a DOS shell. Using the inbuilt menu system, access to all commands is very simple and printing can be achieved using an Epson-compatible printer in either portrait or landscape mode. Sample files are provided, including data for graphs and a map of the USA.

BBUG 2778   EASYDIAL Version 3.6

*CLASSIFICATION * Phone Dialler * Floppy Disk * Modem*

EASYDIAL is a program which allows you to easily use your computer's modem to dial your telephone for normal voice communication. For those of you who have too many numbers to remember, and want them easily accessible, then EASYDIAL is for you.

Some people use EASYDIAL to call their banks - the number contains both the bank phone number and their account number. A few keypresses is all you need. Therein lies the beauty of EASYDIAL, not too simple, yet not too complex. You can even track the total time of a call and enter a comment for each one.

BBUG 2779   1000 ICONS Version 7/91

*CLASSIFICATION * Windows * Hard Disk*

Attention Windows users — Have you been searching for just the right icon for that particular program? Well maybe you will find the right -full colour - one you want somewhere in 1000 ICONS. Icons for hundreds of popular applications, games, utilities, and hardware are contained on this disk.

BBUG 2780   26 BMP FOR WINDOWS Version 7/91

*CLASSIFICATION * Windows * Hard Disk*

Tired of that plain old background for windows - would you like to have a differ-
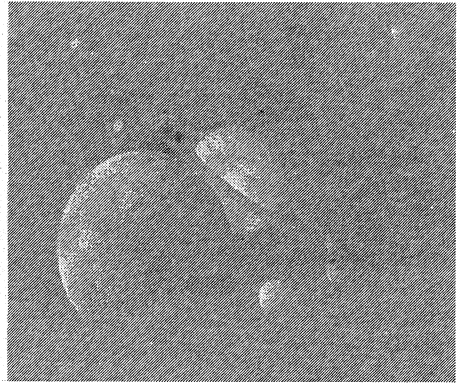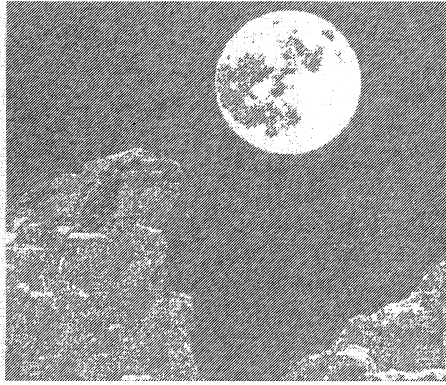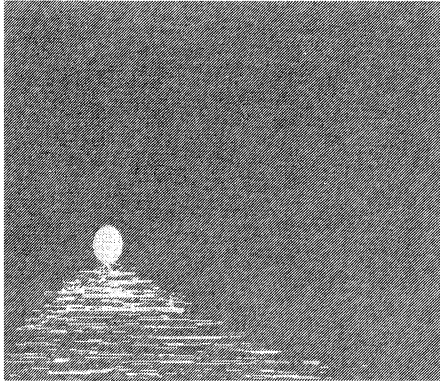
Brighten up your Windows with space bit-map backgrounds

ent colourful view each time you started windows? Here are twenty-six different, brightly colored .BMP files based on the Windows PAPER.BMP file for your computer.

BBUG 2781   BMP FILES #1
Version 7/91

*CLASSIFICATION * Windows * Hard Disk*

Brighten up your Windows with Six .BMP files for Windows — Earth as seen from space, a surrealistic view of Jupiter and its moons, a moonscape, the moon with Earth rising, a picture of Saturn, and a lush forest scene.

BBUG 2782   BMP FILES #2
Version 7/91

*CLASSIFICATION * Windows * Hard Disk*

More bright colourful pictures in this second volume of .BMP files for Windows — A sharp-looking eagle with the US flag in the background, three Simpsons cartoons, four images from the Star Wars trilogy, and a waterfall.

BBUG 2786   QUIZ-MAKER
Version 2.0

*CLASSIFICATION * Educational * Floppy/Hard Disk*

QUIZ-MAKER is an Educational tool and a Trivia game. Quiz questions can be created for almost any subject - English, History, Geography, Sports, World

Records etc. QUIZ-MAKER comes in three formats — match the question with the answer, type in an answer to the question or choose the correct answer from the four or five answers listed.

QUIZ-MAKER has two modules. QUIZPLAY lets you play the quizzes. QUIZMAKE is the Development module used to create quizzes. Of course, there's no challenge to solving quizzes you've created yourself, so create them for others — your children, students, friends, colleagues or for anyone. Give them a copy of QUIZPLAY and the quizzes you've created, and let them have fun meeting your challenge.

The user-friendly nature of the menus and the online hints make this an easy program to use.

BBUG 2787   FORMULA I
Version 06/91

*CLASSIFICATION * Educational * Floppy Disk*

FORMULA I is the introductory part of a program which teaches a complete Algebra course — from basic addition to imaginary numbers. Written for high school and college students, its design makes it available to anyone who wants to acquire Algebra skills.

FORMULA 1 invokes State of the art Artificial Intelligence techniques imitate the actions and recommendations of a human tutor.   The tutor checks your progress and guides you through the course, the same way a human tutor would.

This shareware version contains three of the nine tutorials which make up the

entire course. The "Introduction to Numbers," the "Introduction to Fractions" and the "Quadratic Equations" tutorials have been included in full.

The Pre and Post Tests for the other six tutorials are included to allow you to assess what the tutorials on these topics will cover.

BBUG 2788   TUTORIAL
WRITER   Version 2.1

*CLASSIFICATION * Educational * Hard/ L/Floppy Disk*

TUTORIAL WRITER is an educator's toolkit for computer-based training. The computer is the ideal tool for the classroom, but in order to use it to the fullest, you have to learn how to program. Many people have knowledge to share but do not want to learn computer programming in order to do so.

TUTORIAL WRITER has closed this gap. Anyone who can use a word processor can create full color computer tutorials with Hypertext, pop-up windows, menus, online help, tests, quizzes, branching on answers, graphics, mouse support, and more.

Decide what you want to present, type it into a standard (ASCII) file with a word processor and then enter TUTORIAL WRITER's codes where you want them. Put a title in a fancy box at the top of the screen. Put CONTINUE and QUIT boxes at the bottom of the screen. It is that simple. There are more than forty codes that give the author tremendous control of the computer. Give the ready-to-run tutorial disk to the people it was written for.

BBUG 2790
PSYCHOTROPIC DRUGS and NURSING PROCESS Vers 1.0

*CLASSIFICATION * Medical * Graphics Monitor * Floppy Disk*

Medical student, nurses and even Doctors can learn or review the basics of psychotropic drugs. Easy to use tutorials and quizzes cover antipsychotic agents, sedative-hypnotic agents, antidepressants, mood stabilizers, and anti-parkinsonian agents. For each of these drug groups the study aids include the history, chemical type, effects, benefits and limitations, re-actions, and much more.

BBUG 2791   WILD ANIMALS

*CLASSIFICATION * Pictures * L/Floppy/ Hard Disk*

Have you been looking for that special picture to include with your desktop publishing collection? Here is a collection of 19 PCX files which will make your selection easier. Drawings such as birds and animals and even a whale are contained in this file.

BBUG 2792   WALL STREET - THE BOTTOM LINE Version 5.3

*CLASSIFICATION * Business * Hard Disk * Printer*

WALL STREET - THE BOTTOM LINE is a custom database manager for stocks and bonds. It can store the details of each transaction, track your portfolio's performance, and graph the results. The program includes an impressive array of analysis tools and even accommodates short sells.

The pop-up windows make the edit and search options a snap. A sample data file is included to help the user quickly learn the many features.

This is a great tool for investors, stockbrokers, and accountants.

BBUG 2793   KIDPIX Version 10/90

*CLASSIFICATION * Pictures * Windows/ Desktop Publisher * Hard Disk*

KIDPIX is a collection of children's drawings that have been adapted for displaying on your computer using Windows. The

---

drawings are in 16 color bitmapped format and are suitable for use as "wallpaper" with Windows. The pictures come in both .BMP and .PCX format and can be displayed by any graphics program that can handle these formats. The drawings are similar, in style, to those found in children's books.

A collection of twenty drawings is provided for your enjoyment: a flower, pig, pumpkin, fish, cat, rooster, puppy, snowman, farm house, a Christmas drawing, and several others.

BBUG 2794   XDOS+ Version 14.22

*CLASSIFICATION * Utilities * Floppy/ Hard Disk*

Introducing XDOS, a new integrated package which takes care of all your filing, text editing, and file transfer needs. Not only does XDOS provide all the usual DOS shell commands, (copy, delete, rename files etc.), but XDOS has a built in text editor and fast file transfer functions as well.

This is achieved in a single package which is based on the intuitive principle of select-and-do. Simply move the highlight bar to the file or directory you want to work with, and select the command from the menu. XDOS also sports a complete mouse user interface which makes it a very easy programme to work with and also one of the few mouse drivable shareware programmes available. Some help screens are also provided to make life easy.

Like XTree-Gold, XDOS gives you a display of the working directory, sorted and formatted as required. XDOS will sort by name, extension, size, and age.

When sorting by age, the listing starts with the newest file rather than the oldest, which is probably more useful as the newer files are the ones that are currently being worked on. The files are displayed in either two, three, or five columns, depending on the amount of information the operator asks for.
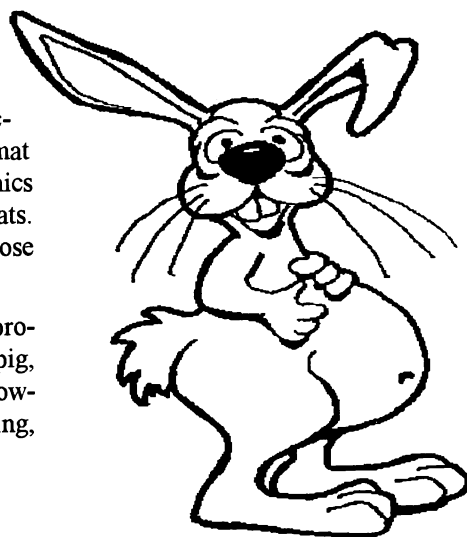
Great Xmas cake, eh?

XDOS is a powerful tool that must be considered as an alternative to spending hours each day battling with DOS and is a cost effective alternative to comercial programmes. Packed with features, XDOS is well worth good look.

BBUG 2795   NEW PRINT SHOP LIBRARY Version 08/90

*CLASSIFICATION * Desktop Publishing * New Print Shop * Hard Disk*

Attention New Print Shop users - Do you need more clipart to brighten up your desktop publishing?

This disk contains a library of over 1000 pieces of clipart for the New Print Shop. It features people, places, and just about anything else you can think of.

BBUG 2796   SKYLAND'S STAR Version 3.2

*CLASSIFICATION * Games * 2/Floppy/ Hard Disk*

SKYLAND'S STAR is a science fictional text adventure game which draws its inspiration from classic prose adventures.

The Earth is in desperate peril. The rapid growth in population and need for energy has all but depleted the world's fossil fuels. Science has been unable to replace them with a safe and reliable alternative.

The player, a member of a small group of scientists, is recruited to travel into the future to witness how the problem was solved - in the past. The bulk of the game takes place here, in a major metropolis of the future. The player must discover how

the future solved the problem and retrieve the necessary information and items for the present to survive the crisis, so that the future he witnessed can exist.

The game is intended for anyone who wants a challenging, intelligent diversion from reality.

BBUG 2797 FASTGRAPH/ LIGHT Version 1.04 (Disk 1 of 3, also 2798, 2799)

*CLASSIFICATION * Programming * C, QuickBasic or Fortran * Hard Disk*

FASTGRAPH/LIGHT is a library of more than 100 highly-optimized routines that are callable from high-level and assembly language programs running under DOS operating systems. The routines can be used in Turbo C, Microsoft C, QuickC, QuickBasic or Fortran.

This collection of routines provides a programmer with proven, powerful tools to take command of the text and graphics video environment.

FASTGRAPH/LIGHT's major functional areas include:
* Video mode detection and initialization
* Colors, virtual colors, and palettes
* Graphics fundamentals, including points, solid and dashed lines, polygons, circles, ellipses, solid and dithered rectangles, region fill, and clipping
* Character display
* Image display facilities, including mode-specific and mode-independent images, clipped and reversed images, image retrieval, pixel run

maps, and image transfer
* Physical and virtual video page management
* Animation
* Special effects
* Keyboard, mouse, and joystick control
* Sound effects and music, both synchronous and asynchronous.

BBUG 2798 FASTGRAPH/ LIGHT Version 1.04 (Disk 2 of 3, also 2797, 2799)

BBUG 2799 FASTGRAPH/ LIGHT Version 1.04 (Disk 3 of 3, also 2797, *2798)*

BBUG 2800 DAYO BILLING and INVOICING Version 3.0

*CLASSIFICATION * Business * Hard Disk * Printer*

DAYO BILLING & INVOICING permits you to invoice your products while keeping an accurate record of all your sales.

Features include: multiuser (i.e. Novell), registers, quote interface, templates, back orders, cash drawers, packing/shipping lists, labels, sales graphs, special pricing, tax codes, terms codes, credit limits, passwords, MRP interface, multiple prices, and many reports.

Very similar to DAYO POS, and uses the same manual.

Not MORE B... orders

BBUG 2801 DAYO LITTLE POS Version 3.0

*CLASSIFICATION * Business * Hard Disk * Printer*

DAYO LITTLE POS is a modified version of DAYO POS created to reduce memory requirement, useful on LANs and/or networks where memory is usually at a premium. Requires DAYO POS (BBUG # 2402) as it uses the same configuration settings.

BBUG 2802 SOFTSCENE PCX ARTWORK Version 2.0

*CLASSIFICATION * Pictures * Desktop Publishing * Hard Disk*

For desktop publishers, here are 29 PCX format pictures hand drawn. The pictures can be used to enhance letters, newsletters, and other periodicals that are produced using desk top publishing programs or word processing programs that allow you to import PCX images.

BBUG 2803 GRIN GRAPHICS (PCX) Version 10/ 90 (Disk 1 of 2, also 2804)

*CLASSIFICATION * Pictures * Desktop Publishing * Hard Disk*

Over 150 humorous graphics drawn by a professional cartoonist in PCX format, compatible with desktop publishing programs such as Ventura Publisher, PageMaker, and First Publisher versions 2 and 3.

These are the line graphics used throughout this issue in the library listings. O
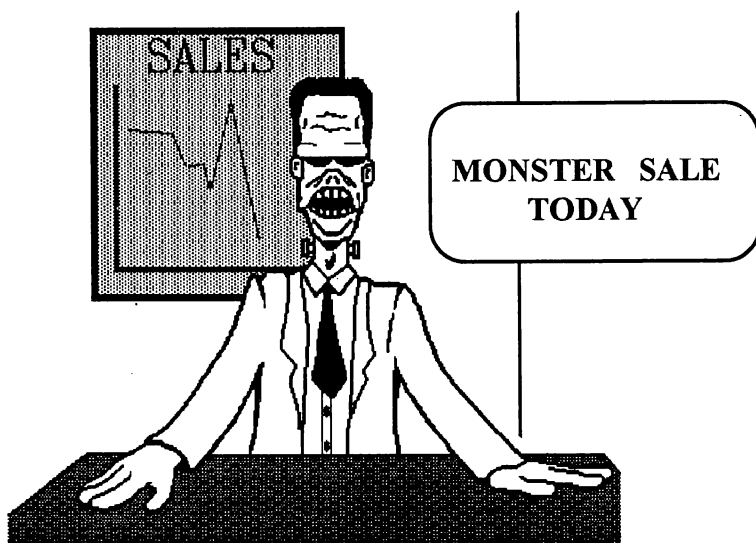
Our friendlly Sales staff are waiting to assist

MONSTER SALE TODAY

MOKE Revisited

Geoff Harrod

I continue to be surprised at the interest my article on the MOKE Japanese text editor engendered. I was a bit diffident about publishing it, as I wondered whether there would be enough members with any interest in Japanese writing. I was even more unsure when I had finished writing all the lengthy preamble that seemed to be needed to explain how the Japanese writing system works. Anyway, I'm glad I did it in view of all the feedback I got, and Lloyd tells me he was equally surprised at the volume of orders for the disks.

This item is just to provide a bit of extra help to all those who obtained the MOKE disks and may be having problems. I have had several phone calls from people having trouble getting it to work, and all for the same reasons. Basically the documentation is not clear enough. So the following may help get it going for you, or save a phone call.

The main thing is that the way the program has been written it demands its files in particular directories that can't be altered. You must have directories called \MOKE and \KANJI and both of them must be off the root of the drive. The INSTALL.TXT document is not correct. The best way seems to be as follows:

1. Install everything into \MOKE. ie: Copy *.* from disks 1 & 2. Run the self-extracting files on disks 3,4 & 5 to extract them to \MOKE.

2. Run the dictionary indexing program WNN_IND.EXE on SKKJIS and on WNNDICT as per the manual to create the indexes WNNDICT.IND and SKKJIS.IND

3. Copy all the indexes and dictionary files to \KANJI, then delete them from \MOKE to save space. If you have a move command like MV you could use that.

I have attached a listing of my two directories to clarify things. It is easiest to run Moke while the \MOKE directory is the current logged path.

Then it should work. Gambatte kudasai!

I haven't been able to contact the author about a later version. I phoned Madison Uni but he had left there to work in Japan. I phoned there but they said he had gone back to Wisconsin! However no-one at Madison Uni knew his address. If anyone knows more please tell me.

As far as "proper" Japanese word processors are concerned, the various ones for Japanese PCs will only work on the one make of Japanese PC each is designed for. I eventually found that "Kanji Pagemaker" is an American adaptation of Pagemaker and only allows horizontal writing which is useless. Apparently the best solution is an Indian word processor! It was written in Delhi to cope with all the numerous Indian languages that all use different characters and write variously left to right or right to left. Since the product was so adaptable they made versions for Chinese, Japanese, Thai, Kmer, Arabic, Korean, Lao etc, and it runs on a standard Macintosh. There is also a firm in Sydney that specialises in foreign character fonts for the Mac. There's no technical reason why Windows couldn't do this as well as the Mac but at present it doesn't. I doubt if it would be worth my while to write a Windows one... but maybe?

More on Kanji coding

For those interested in this technically, there was an article in The C Users Journal July 1991 by Glenn Searfoss. He describes the 7-bit Old-JIS, New JIS and NEC codes and the 8-bit EUC and SHIFT-JIS codes. The 7-bit codes are the "escaped" type; the 8-bit are the non-escaped type that use a byte with the 8th bit set to signal itself as the first byte of a 2-byte extended code. They all allow 7-bit ASCII international standard code streams to be recognised for English data..

Bibliography

"Encoding Japanese Characters", Glen Searfoss, C Users Journal July 1991. (The journal of the C Users Group.) R&D Publications Inc, 1601 W.23rd St Ste 200, Lawrence, Kansas.

"Data Transforms' JIS-Kanji Font Sets & technical support notes." Data Transforms Inc, Denver CO. Tel:(303)832-1501

"Electronic Transfer of Japanese using VMS VAX" Ken R Lunde, University of Wisconsin-Madison.

Fujitsu Mb831000 and Mb834200a Kanji ROM specifications. Fujitsu America.

Listings of Geoff's \MOKE & \KANJI directories

```
Directory of C:\KANJI
EDICT                 4,499
K16JIS1 .FNT        111,680
K16JIS2 .FNT        108,416
MOKE    .RC             122
REVTAB              224,000
SKKJIS              137,728
SKKJIS  .IND          1,020
SKKKTOK .DAT        111,504
WNNDICT             442,317
WNNDICT .IND          1,020
WSKTOK  .DAT        459,351
WSKTOK  .IND          1,020
  1,602,677 bytes total.


Directory of \MOKE
..\                  -DIR-
ASCII    .HLP           764
ATT      .BGI         6,269
CGA      .BGI         6,253
COMMANDS .HLP         2,861
CRC      .EXE         3,712
EGAVGA   .BGI         5,363
ENGKAN   .HLP           831
ENGKATA  .HLP           311
GUESSKAN .HLP         1,306
HELP     .HLP           501
HERC     .BGI         6,125
HIRAGANA .HLP           881
IBM8514  .BGI         6,665
INSTALL  .TXT           827
JASCII   .HLP           389
JC       .EXE        20,245
JPRINT   .EXE        52,244
KANJI    .HLP         3,482
KATAKANA .HLP           575
KTOK_IND .EXE        14,886
MOKE     .DOC        47,331
MOKE     .EXE        74,250
MOKE     .PS        131,374
MOKE     .RC           122
PC3270   .BGI         6,029
PUNCAND  .HLP           762
README   .MK          6,525
README   .MKE         4,770
README   .PRT         1,378
README   .SRC           780
REVDBG               1,464
REVTAB              224,000
REVTAB   .EXE        14,290
SEARCH   .HLP           538
TUT      .HLP         2,366
VERBS    .HLP           254
WNN_IND  .EXE        15,068
  675,247 bytes total
```

Notice of Motion

Proposed Amendment to the Constitution

Proposed by Lloyd Smith, member No 472, 22/11/92

The following motion will be put to the AGM on January 17th, 1993.

Summarising, the intent of the motion is to allow Brisbug to appoint Honorary and Life Members

I MOVE that the following amendments to the Brisbug Constitution be adopted, subject to Justice Department approval:

1. The heading above Clause 4 (1) of the Constitution which reads:

   "CLASSES OF MEMBERS"

be amended to read:

   "MEMBERSHIP"

2.Clause 5 (1) reading:

"Every person who at the date of incorporation of the Association was a member of the unincorporated association shall be admitted by the Management Committee to the same class of membership of the Association as that member held in the unincorporated association, and shall not be required to pay any further subscription until the next due date for payment of that subscription."

   be removed.

3.Clause 4 (1) reading:

"The membership of the Association shall consist of ordinary members and membership shall be unlimited."

be amended to Clause 4 reading:

"Membership shall be unlimited in that there shall be no restrictions placed upon applicants wishing to join"

4. the following Clause 5 (1) be added:

The membership of Brisbug shall consist of:

   (a) Ordinary Members

   (b) Life Members

   (c) Honorary Members

5. the following clause 5 (2) be added pursuant to acceptance of Clause 5(1) under item 4 above:

Ordinary Members:

All members of Brisbug shall be classed as "Ordinary Members" apart from those classed as "Life Members" or "Honorary Members" as hereafter described.

6. the following clause 5(3)(a) be added pursuant to acceptance of Clause 5(1) under item 4 above and subject to any renumbering:

Life Member:

(a) Life membership may be awarded to members who have been deemed to have rendered outstanding service to Brisbug or to personal computing in general and is not transferable.

7. the following clause 5(3)(b) be added pursuant to acceptance of clause 5(1) under item 4 above and subject to any renumbering:

(b) Life Members are exempt from normal Membership fees for the term of their Life Membership but no other benefits which are not also available to Ordinary Members shall attach to them

8. the following clause 5(3)(c) be added pursuant to acceptance of Clause 5(1) under item 4 above and subject to any renumbering:

(c) All recommendations for granting of Life Membership shall be by Notice of Motion submitted by the Management Committee to any Brisbug Annual General Meeting.

9. the following clause 5(3)(d) be added pursuant to acceptance of Clause 5(1) under item 4 above and subject to any renumbering:

(d) Three-fourths majority of votes taken at an Annual General Meeting for the purpose of granting Life Membership must be in the affirmative before Life Membership can be bestowed.

10. the following clause 5(3)(e) be added pursuant to acceptance of Clause 5(1)-under item 4 above and subject to any renumbering:

(e) Life Membership shall remain in effect for the life span of those so appointed until:

   (i) removed upon the request of the appointee

   (ii) removed (under Notice of Motion) by a three-fourths majority of affirmative votes taken at an Annual or Special General Meeting of Brisbug

   (iii) dissolution of Brisbug

11. the following clause 5(3)(f) be added pursuant to acceptance of clause 5(1) under item 4 above and subject to any renumbering:

(f) Should Life Membership Member status be removed within the life span of the appointee, the Membership status held prior to the appointment shall be reinstated and any unused portion of Membership Fees paid prior to such appointment will be allocated towards any continuing Membership dues

12. the following clause 5(4)(a) be added pursuant to acceptance of clause 5(1) under item 4 above:

Honorary Member

(a) Honorary membership, which is non-transferable, may be awarded to individuals or bodies to expire on a decreed date not exceeding the date of the next scheduled Annual General Meeting of Brisbug

13. the following clause 5(4)(b) be added pursuant to acceptance of clause (5)(1) under item 4 above:

(b) Honorary Members are exempt from Normal Membership fees for the term of their Honorary Membership but no other benefits which are not also available to Ordinary Members shall attach to them

14. the following clause 5(4)(c) be added pursuant to acceptance of clause (5)(1) under item 4 above:

(c) All recommendations for granting of Honorary Membership shall be considered by the Management Committee of Brisbug, such Committee having the sole right to so appoint

15. the following clause 5(4)(d) be added pursuant to acceptance of clause (5)(1) under item 4 above:

(d) Three-fourths majority of votes taken at a Management Committee meeting for the purpose of granting Honorary Membership must be in the affirmative before Honorary Membership can be bestowed.

16. the following clause 5(4)(e) be added pursuant to acceptance of clause (5)(1) under item 4 above:

(e) Honorary Membership shall remain in effect until

    (i) expiration of the decreed term

    (ii) removed upon the request of the appointee

    (iii) removed by a three-fourths majority of affirmative votes taken an Management Committee Meeting

    (iv) dissolution of Brisbug

17. the following clause 5(4)(f) be added pursuant to acceptance of clause 5(1) under item 4 above and subject to any renumbering:

(f) Upon expiration or removal of Honorary Membership the Membership status held by the appointee prior to the appointment as Honorary Member shall be reinstated and any unused portion of Membership Fees paid prior to such appointment will be allocated towards any continuing membership dues   O

Notice of

ANNUAL GENERAL MEETING

The Annual General Meeting of the Brisbug PC User Group Inc will be held on

Sunday, 17th January, commencing at 1:30pm

at the

Bardon Professional Development Centre Main Auditorium.

Business will include the election of the Committee of Management and consideration of the Notice of Motion detailed in the adjacent report.

Call for Nominations

Nominations are called for the following positions comprising the Committee of Management of the Brisbug PC User Group for 1993:

President

Vice President

Secretary

Treasurer

Magazine and PR Co-Ordinator

Education Services Co-Ordinator

SIG Co-Ordinator

Membership Secretary

Development Co-Ordinator

Nominations must be on the Nomination Form available from this issue, or from the Secretary.

Nominations must be lodged at least 14 days prior to the AGM.

Nominees must be financial members of Brisbug on election day.

Candidates can nominate for a maximum of two positions.

No member can hold more than one position on Committee

BRISBUG PC USER GROUP INC.

P.O. Box 985, TOOWONG QLD 4066

NOMINATION FORM

Please return completed form to "The General Secretary" at the above address.

NOMINEE

I, _____ hereby accept nomination to serve on the Management Committee of Brisbug P.C. USER GROUP INC. for the term commencing from the next Annual General Meeting of that group and ending at the Annual General Meeting of the following year. I understand that this nomination will only be valid if I am a "fully paid up" financial member of BRISBUG (as defined in its Constitution) PRIOR to the official commencment of the Annual General Meeting, at which the vote for election to the position for which I am nominating is taken.

POSITION FOR WHICH I AM BEING NOMINATED _____

NOMINEES SIGNATURE _____ DATE _____

NOMINATOR

I, _____ hereby nominate the abovenamed for election to the requested position on the Management Committee of BRISBUG for the term indicated. I acknowledge this nomination will be void if it is found that I am not a "fully paid up" financial member of BRISBUG as at the closing date for acceptance of written nominations in accordance with the BRISBUG constitution.

NOMINATORS SIGNATURE _____ DATE _____

NOTE: Persons nominating for a position who have not had their membership formally accepted at a BRISBUG Managment Committee Meeting shall be deemed to have had their application for membership formally accepted should they be elected to the position for which they have nominated.

OFFICE USE ONLY

MEMBERSHIP STATUS NAME	MEMBERSHIP NO.	FEES PAID TO	RECEIPT NO.
NOMINEE			
NOMINATOR			

ACCEPTED ☐ REJECTED ☐ General Secretary _____ Date _____

BRISBUG PC USER GROUP INC.
P.O. Box 985, TOOWONG QLD 4066
PROXY
This form must be deposited with the Secretary prior to the commencment of the meeting.

I, _____ of _____
PLEASE PRINT CLEARLY

_____ being a member of

the abovenamed Association, hereby appoint: _____

of _____ , or failing him,

_____ of _____ ,

as my proxy to vote for me on my behalf at the ANNUAL GENERAL MEETING of the

Association, to be held on the   Thirteenth   day of   January   1993,

and at any adjournment thereof.

Signed this _____   day of _____ ,199 ___

Signature _____ Membership No. _____

This form us to be used   * in favour of the resolution   * against the resolution.
[* Strike out whichever is not desired.]

(Unless otherwise instructed, the proxy may vote as he/she thinks fit.)

ASSOCIATED CLUBS DIRECTORY

Many IBM-Compatible computer clubs have associated with Brisbug by joining as a member. If you live outside metro Brisbane, there is probably a local club in your area. Some of these are:

Club Name	Centred in	Telephone	Contact
Coffs Harbour Computer User Group	COFFS HARBOUR	066-543563	Bruce Jones
Gold Coast SIG (of Brisbug)	BURLEIGH WATERS	075-930577	Carl Planting
Dalby PC User Group	DALBY	076-621381	Peter Allen
Beaudesert Computer Club	BEAUDESERT	075-411050	Bernie Williams
Sunshine Coast Computer Users Group	MOOLOOLABA	074-442711	Daz Picton
Noosa Hinterland PC User Group	COOROY	074-851052	Colin Sheehan
Cooloola District Computer Club	GYMPIE	074-833881	Dorothy Ross
Fraser Coast Computer Club	HERVEY BAY	071-212397	
Bundaberg PC User Goup	BUNDABERG	071-520326	David May
Gladstone QRI Computer Club	GLADSTONE	079- 723083	Dave Franklin
Gladstone Computer Users Group	GLADSTONE	079-783941	Cec Wilmott
Rockhampton Group	ROCKHAMPTON	079-312383	Nick Quigley
Mackay Computer Users Group	MACKAY	079-573998	Gabriel Barbare
Burdekin Computer Club	AYR	077-834630	Rod McRae
Johnson Computer Club	INNISFAIL	070-613286	John Brennan
Cairns Computer Club	CAIRNS	070-613286	John Brennan

MINUTES of the NOVEMBER meeting

Ron Lewis (Mr President to you) opened the meeting at 1-05 p.m. and welcomed both new and continuing members to the "more formal" part of the afternoon's proceedings.

Annual General Meeting

"Almost AGM time!" and this year will see a smaller Management Committee brought into place (reducing from 20 to 9 positions)...not because of a smaller workload, but more efficient Management methods with planty of scope for appointments to positions which will not tie people down to attending what some may consider boring meetings.

This year there will be the four mandatory positions as decreed by the Constitution (President, Vice-President, General Secretary and Treasurer) and five others (see other parts of bumper Christmas issue of SIG Bits for details).

Just a reminder: persons nominated for positions must be financial members of Brisbug as at the day of the election (you can sign up on the day!), but a person may only nominate for a maximum of two positions (darn! I wanted to be Secretary AND President AND Treasurer!) By the way, you can hold only one position (darn!...ditto!!)

Nomination forms for positions are available from the General Secretary (phone (07) 379-1415) or the next issue of Significant Bits (you're holding it!) They must be received by the Secretary by 1.30 p.m. on 3rd January, 1993 (you can run madly up to my front door at 1.29 p.m.!!!)

THE AGM WILL BE ON SUNDAY 17TH JANUARY, 1993

Treasurer

The Treasurer's Report followed, Max Kunzelmann having taken Ron's place on the stage. It was a healthy month (October) starting with $13,194 in the bank, receipts totalling $12,339, expenses of $9,387 and a final bank balance of $17,184 .

BBS Progress

Paul Marwick gave his BBS Manager's report: "Everything's working but it isn't!.....(pregnant pause)......after 14 hours of moving barrel loads of bits from the old machine to the new hard disks, the new disks died!" Back to the drawing board, Paul!

Mr Marwick is not pleased! People still insist on ringing in on the BBS in the "out of hours" time slots. These calls interrupt the club's top priority mail handling for many other parts of Australia (and overseas) and cause no end of distress to the Sysop (there is a pile of hair a mile thick around each BBS machine!) Since our boards do not adhere to daylight saving, all members must be courteous and thoughtful....*PLEASE DO NOT RING IN THE VERBOTEN HOURS OR WE HAVE WAYS AND MEANS OF MAKING YOUR HARD DISK CRASH!!*

By the way the hours that you should not connect are on the Bulletin Board. (or refer to September's SigBits)

Software evaluation team

Graham Darroch thanked everyone who is helping with the software testing....the "team" now churns its way through 80 MEGs per month! Graham briefly detailed the duties of a software tester, and finished by stating that any files a tester thought were unsuitable for the club (such as lists of US Senators) were being deleted

Magazine bonus for Xmas

Geoff Harrod gave a great report about the upcoming bumper magazine (now weighing heavily in your hands). Since the club always has trouble timing the printing of the December and January magazines (printers go on holidays too, you know!) it has been decided not to have a January issue. There may be a possibility that you may not get this magazine until after the December meeting, so please remember :

THE DECEMBER MEETING IS on 13/12/92 (2nd Sunday)!!!

There will be NO January issue of Significant Bits, but the cartoons in this issue (if there are any) should make up for it....

SIGs on display

Bernard Speight then gave his SIG Report followed closely by Robert Gurney giving information on seminars lined up for his successful Genealogy SIG at the State Library.

Speaking of SIGS, a new SIG called the "Accounting SIG" had their inaugural meeting in November (now Accounting for taste!) and the OS2 SIG continues to have good support, especially at its monthly meeting at Queensland UNI (Prentice Building, Room 312 on Wednesday following Brisbug's General Meetings).

New Virus Alert

Dan Bridges (yes, folks...his is still alive and well....well he's alive anyway!) talked about a new PC virus to hit town which is supposed to be quite dangerous (Dan says he can't wait to get back home to infect himself.....hope he returns next year, folks!)

Skillshare asks for help

Margaret Donaldson, Project Manager of SkillShare Stones Corner (Telephone (07) 397-9899) spoke at length on the aims of her Project...the re-training of the long-term unemployed ready for successful integration back into the workforce.

Margaret made an impassioned plea for members to make themselves aware of the facilities available through SkillShare and asked that ANY member who is looking for staff, please think of asking SKILLSHARE first

Speaking of help, if anyone can offer their services to Margaret and her group to help in training people, please contact her A.S.A.P. (and thanks!)

The Question and Answer time that followed was VERY brief (was there one??) and at 1.37 p.m. Nabeel Youakim (Product Manager Databases, Microsoft Australia) and Craig Spender (Channel Manager, Microsoft) gave two excellent presentations on FoxPro for DOS, FoxPro for Windows and Microsoft Access for Windows.....VERY impressive products for database handling!!   O

BRISBUG HELP LINES

The following members have generously offered to give telephone assistance on the topics listed. Please be sure to observe the restrictions on times specified by each person. This service is not intended to serve as on-going training or a substitute for reading the manuals, or for not having manuals. It is for assistance with particular difficulties and for general advice such as when considering becoming involved in that topic.

New offers of help are always welcome, and there are some topics absent from the list.

Subject	Name	Phone	Days & times
4DOS	Chris Raisin	379-1415	Any time
	Dan Bridges	345-9298	Anytime
Accounting	Ian Haly	870-1463	After 5:30 & W/Ends
As-Easy-As	Dan Bridges	345-9298	Anytime
	Dan Emerson	288-6070	
Assembly	Scott Hendry	245-1330	After-hours
AutoCad	Geoff Harrod	378-8534	Evenings,W/E
C Programming	Danny Thomas	371-7938	Mon-Fri 6pm-9 & W/E
	Ian Haly	870-1463	After 5:30 & W/E
Clarion	Ray Creighton	354-1107	eve & W/E
Clipper	Chris Raisin	379-1415	Evenings
	Don Andersen	881-2432	after 7pm & W/E
	Dan Emerson	288-6070	
	Mike Theocharous	824-1450	Anytime
CodeBase	Ian Haly	870-1463	After 5:30 & W/E
Communications	Ron Lewis	273-8946	9am-9pm
Corel Draw	Scott Hendry	245-1330	After-hours
Dataflex	Tony Obermeit	2875534	Mon-Sat A/Hrs & Sun
dBase	Ian Haly	870-1463	After 5:30 & W/E
	Mike Theocharous	824-1450	Anytime
	Sylvia willie	393-3388	Evenings
	Chris Raisin	379-1415	Any time
	Dan Emerson	288-6070	
DBXL	Ian Haly	870-1463	After 5:30 & W/E
DisplayWrite 4	Mike Lester	274-4144	(343-5703 a/hrs)
DOS	Dan Bridges	345-9298	Anytime
Excel	Peter Akers	265-4411	Mon-Wed 6-9pm
First Choice	Bruce McNamara	369-5563	Sundays
Forth	Danny Thomas	371-7938	M-F 5-9, W/E
Fortran	Cec Chardon	870-1812	Evenings
	Rob Andamson	266-8353	Evenings
Fox/Fox-Pro	Geoff Tolputt	016-783111	M-F 9-6
Genealogy	Rob Adamson	266-8353	Evenings
	Colin Cunningham	263-3005	9-9 all days
	Bob Gurney	355-4982	Mon-Sat 8-8
	Bruce McNamara	369-5563	Sundays
Hardware	Chris Ossowski	274-4144	9-9 all days
Help!	Dan Bridges	345-9298	Anytime
	Scott Hendry	245-1330	After-hrs

Meta 5	David Shaw	870-3633	9-9 all days
MS Word	Chris Raisin	379-1415	Any time
	Ron Lewis	273-8946	9-9 all days
Multimate	Frank Mehr	397-3984	Anytime
Multi-user DOS	David Shaw	870-3633	9am-9pm
Novell Netware	Dan Emerson	288-6070	
Open access 2	Cec Chardon	870-1812	Evenings
PostScript	Danny Thomas	371-7938	M-F 5-9 & W/E
PowerBase	Mike Lester	274-4144	(343-5703 A/hrs)
Project Manage- ment & planning	Brian Doyle	355-1328	9am - 9pm all days
Quick-BASIC 4.5	Harry Strybos	288-5145	4pm-7pm Weekdays
Q&A	Dan Bridges	345-9298	Anytime
Q-Edit	Dan Bridges	345-9298	Anytime
Quattro	Bruce McNamara	369-5563	Sundays
Quicksilver	Ian Haly	870-1463	M-F after 5:30 & W/E
R-Base	Tony Luck	818-0099	9-9 all days
Reflex	Ron Lewis	273-8946	9-9 all days
Spreadsheets	Sylvia Willie	393-3388	Evenings
SQL	Cec Chardon	870-1812	Evenings
System Manager	David Shaw	870-3633	9-9 all days
True-Basic	Bob Gurney	355-4982	Mon-Sat 8-8
Unix	Paul Watts	892-2226	Mon-Sat a/hrs & Sun
Virus problems	Dan Bridges	345-9298	Any time
Windows	Peter Akers	265-4411	Mon-Wed 6pm-9pm
	Bernard Speight	349-6677	6pm-9pm
Word for Windows	Peter Akers	265-4411	Mon-Wed 6-9pm
WordPerfect	Geoff Tolputt	016-783111	Mon-Fri 9-6
Wordstar (all ver)	Neil McPherson	075-971240	A/hrs
Wordstar-2000/4	Bob Boon	208-8088	
Xenix	Paul Watts	892-2226	Mon-Sat a/hrs, Sun
	Mike Lester	274-4144	(343-5703 a/hrs)

NOTE: Many of the above may not be available over the Christmas/New Year break.

Index to Advertisers