

# DRAGON USER



March 1987

*The independent Dragon magazine*

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*Air your opinions with extra puff.*

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## Editorial

THERE has been a certain amount of activity on the newsletter front recently. Leaping through some of the more serious titles, such as *Dragon Update* and *68Microcom*, amounts a wealth of knowledge. But it is often in a half page here and a whole page there, nuggets of wisdom gathered quickly before some other matter intervenes. And it's not hard to see why: getting even a simple idea ready for publication is time consuming work, and most Dragon writers are part-timers, fitting their contributions in when they can.

All the same, there is a temptation to address a small circle of user groups knowing that the nuggets will be accepted as they are, instead of taking the extra time and pain to beat them into shape for professional publication.

Dragon User calls on Dragon users with expertise: there is more interest than ever in programming and applications. Next time you have an idea, ask yourself if you can put it across to several thousand readers, and if you like the look of that, drop us a line.

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### How to submit articles

The quality of the material we can publish in Dragon User each month will, for a very great extent depend on the quality of the documents that you can make with your Dragon. The Dragon computer was launched on to the market with a powerful version of Basic, but with very poor documentation.

Articles which are submitted to Dragon User for publication should not be more than 5000 words long. All submissions should be typed. Please leave wide margins and a double space between each line (programs should, wherever possible, be computer printed on plain white paper and be accompanied by a tape of the program).

We cannot guarantee to return every submission article or program, so please keep a copy. If you wish to have your program returned, you must include a stamped addressed envelope.

# Letters

## Thanks Mum

I MUST say I was worried when DU went subscription only! It seemed the first step to scrapping the magazine altogether. But now four issues in it becomes clear that DU has been re-vitalised by the commitment shown by Dragon users. The message is clear to Dragon suppliers — WE ARE STILL HERE AND WE WILL STILL SUPPORT YOU! So keep up the late game releases and user shows. YOU NEED US — WE NEED YOU! Many thanks to all at DU for your continued support.

David Allen  
26 Inverstone-Cross  
Glasgow

## Hard bargain

THANK you from a DU reader of some three years standing. Our magazine is interesting, informative and motivating. A pity it isn't a weekly!

In recent issues there have been pleas from fellow-readers for a consultancy service and as a contributor to the dedicated area of DU I would like to offer such a service.

For the cost of materials I would be willing to supply listings, Periodic A4 screen dumps etc. on A2 or A4 paper to any reader in need. I can be contacted at any time on the above telephone number.

Stan Dolg  
3 Fernside Road  
Ardara  
Fife-KY12 5HY  
0850 200204

## SOS-9

I CAN shed some light on Robert Hammond's plea in DU June 1988. SOS-9 is a dual

# EXTRA PUFF!

Now that the Dragon User People's Chart is no longer with us, we hope that the Letters Page will become the forum for games players as well as news, views and more serious topics.

Because of this, and to give everyone a chance, we will be shelling out a game or two to the most interesting letters we receive each month.

Send us your hi-scores and your top five too, and we'll keep a corner where keen game players can air their views and their achievements.

Many thanks to Microdeal, who have again agreed to supply prize programmes for our star letters, as well as putting up the prizes for this month's Golden Line puzzle on page 30.

## Grow up Dragons

EXTRA PUFF

It isn't about time the Dragon grew up? Surely an internal enhancement could be produced to give the Dragon eight colours in its highest resolution, or even a higher resolution than at present for business programs and those channel round, with a white space channel for between the 650 and the 650 users. Also, as an additional value, an 80 x 24 text screen. This enhancement would have to be compatible with the Dragon 32 and 64 machines. This would make them more attractive than other machines in its price range, and would boost the sales in the Home/Business market. The computers there would be very popular, because the 6800 is the most advanced 16-bit processor available, and is used extensively in the business and university sectors. This would attract the best programmers and give games a real arcade quality, as well as giving business programs a more functional quality.

I would be very interested to get some feedback on this sub-

ject, not only from Dragon owners, but from manufacturers. Maybe thorough interest could be shown, some engineering company may actually produce such an add-on at a reasonable price. I would like to see a specialist readers' views article about it.

Ray Saunders  
44 Marshall Road  
Aldershot  
Hants  
GU11 1BS

PS Could you please tell me where I could get a cheap 64 in exchange for a 32? Will Tandy OS-9 work on the Dragon?

Tandy OS-9 will not work on the Dragon without conversion, which is beyond the scope of this letters page. Dragon OS-9 is now more easily available (see DU February 1989). Dragon 64s are generally more valuable than 32s, but there may be someone reading this who has a cheap working Dragon 64 he wants to part with.

operating system which replaced the built in DOS/Basic. It has several advantages, among which is multi-tasking, ie you can print, paint, whatever, and still be able to use the rest of the machine's resources to do something else.

Now for my question. Where can I get compressed or even purchased OS-9 for the Dragon. I have OS-9 for the Radio Shack CoCo and do like it, but how can I get it for the Dragon?

I have been checking all of the ads in DU for the past few months, and some of the advertisers mention OS-9 utilities etc., but none of them say anything about the system itself.

I have the Dragon by Teco (made in the US) and a Dragon DOS pack and disc drive (made in England). I also have two RS DOS CcCs (flo. 1 started as a 4x machine, and has since been expanded to 8x; the 2 is a CoCo II, etc. extended), a multipack interface, RS DOS installed in a 16kbit Super Controller. I use the Dragon drive, have added an 80 megabyte hard disk drive, with 180 tracks/sector available, online storage via approach the smaller/handled systems.

Thanks for any info.

Charles A. Davis  
Route 1  
Box 528  
Lutherville  
MD 21094

## Going down hill

Long before your time as Editor, in January 1985, in the Dragon Open File a program was published called 94 Run by Michael Oliver of North Yorkshire.

Can you perhaps supply me with an original listing or a correction and the address of the author?

Berry Potter  
The Grange  
48 New Road  
Chislehurst  
Surrey  
SME 8UU

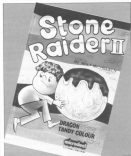


# News desk

## Fewer Microdeals

MICRODEAL, still the biggest dealer in Dragon software, are planning to prune their list of Dragon games to combat rising duplication costs.

them for an unacceptably long time before we can duplicate a batch economically. Our list will be smaller, but we are still releasing new titles, such as



This will still leave around forty of Microdeal's most popular games available directly from the company, while as yet unduplicated titles are being made elsewhere to make older stock available from another source.

Says John Symes 'We are finding that demand for the older games, say older than two years, comes in waves and peaks so that we will either have to turn orders down or hold

Stone Raider II, which is out now, and Air Mail, coming shortly and we will be going to the 6809 Show in March.'

'Someone has shown an interest in taking over our older stock, but nothing has been concluded yet.' Another Microdeal success is Ringwraith, which has proved the most popular Dragon game for some months.

## Bernd Knechtel steps forward

I have read the review of DST in the December issue of Dragon User but I do not want to despair at getting two dragons. I want to make a step forward!

But first let me correct two mistakes:

a) The price was £7 including p&p (so quote the old price list). Please add £2 for p&p except when entering only DST.)

b) The sentence in the last chapter of the instructions about loading problems: I must have misread it badly. What I meant was that if you had worked with DST for some time and then spilled for example your cup of coffee on to the disc, in that case you should send it for a replacement disc. It goes without saying, I think, that if you get a damaged disc it will be replaced without any charge.

Now the step forward!

Because DST has not been very successful, I have decided that from now on:

a) Any Dragon group or club can get for £2 the 16000 and two master discs of DST (1.5 and 1.6) to produce copies for members.

b) For £5 anyone can get four discs, being two DST discs and two discs with all the DST source code (1.5 and 1.6) in Diskroom format. This is an interesting offer for a machine code programmer.

c) The disc versions of Logo-Extension and Ego-Checker and Core-Soft are supplied with all the source code files in Diskroom, only for disc drives, but cassette owners can have a printout of the source code.

d) The programs in c) are all £5, which is a reduction of up to 50%.

e) So, everyone who bought

one of the programs mentioned in (c) and paid the full price can have one of the others free of charge. I have their names on record, and they should write and say which one they want.

f) Postage is a flat rate of £2.

g) I have two copies (about 160 sheets of paper) of the Dragon-DOS source code listing (with labels and comments) and am willing to give them away free to the first two groups which buy the kit mentioned in (a).

Sincerely yours  
Bernd Knechtel  
Arnold-Wein-Str. 9  
5630 Remscheid 11  
West Germany

We reproduce this letter from Bernd Knechtel with many apologies for any embarrassment caused by the misunderstanding over his returns policy, and hope interested parties will take advantage of his special offers.

## Sourcemaker update

The initial release of Sourcemaker (User Guide dated 11 September 1986) was superseded by an intervention dated 1 December 1986. The new version corrects errors in the original and includes an optional END ADDRESS for disassembly (the only 'weakness' mentioned in Dragon User's review in the November

edition). Purchasers of the September version who have not yet received a replacement copy should return the original Sourcemaker cassette with their name and address to: Panormos, Ltd., 31 Wycombe Lane, Woodburn Green, High Wycombe, Bucks HP10 6ND for their updated version.

## 6809 in March

JENNY Pope, who recently well known as the public liaison for Microdeal, is now working independently, and she will be promoting the first independent 6809 Show at the Royal Horticultural Halls in Westminster, London on Saturday 28th March. Details should be appearing in a special announcement elsewhere in this issue. Information is also being sent out to microdeal's mailing list, as before.

## Scott of DOS Plus

Readers have been calling to find out where and how they can purchase DragonDOS Plus 2.3, which was reviewed in the February edition of Dragon User.

Copies (now up to version 2.7) can be obtained from Phil Scott at 4 Badgerswood Drive, Frimley, Camberley, Surrey GU24 0UF, and the PCdM costs £16, payable to P. G. Scott.





# 6809 Show Reports

## SUPPORT MUCH NEEDED

SATURDAY 23 November 1986 was the day of the fourth 6809 Show. I arrived at the Royal Horticultural Halls at about 10.30am, and was pleased and surprised to see a large queue accumulating outside the halls. SO the Dragon is still alive and kicking!

When I finally found my way inside, I was disappointed to find the hall rather bare compared with the last show I went to back in 1984. Some of the stalls looked like old school dinner tables, and at the least rather unattractive.

All the major names in the Dragon software and hardware industry were at the show, except Inventive, who seems to be pulling out of the Dragon scene after their hugely successful *Five Star* games, *Blackhawk*, *Strike Steady-Go* and *Blaze Cresta*. It is a great shame that the Dragon is losing a great software house in these troubled times.

The drabness and emptiness of the hall didn't take away my excitement, and every time I said to myself "I must explain that at this point the writer caused a terrible suspense by breaking off his insert a new piece of paper in his typewriter. What was he going to do next? Shout? Buy an ice lolly? Gurn down the assembled crowd with a copy of *Fire Force*..." I rushed round the stalls trying to find as many outstanding bargains and play as many games as possible. (Ah! That's what — did!) This hyperactive state lasted about ten minutes, after which time I settled down and started to have a really thorough look at what was on offer.

Naturally I started on Microdeal (the giant of the Dragon software industry). They had six stalls out of the twenty at the show, proving how heavily the Dragon software industry still depends on Microdeal's support. The main stand which sold the latest releases (*Empire* and *Goldfish* are the *Golden Challenge* etc.) was a hub of the activity throughout my stay, showing that Microdeal is as popular as ever. I was disappointed to see only three games were set up to play on their stand, compared with the eight available at the second 6809 Show. These three were *Dig* (it is slightly more sophisticated version of *Mit Dig*, *Angelfox* and *Albat* (blackrock with moose), but at least I didn't have to wait ages to play them. The other Microdeal stands were selling their older and less popular games at bargain prices, together with *Winter soft* and *Salamanca* games.

Most people at the show must have left thinking Dave Hichman of Quickbeam was dead, as the *Wilean* theme tune was constantly playing out at full blast — or was he trying to attract attention? His small stand was constantly packed and it was hard to get within half a mile of the front, but when I did get there I saw the impressive *Fire Force*, and the perfect present for any games mad Dragon owner, live at Quickbeam's best selling games all wrapped up ready to be put under the Christmas tree.

Probably the most versatile company on show was Packsoft. A few years ago they were software based, producing great games like *Champions*, but now they have hundreds of Dragon accessories ranging from joysticks for the games freak to disc drives and printers for the serious user. All of these were displayed at the show and many people benefited from their bargain prices.

If I thought getting to the front of Quickbeam's stand was hard, finding the front of John Penn's was like climbing Mount Everest. He was offering over one hundred programs at astonishing low prices, and I for one lightened my wallet at his stand.

Grossner Software exhibited the full family of DREAM products — *Tan* editor, *SOCCREK*, *SUPERDOS* and the *AX25*

Packed Radio system by GEMAK for radio amateurs, and were always willing to answer any questions.

Computape seemed to be behaving a remarkably sane with its architect John Penn — this ensured the bargain hunters rich pickings, and I would be surprised if anyone left the show without buying a game from one of these two companies!

There were two sub-groups represented at the show, the OS-9 User Group and the National Dragon User Group, offering special software deals, regular news sheets, and a magazine at a price!

From the point of view of the companies exhibiting, it was a fairly successful day, as though attendances were down from the previous year, the drop was not as bad as had been feared and most people who came were interested in buying, not just window shopping and playing the games as in some years.

Even though the show lacked the professional touch of previous years, I had a very enjoyable day and look forward to many more such shows, but I fear unless Dragon owners offer more support by coming to these shows, the Mallock which the show provides will be lost. So support your computer, and all of you devote your duty and attend the next one. If you don't like this, then don't blame me if the Dragon dies.

Tom Millard

## LIVELY AND LOTS OF BARGAINS

AS Christmas drew near, so the parties were thrown out of the Dragon scene! In the middle of the 6809 Show, November 22 was the date and the Royal Horticultural Halls once again the venue. Even more new products were displayed at the November show and the range of Dragon software increased once again.

Quickbeam, now filled with confidence, boldly displayed *Fire Force* on their stand directly opposite the entrance. Just as proudly, Mayes Smithson showed off his recently completed *Frankie* with all its hundred screens, and the product of an independent software house, John Penn spread the usual mountain of bargains across his stand, and Microdeal appeared to be flagging two year old editions of *Tutankham's Challenge* across the way. Software was also abundant on Microdeal's other stand, but few new releases appeared, and demonstrations were non-

existent, unlike previous shows. Still on the subject of software, there was plenty available for fans to see, for virtually all the current Dragon family conversions were neatly laid out on a budget software stand. Apart from Salamander's usual range, there was nothing more to be found in the way of entertainment software.

The full power of the Dragon was unleashed in other areas, and the software Software game demo stall their business titles. A very impressive and useful single disc program has now been built up by this company. I had to push my way to the Computer camp, as they were cutting down on their stocks of *Beast Dragon 236* parking, getting rid of them at 25p a time. Although Computer were showing an IBM PC compatible Dragon board for the first time and the Dragonplus expansion, by far their best seller was the old 32.

Lively was the Grossner stand also, with a bar trade being done in Dragon disc systems. The bustle of the show continued for several hours and this time it was certainly no quieter than on previous occasions, and at all in many bargains were to be found for Santa's sleigh.

Jackley Emery

## RELAXED AND FRIENDLY

The day arrived and we all got up early for a (Saturday) and piled into the car. We were off for the Show of the Year, the 8008 Show at the Royal Horticultural Halls in London. The three days had been looking forward to for months, it having been told the others, was not sure I wanted to go at all. My wife refused to go. She hates computers, and blames them for everything (Quite right—D.J.). So there we were, hustling at breakfast speed up the motorway, trying desperately to get to the show in time for the doors opening at 10:00am. I allowed and showed my way through the morning traffic to arrive at 10:15 and five LACRUE (Icelandic) my Dragon Unit. "Doors open 10:30" Ours!

Having bought our tickets in advance we were in the hall in a trice. The boys and I parted company, as they wanted to see what games were on special offer, and I wanted to check out operating systems and modems, etc. First stop was at the Governor Software to have a SuperDOS II/III to my Commodore, a worthwhile investment, if only to obtain updated information on the screen instead of just repeating what was already in the buffer. This item seemed to be generating a large degree of interest (hardly surprising, considering the standard of DragonDOS).

Next came the Commodore stand, with not a lot on show but plenty of information available. Canadian dragons were on sale, but only useful to those with NTSC (the American TV standard) monitors. It was here that I learned that Commodore intended to stop production of DOS cartridges for the Dragon. This is bad news for some, but I am sure PNP Communications and Governor Software will not be losing a great deal of sleep over it since they will be sole suppliers. I got the feeling that Commodore believe the market for the Dragon is slowly dying, and while they will do nothing to accelerate the process, they are turning their energies in other directions, particularly IBM clones, and hoping eventually to take local Dragon users with them, if my friends ever run that far. I would feel more comfortable knowing that Commodore were involved.

Wayne Smithson showed that he was on the ball when he told the very slight conversion necessary to run his electronic Author on SuperDOS. I was a little surprised to find no demonstration of his new game, *Frankie anywhere*. *Blaby* were selling their complete range of games at even lower prices. I shall be sorry to see them pull out of Dragon software, but they have their thing to make and the games market in general is shrinking. John Penn was displaying a vast range of cheap software, and said that he can get the OS-9 operating system via Hans Christian Anderson in Denmark. I thought he was a fairy tale, but John assures me that he really does exist, and is a reliable source of supply.

Hans Software were demonstrating Basic 42, and on the monitor it looked so good that I bought a copy. The system works well but has a slight problem with converting all inputs into upper case. However, there is a simple way round this problem, which I will tell you if you drop him a line.

My visit to the show could be complete without a visit to the Microdeal stand. They are the organisers of the show, and usually the stand you have to fight to get to. Well, it was busy as usual, but almost too busy and service was quick. Deep were the boards piling over the bargain games, gone were the display units belling out their music and white noise, making it almost necessary to have ear defenders. The result was far more pleasant, and made it possible to thoroughly peruse the many bargains available. It was here that I was reunited with my sons. Microdeal had thoughtfully provided back numbers of the *Cultmen Chronicles*, in one of which was a list of games that would run equally well on the Dragon and Tandy machines. The boys were using this list to play one off against the other, if the Tandy game was cheaper they got that one, and vice versa.

The only people actually demonstrating their games were Quickbeam. Their stand was much the last year's, *Fire Force* having replaced *Shooting Master* on the screen. For

space and accessories, Peacock's stall was the place to be. They had keycards, power supplies, cables and joysticks, etc. On the software front they were selling amongst others *Adventure II/III*, an operating environment that makes it easier to plan out your adventures. It comes in a plain brown envelope and contained everything, except the original idea, that you need to write your own adventures.

I enjoyed the show immensely as did the three lads. The relaxed atmosphere was fantastic and everyone was so friendly. However, I would have liked to see another six to ten exhibitors — I couldn't visit the others, but that might not have been my feeling if I were the organisers. As the show was only on for one day, I expected it to be bursting at the seams, but it was not. I hope this is not the last 8008 show. We need something to bring Dragon enthusiasts and suppliers together.

To end on a brighter note, at the last show I was looking and asking for a tape to disc converter and a disc based forth compiler. This year I was able to buy *Duplicator* from Quickbeam and the *Fort* C64 from the National Dragon User Group. So if you have a particular requirement, ask for it. If enough people ask for something, someone will make one. This year, by the way, I wanted a modem.

Karl G. Smith



## BETTER BUT A BIT BARE

WHEN I arrived there were long queues at the doors stretching around the building, and I waited 15 minutes to buy my ticket. Once inside the hall, I looked a bit bare. There were only about twenty stands, but the hall soon filled with people. Microdeal were showing off their new games, *Dragonwar* and *Wizard's Quest*, which were selling like hot cakes. They also had *Ali Dad* and *Stone Raider* if which were coming soon. *Stone Raider* is a *Douglas Dash* type game, and *Ali Dad* is a follow up to *Wizard's Quest*, and both looked very good. Other games selling well were *Fire Force* from Quickbeam and most of *Blaby's* range. Hardware-wise, Commodore were selling their *Race* products at very low prices (the RS222 port for only £25) plus all their usual stuff. Governor's

*SuperDOS* was being snapped up and they were also showing *RTTY* in the hall, with an enormous aerial going up to the roof.

I heard some gossip that Microdeal might be putting some Dragon stuff on their Bulletin Board, and that they only need another 500 people to their Day 1 Club to keep up Dragon software support. Also, Harry Whitehouse of Peacock told me that he might be leaving Prestel after their dispute about copyright.

Other things at the show were a program to turn your little Dragon into a proper music synthesiser (which sounded good), an auto dialler for the phone by the National Dragon User's Group (for people with very long fingers) and loads of discount software. After *Dragon Show* quarters were down, and had to leave a catch a train, so if after 12 a bomb went off, I'm sorry I haven't reported it (Was as far as it was — Ed.). I enjoyed the show, it was better than the last few years. But there wasn't quite enough there to last all day.

Jim Mager

# Saving Grace

**Rod Busheff looks at the Dragon under siege, and finds that it is not alone with its problems**

TO THE dismay of many, but the surprise of few, another link was added to the chain of adversity which binds the Dragon when Dragon User removed itself from the open market and went subscription only. How many users looked upon this as the first step down the road from which there is no return? Like it or not, there is an element of surrender in being forced into such a position.

The very fact that Dragons are still running says a lot for the resilience of the species. The machine has stayed active through buy-outs and bankruptcies, through unwise software supply, and through general critical and public dismissal following the closure of Dragon Data.

Dragon owners are used to the vicissitudes of the unfashionable end of the home computer market. Many owners have sunk without trace, yet the Dragon has continued to retain an active user base and software. The efforts of Dragon User magazine have greatly contributed to the continuing allocation of facilities for the Dragon. Its enthusiastic, sometimes desperate, joys to keep interest alive have largely been responsible for maintaining user interest and preventing it from drifting into an unsupported market backwater.

The parameters of the home computer market have changed considerably since the first launch of the Dragon. The computer boom always had the 'transitory' written through it, although (it had the word 'money' said to it in much larger letters — if manufacturers appeared unable to see it). The meteoric growth in sales matched the confident expectations of the market analysts. The individual user market was buoyant enough a degree that it was taken as the modern license to print money.

One small point was overlooked: individual users are qualitatively different creatures from the business or professional user. This means that there will always be a limit to the number of sales and that the market has definite boundaries. The number can be large, but it fails to take account of the high fall-off in home sales. Business users keep computers in near permanent operation, and of necessity use data software or hardware more often. The home user wants a long-term, reliable, flexible machine which won't need expensive updates. Unfortunately, most purchasers did not know what their choice was capable of, nor did they envisage the future trend in the home computer industry. They were not alone: most of the industry didn't, either.

But how many machines ended their days in the loft as their owners despairing of mastering the intricacies of programming, got bored with the games, or generally lost interest? Of these who persisted, how many were sufficiently enterprising of the new technology to upgrade on a regular

basis? Come to that, how many manufacturers offered significant upgrades of their products?

Almost all the major computer manufacturers experienced problems with excess stocks, slow sales and abortive product launches. Many producers have effectively stood still over the last few years.

Sinclair ventured into the realms of the QL and MSX, diversified even further with the GS and F88, loaned time to start up the old Spectrum and then brought out its big brother, the Spectrum 128. But Sinclair made too many mistakes, and lost the momentum of its product development. Commodore had similar troubles with the Plus 4, and the 128 and Amiga disappointed many expectations with their high prices. Just to add to their problems, Commodore suffered a well documented world-wide slide in profitability and only just stayed in business. Their latest hope is rejuvenation of the 64 with the 64c. Again, on the other hand, besetted with pits R & D programme to very little effect, and big financial headaches.

Underestimating the costs, Amstrad and, to an increasing degree, Atari, kept in and started offering complete, powerful systems at comparatively low prices. Then the unthinkable happened when Amstrad bought out Sinclair; suddenly the honey-moon was over.

The Dragon's personal problem has been the battle to maintain a software base. Early on, the Dragon was slow to get into the sophisticated games areas and exacerbated the cycle of success/failure to which home computers are subject. To a degree, the success of hardware is determined by the amount and quality of software available. Equally many software producers wish to satisfy themselves as to the marketability of hardware before committing a software effort to it.

The demise of Dragon Data prevented an immediate downturn in support for the machine. The reaction from many software houses was predictable; at that time, with many more models on the market, any hint of financial trouble was enough to tighten away software producers. The famous crash of Imagine Software proved that no one was immune.

When sales support for Dragon software was withdrawn by a well-known High Street outlet, the game seemed to be over. But a few houses continued to feed the Dragon. Somewhere scholarly involved that pulling out could have led to collapse. On the other hand, the Dragon in its heyday enjoyed good sales figures, so there are a fair number lurking just there. If the sales base held, there was an opportunity for guarantee, if not spectacular sales. After all, where else could Dragon owners turn?

So, while the Dragon owner is not deluged with new software, there are enough quality releases to keep users involved. The main snag is that the number of conversions of classic games or utilities on other machines seems to have dried up.

Where does this leave the average Dragon user? Until recently the position was more positive than anyone would have suggested a couple of years back. Good quality software came in just about sufficient quantities; peripherals were produced and Dragon User was still in the shops.

However, the situation is not stable; the potential fear is that of the Domino Theory coming in to play: if one pulls out, then a whole succession of market withdrawals may follow. This instils a certain uncertainty for the owner: how many have succumbed to the temptation to ditch their Dragon in favour of a better supported machine?

The uncertainty can be seen in the advertising efforts of software houses. Fewer are advertising, and those that do are selling old stock, or don't advertise at all.

The subscription-only policy of Dragon User cannot help but affect the morale of Dragon users. To have their main magazine removed from the public eye signifies another retreat. If the supply line were ever to be cut, then Dragon users would be in real trouble.

As computing markets shrink it complicates the Dragon lies on as an anachronism, responsive and versatile, but isolated. But considering how greatly computing has changed since its launch, consider what may happen in the next span of time, and how many other famous names, past and future, will then be in the same position?

The Dragon seems doomed to follow its gentle downward path, it is tempting to think that much of the future of the machine will be outside the influence of individuals. Users will maintain a network through clubs and bulletin boards, but for how long? All we can do is to support our chosen manufacturers and hope they continue to support our chosen machine. Already the Dragon has stayed around longer than many people predicted. That the Dragon has lasted so long is a tribute in itself.

The home computer market will see another leap forward, probably from Amstrad. The Dragon will get left further and further behind. But who knows, the whole bubble might burst! As long as the Dragon can hold its present position, there will be incentive for some software producers. Maybe Dragon owners should start a bit louder to get noticed.

The clouds never seem to be far from the Dragon's horizon, but then Dragon owners are used to adversity. They're also used to sticking together, and that might be the saving grace.

# OS-9 Blues

David Rothary demonstrates how to get the most out of OS-9 Stylograph.

NOW that OS-9 has been adopted as the basis of the European Education Standard microcomputer system, and by Sony Philips for the laserdisc system, its future seems assured. In addition, Tandy's Colour Computer 3 runs OS-9 level 1, and H.C. Andersen (of Denmark, where *Stylog* distributes OS-9 software especially for the Dragon, all of which means there should be plenty of software around. If you have taken the plunge, and bought the operating system, or if you are to do so in the future, the following notes should be of help. Some of the information has appeared before, and I rely partly on information gleaned from others, but it will be useful to have it all in one place.

The very fact that OS-9 is such a versatile system means that it can be confusing to the newswriter, and what might seem obvious to the manual writer is not so clear to the user. However, once mastered it offers possibilities and standards of software far beyond what you would expect in a home computer. I will concentrate mainly on the word processor, *Stylograph*, since this is the lynchpin of the system, and will be the program used by most serious users. However, to judge by letters in *Dragon* User and elsewhere, it seems to cause most problems. Some of the advice given here applies also to other programs.

Despite the problems, *Stylograph* is an incredibly useful and reliable word processor, and one of the strengths of OS-9 is that, once mastered, *Stylo* can produce not only documents and mail shots (with spelling checked by a 40960 word dictionary!) but is equally at home writing the source code for programs in C, Pascal, assembly language or even Basic.

## Execution and data directories

One of the most useful features of OS-9, and the most confusing to the beginner, is the existence of these two "home" directories (Unix only has one). Providing you set these up correctly before accessing your disc it is not necessary to give a full pathname when giving commands. The first directory is automatically set to the CMMDS directory of the system disc when you initially *BOOT* up, but when this is changed for the *Stylo* disc you must use

`chd c:1`

before *Stylo* can be accessed. If you have only one disc drive then

`chd 0:0`

will store your letter files on the same disc, otherwise place a blank formatted disc in drive 1 and use

`chd c:1`

Note that the first command in OS-9 refers to the execution directory, and the second to the data directory. The point is that at what you do, the second is the file you do it to, for example

`'del file'`

first deletes the command in the CMMDS and deletes *file* in *file*.

Note that a command cannot be executed unless that command is in the execution directory. It is no use trying to find what is on a disc by typing *'DIR 0:0'* unless *DIR* is one of the files on disc 0:0! That is why the *Stylo* disc duplicates a file *utils* from the system disc — if these are removed or *Stylo* is copied to another disc and you have only one drive then the only way to find what is on the disc is to *LOAD DIR* from your system disc into memory first. If you forget this then you will get a "no access permission" error message, which probably leads you wrongly to suspect the file attributes need changing — very unhelpful! Note also that *Stylo* will not load unless it is in the current execution directory (CMMDS) so the *Stylo* will not work unless it is in drive 0 and *RENAME* and *DELETE* are on the same disc as the CMMDS directory. Remember that unlike microsoft basic on the normal Dragon all commands must be either on disc or loaded into memory by you.

## Header file

I always have a "Header" file on my data disc prepared by *Stylo* which contains my address and telephone number together with the codes for setting up my printer. Suppose the code to get the printer into a compatible character set is C7.18 then simply include

`'c7:18'`  
`'C7.18'`  
and all will be well.

Another tip — include:

`'name:'`

and place *DATE* in the correct position on your header. Now when you call *Stylo* use the command:

*STYLO* *n* file Header Letter

This will load your header along with *Stylo*, and after you have written the rest of your letter will automatically save it with the filename of "letter". The *FILE* will reserve as much space as possible for your text. Instead of printing the letter direct from *Stylo* you return to OS-9 and use

*MM letter* *n*

the correct date will automatically be inserted in the letter wherever you decide to print it.

## The dreaded Linefeed Syndrome

The \$64000 question which is always being asked is "How do I stop *Stylo* doing double linefeeds with my printer?" At the end of each line of text it sends two codes, *CR* and *LF* which is carriage return and *BLA* which is a linefeed. Unfortunately most dot matrix and modern daisywheel printers give an automatic linefeed whenever they are sent the code for carriage return (*CR*). Hence the double linefeed! Many users have been suggested — speed the text buffer and then print it, use the *Break* command, use the proportional spacing table — none of which work. Special assembly language filters have been written to remove the linefeed code but these are fiddly to use. Now it can be revealed! The solution is to change one byte of *Stylo* itself. Since I am going to suggest quite a few changes during this article I will explain the method of doing this at the end. All the changes are shown together in *table one*. This modification is repeatedly *OK* (since *Mailmerge* suffers from the same problems as *Stylo*, corresponding changes are shown for this. This cure is complete and does not affect the program in any other way.

## Special printer characters

Another trick that occurs frequently is that "How do I use special characters such as the £ sign since my printer needs these to be accessed as codes above 128?" Another of *Stylo*'s winning ways is to mask bit 7 of all codes sent to the printer. This is to avoid graphics characters being printed by mistake, and subtracts 128 from all codes above this value. However it can be a bit of a pain (particularly a lot of a pain!) and the masking can be removed by replacing *BIT* by *BFF* in two places in each program.

## Special printer features

*Stylo* has special control codes to allow underlines etc. to be used. These are intended for business type daisywheels and work by backspacing and double printing. If you have a dot matrix printer you may still be lucky. Using the *Stylo* command to specify a PDS type printer my Tandy GMP 160 works perfectly on underlines, subscripts and superscripts when in "word processing mode". This is because *BCF* is sent before each letter in underline mode, and *BCF*

after the last one. These coincide with the Tandy codes for 'start underline' and 'end underline'. The reduced ASCII are ignored. **Table two** shows the codes used for each feature. These may well differ for your printer or the incorrect ones may be ignored. It is doubtful if *Chetive* and *bold* are most likely to work on IBM printers. If you have no success there is another alternative. If you send me your printer codes for underlines, subscript, superscript and bold I will send you a tailor-made assembly language filter to solve the problem — see later.

## Proportional spacing

The command in the margin, **PS** is intended to allow proportional spacing on daisy-wheel printers having this facility. The correct **STYLUS** file must be on your disc. Note that if your DSA printer has proportional spacing the **STYLUS** tables are not necessary, and you should simply send the correct printer control codes in the usual way. **Style** will not right justify proportional spaced text even on a daisy-wheel, so there is not point in fiddling about!

## 80 column screen

If you are lucky enough to have DragonPlus, or an 80 column terminal, the appropriate changes to adapt the program are shown in **Table one**.

## Customising your keyboard

I, for one, prefer using arrow keys to move my cursor instead of the J, K, L, M keys etc. as used by **Style**. **Table three** shows all the modifications which can be made. The suggested changes should be carefully considered, before changing to something else make sure that key has not already been used, and remember that the arrow key codes are duplicated by other key combinations, the up arrow is the same as Control L, down arrow as control J, left arrow as control H, right arrow as control I, **SPACE** as control B, etc.

Check the rest with your User's Guide. If you wish to make changes to the control keys then you should make appropriate adjustments to the **STYLUS** files which are called when you press controls. To do this, simply load them into **Style** and edit them like a normal text file.

## Problems with the spelling checker

This is a most useful utility since, even if you are a good speller, you can type quickly knowing that 'tying instead' can be spotted quickly and easily afterwards. The only problem seems to be that there is a supplementary dictionary to which you can continuously add specialised words such as legal terms if you happen to be a lawyer. 'Livingly' who made up the discs for Dragon Data, in their wisdom supplied a plain supplementary dictionary file. This causes **SPELL** to crash when it accesses the empty

file. The cure is simple: just delete the supplementary dictionary, and **SPELL** will make its own when required. If you store my disks of Americanised spellings you will occasionally be irritated when **SPELL** rejects words like 'myr' in favour of 'myr', and of course **SPELL** cannot correct grammatical errors or that regular mistake of Dragon User contributors of forgetting that the only meaning of 'it's' is an abbreviation of 'it is' (Here above man, this Mackay... — Ed.)

Finally as regards **STYLUS**, I use it so much I have given it its own bootable disc, using the **COBOL** command. I have included on this new **STARTUP** file which includes the following lines:

```
chd:stl
```

Display — (p) (where — contains the codes to set up my printer correctly)

Style: F:file Header Letter 1:format

This makes **STYLUS** read and write to drive one, although it does not permanently change the data directory. It then sets up the printer (make sure it is on) and loads **STYLUS** correctly. Don't forget the **format** command or your keyboard will go dead!

## Record management

This system may seem odd claims to set up, but is very convenient in use. However, there are errors in the manual. On page 28 the method of specifying a report file from the keyboard using X prompt; it wrong. You should use **ENTER** key instead (where keyfield is the **Radix** keyfield. A prompt does NOT appear on the screen. Also the sort algorithm on page 43 is wrong. Eight lines from the bottom should read "H = H + C - 528". Note that multiple sorts are more than one keyfields are not possible directly from **RMS**, but can be done by loading the file into **DYNACALC** and using its sorting facilities.

## General notes

I have included in **Table one** some 80-column changes etc. for other OS programs. Note that a few programs create a 'scratch' file in the current data directory while working, which is deleted if the program is properly exited. Thus, if the C compiler is still going a 'file already exists' error when you start work is may be that the scratch file was not deleted last time you used it. Also the C compiler requires the **ECMD** utility to be in the **CMD5** directory or you will get errors thrown up all over the place.

Don't forget when using **BASIC99** that although there is no **CLS** command, there is a useful set of codes given in supplement G of the operating system user guide, page 62. These enable you to clear the screen and give a considerable amount of control to the cursor. Even more extensive controls are available in the 80 character mode, allowing underlining on screen, reverse field etc. These are shown on page 62 but are often forgotten. To use them just include **DISPLAY** when in OS-B mode followed by the appropriate code. The last of an

**INKEY** command can be remedied by assembling the **INKEY** sourcefile given at the end of the **BASIC99** manual. I have an assembled version for anyone who is stuck.

If you wish to use the **DUMP** command to examine a whole disc, rather than a file then **DUMP /D1** will not work. However, whole discs are designated as **g:00** or **g:000**, so the command **DUMP g:00** will do the job. If access of files has been altered so much that the disc space has been fragmented you can regain a lot of memory by using the **DSAVE** command to copy them really on to a new disc. It is not necessary to create a text file as in the manual. Simply use **LOAD DSAVE COPY MAXDISK TRACKS**. Now replace your system disc in **DSave** the disc to be copied, and put a new formatted disc in drive 1. Use **DSAVE -DSR ISO /D1 1 \$HELL**. The **-DSR** command speeds up the process by reserving more memory, and the 1 pipes the output of **DSAVE** directly to the system, just as if a series of commands had come from the keyboard to copy each file. Also do not forget that if you ever need to repeat a command in **OS-B**, such as when copying several discs with **DSAVE**, you do not need to type it in again. Simply press control A.

## To change a byte

I will give as an example the first change in **Table one**. Use the **DSUB** command in the Editor/Assembler package.  
1) **DSUB** / 28 (loads device)  
2) **SLDAD /DSUBSTYLUS /code** (style)  
3) **STYLUS** (loads style to be changed)  
**DSUB** will now print out something like this:

```
1000:07
```

This means the first byte of **Style** is in memory at position 10000, and the value of this byte is 007.

- 4) **7F02 /00 001** (in current memory address, to 4800 + 7F02. The current value of this address, 0A, will be displayed)
- 5) = 00 (Changes 0A to 00)
- 6) Make any further changes the same way 7-F (Quit debug)
- 8) **SAVE STYLUS /DSSTYLUS** (end)

Unfortunately you have not finished, as the **CRG** check will now be wrong since you have tampered with the program. So:

- a) **VERIFY** = /DSSTYLUS mod /DSSTYLUS (This updates the **CRG** on the new **STYLUS** file)
- b) **ATFR /DSSTYLUS** (This sets the various attributes which are for some reason deleted by **VERIFY**)

You can now copy your new **STYLUS** into the **CMD5** directory of your **Stylgraph** disc.

If you do not possess an assembler, or all this sounds too complicated, I am willing to modify any program for you. If you wish to take advantage of this, or any other service thus mentioned in this article, then all I ask is:

- That if you wish me to modify a copyright program you enclose the original either making a backup, or copy.
- That you make your wishes clear.

That you either enclose a blank disc and return postage, or include £2 to cover this.  
 ■ That you enclose £3 nominal fee to cover at least some of the time involved, to GML

Rothley, 1 Heath Rd., Clonsilla, Derbyshire S81S 9AY I would strongly recommend anyone using OS-9 to join the OS-9 User Group, which distributes a disc full of ideas,

letters and programs each month. The address is Martin Vermaas, 6 Rossmore Court, Llanidloes, Dyfed LL20 1TF, OS-9 RULES! O.K.

Table 1 - Linefeed and screen width modifications

Offset	Normal value	Change to	Comments
57E0 (\$KAPH)			
5F52	0A	00	Eliminates linefeed
4FA0	7F	FF	Allows control codes above 127
5000	7F	FF	Needed as well as above Change
14E3	31	4E	Gives 68 column width
5A1E (\$MORC)			
1920	0A	00	Eliminates linefeed
1DE0	7F	FF	Allows print characters over 127
1E24	7F	FF	Needed as well as above

#### DYNACALC

The changes shown must be made to DYNACALC.TRM not Dynacalc itself. Since DYNACALC.TRM cannot be loaded as a memory module a disc zap program will be needed. Do not verify after changing it.

0080	18	18	Screen depth
008E	32	50	Screen width

#### Rm

Read file RM0.TRM into Style.

Alter the first two numbers to the new screen depth and width respectively.

e.g. 18 followed by 50 for a 24x60 screen (remember numbers are hex)

Save new file as RM0.TRM after deleting old version.

Table 2 - Hex codes sent by Style to PdB printer

Underline mode: 0F before each character, 0E at end.

Overline mode: 0E before each character, 0E at end

Superscript: 1B,1E,0E before text, 1B,1C,1B,1E,0E in between each,1B,1C,0E at end.

Subscript: 1B,1C,0E before text, 1B,1E,1B,1C,0E in between each, and also at end.

Boldface: 0E before each character.

Proportional space ggl: 1B,11,0E before text, 1B,13,0E at end of prop. spaced text.

Table 1 - Keyto control key modifications

Offset	Normal value	Suggested value	Function
<b>* Insert mode controls</b>			
0443	'J'	49	UP ARROW 00
0444	'K'	40	RIGHT ARR 09
0445	'L'	30	DOWN ARR 0A
0446	'J'	4A	LEFT ARR 08
0447	'U'	55	CNTL UP ARR 13
0448	'M'	4D	CNTL DN ARR 12
0449	'F'	4E	Leave as before
044A	'R'	52	Replace
044B	'I'	3B	Insert
044C	'W'	57	Withdraw
044D	'Z'	5A	Zip
044E	'S'	53	Save
044F	'V'	3F	Supervisor
0450	'D'	44	Duplicate
0451	'O'	4F	Screen up
0452	'I'	2E	Screen down
0453	'K'	4B	Cursor left/right
0454	'P'	59	Page number
0455	'G'	7D	Insert Marker
0456	CONTROL D	04	CNTL C 03
0457	'		?
0458	'T'	37	CNT LFT ARR 18
0459	'B'	39	CNT RT ARR 11
045A	'E'	31	Leave
045B	'I'	49	Insert one character
<b>* Insert mode controls</b>			
046C	CONTROL U	15	CNTL B 1D
046D	CONT O	0F	Leave
046E	CONT B	02	Leave
046F	CONT I	09	CNTL # 08
0470	CONT K	0B	Leave
0471	CONT Z	1A	CNTL U 15
0472	SPACE	2B	Leave
0473	LEFT ARROW	08	Leave
0474	SHIFT L ARR	18	CNTL D 04
0475	CONT D	04	CNTL C 03
0476	CONT W	17	Leave
0477	CONT F	06	Leave
0478	CONT N	0E	Leave
0479	CONT V	16	CNTL W 0D
047A	CONT P	18	CNTL Y 1E
047B	CONT O	07	Leave
047C	CONT R	12	SHIFT RT ARR 19
047D	CONT Y	19	SHIFT LFT AR 18
047E	CONT B	1F	Leave
047F	CONT A	01	Leave
0480	CONT BCLR	1B	Leave
0481	CONT T	14	Leave
.....			



## In the firing line

**Program:** *Fire Force*  
**Supplier:** Quickbeam  
**Price:** £29.95

**DAY ONE:** I can hardly believe it, that just five days ago I was making my living as a humble accountant in Baker Street, and now I find myself in a war zone, against several hundred thousand troops, planning to steal a plane and fly it out. They've explained it all to me. Colonel "Ball Breaker" Hitchens has told me it's easy. "Stage one is the approach, stage two is the first approach, and stage three is simply flying the plane out." Well, I can't help but worry, something seems to be wrong.

**DAY TWO:** something seems to be very wrong. My gun appears to have three blanks in every four bullets. I mean, I keep shooting at the men, but even when I hit them, they don't die. Colonel Hitchens told me to "Stop being such a

namby pamby girl Orbaum, just admire the great uniforms the others are wearing." But still I feel uneasy about my chances of success.

**DAY THREE:** something is very wrong. I've just tried to run past a tree only to get stuck there, with no way to pass it or to go sideways, and no option to turn back. Oh my god, I can see Jerry coming now, I've noticed Colonel Hitchens but he just said "Ha, ha, ha, caught another one" and dissolved in to maniacal laughter. Well, it looks like I've had it. Tell Laura I love her. War is hell.

[These were the last coherent words of Private Orbaum. From the next few blood stained pages of his diary, the following words were gleaned: Great graphics, great sound, completely bug ridden, too hard, too unfair.]

Jason Orbaum

When we received it, we felt that Jason Orbaum's review was sufficiently controversial that it was only right that Quickbeam should have a chance to reply to it on the spot. Dave Hitchens of Quickbeam thought so too, and his reply follows. We will only add that to us the game looked good, sounded good and was tricky to play; how a

games player copes with a game of this type depends on his or her attitude to gaming. We won't add anything further at this stage, because it would involve an essay on games playing which is out of place here, but we would like to hear the opinions of other readers who have loved or hated the game.

— Editor

Dear Editor,

Thank you for passing on your reviewer's comments about our game *Fire Force* to me.

I feel that the review is very inaccurate, and that, since you intend to publish it, I must insist that you print this letter alongside your review.

I will begin by bringing your attention to Mr Orbaum's inaccuracies:

a) "My gun appears to have three blanks in every four bullets".

This is not correct. Although it may appear that the bullets have hit the men, this may not be the case, as the men can move faster than the bullets, and thus avoid them. There is a trick to using this gun — as

with all weapons — which Mr Orbaum seems not to have acquired.

b) "I've just tried to run past a tree only to get stuck there with no way to pass it or to go sideways, and no option to turn back."

It is possible to climb over virtually anything on the screen by moving the joystick backwards and forwards. There is a safe route through the game which has to be found by trial and error.

c) Mr Orbaum's parting comment of "completely bug-ridden".

This is a seriously misleading statement, as anyone with a knowledge of programming will know that many hours of work

go into producing a bug-free program, which this is. Mr Orbaum is confusing his knowledge of success with bugs in the program.

I do also object to the sarcastic manner in which Mr Orbaum has used my name in his review.

I will be more than happy to demonstrate the program again to clear up any problems.

The game was designed to be a challenge to the serious games player, not to be completed within the first ten

minutes of play. I have had other very favourable responses to the game. Mr Chris Penton of the NDUQ agrees that the game is hard but states "I think that *Fire Force* is an excellent piece of programming and a good game." Surely this must say something.

Quickbeam Software always welcomes constructive criticism, for it is by this criticism that we improve our future products.

Dave Hitchens  
Quickbeam Software

## Depêche modem

**Program:** *Modem*  
**Supplier:** H. C. Andersen Computer A/S, Englebovej 360, DK-2770 Kastrup.  
**Price:** £2600 plus p.p.

H.C. ANDERSEN Computer A/S of Denmark have recently gained the license to distribute the Dragon implementation of Modemware OS-9 Level 1 (see DU Jan 87).

They are supplying this with a number of other very high quality software packages for the serious Dragon OS-9 user, such as *Demodot* is a communications program running under OS-9.

It is completely menu driven and allows the computer to send and receive files or act as a dumb terminal.

Options are selected from the menus using the "cursor" up/down and the enter key (a la *Jeopardy*).

The main menu offers the following options:

"Terminal" — selecting this enters the terminal emulation program, this allows you to log onto other computers (via a modem) and use the Dragon of the keyboard and screen. Control is returned to the program by pressing *Clear-It*.

"Receive" — This allows files to be received from another computer in one of three formats. Either ASCII text using the standard XMODEM protocol, or text using the CDR protocol, or binary using the CDR protocol.

"Basmod" — This option allows disk files to be sent to another computer/modem using one of the three protocols mentioned above. A visual display of the file being

transmitted is given for text files.

The next three options allow the data capture buffer to be deleted (cleared), saved to disk, or examined if it is currently active.

The most important option is "Modify Communications Protocol". This allows just about every variable in serial data communications to be set and used. Baud rates are supported from 50 to 2400, wordlength from 5 to 8 bits. The number of stop bits is alterable, as is the type of parity (if any) that is to be used.

Full or Half Duplex is supported, and the XMODEM characters may be changed, as may the "interrupt" character (CLEAR-It by default). The wordlength may change from the default 80 for those using Dragon Plus etc.

Finally, there is the usual option to enter the OS-9 Shell; allowing you to execute OS-9 commands until *CLEAR-BREAK* is entered which returns you to the calling program (Demodot).

Demodot comes across as a professionally finished program which contains most (but not all) of the features found in many of the established communications software packages (it should really contain many more built-in editing options). CDR is not excessive for this type of program, built-in support of your requirements before parting with your cash.



Requires Dragon 64 with disk drive and OS-9 system.



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# FLEXible printing

Malcolm Cowan takes the hard work out of FLEX printer commands.

USERS of FLEX, especially those using a word processor under FLEX, will know the nuisance of having to put in extra lines of control characters at the start of each document to be printed. So as to set the printer in to the right mode. Sometimes you can get away with it by setting the dip switches inside the printer — but all too often the print mode you want is not one which can be selected by altering the dip switches.

The EPS utility is a simple easily modified program you can use to set up an Epson printer (or any other printer for that matter if you redefine the printer command section) in to whatever combination of modes you desire.

EPS is written in Assembler, but you don't need to know any 8086 Assembler to copy it in, compile it, and use it. If you want to play around and redefine the printer options given, there that's easy enough as well, the listing is annotated well enough for most changes to be made without any reference to the Assembler section of the FLEX manual.

The section starting "TEXT" specifies the startup message, the next section starting with the "GO" line gives the reset commands

which are always copied, followed by the different lines of print commands, one for each option. Finally the section starting "LIST" connects up the printer command lines with the option letters.

## Setting up the program

To set the source up —

1. Copy the Assembler definitions into ASMDEFPS.TXT.

Copy the program listing into EPS.TXT. (If you already have an ASMDEFPS.TXT file then make sure it includes the lines listed.)

2. Compile the program using 8086 EPS.

This will put the compiled source into a file called EPS.BIN, and if you fully put it into the compiled program out to the screen with the magic message "D EPOCH" at the end.

3. Copy the file EPS.BIN to your System Disk as EPSCMDPS that will be recognised by the Operating System.

## Using the Program EPS

To use the program type in:  
P EPS

The "P" is to force output to the printer EPS will then display the list of options, then:

"Type: Condensed, Double-strike, Emphasised, Hash, Italic"

"Eleven inch, No page skip, Pica, Single sheet, 3 lines/in"

Select one or more options, eg "N9" would give No Page Skip, 3 lines/in, and Italic mode printing, then press Enter. The printer will reset the print head, and you are ready to go.

As defined here the program runs in the Utility Command area, and so can be used from the EPS word processor by Commandline, for those of you with that product (otherwise if you're reading this book, thank you for the new version of EPS, it is a great improvement).

If anyone is feeling enthusiastic it should be possible to combine the "P" Command with the EPS command with a little bit of disassembling and hacking. I know not to try this for two reasons — firstly it would make it dependent on a particular implementation on FLEX, and secondly I'm not too idle. Still if anyone out there is willing to give it a try there is a challenge for you.

### Listing of FLEX utility EPS

- Program to set up an Epson printers Malcolm Cowan 09/10/86
- Copyright Cowan Software Ltd 1986
- This program may be used free of charge by private
- individuals for domestic purposes, and may be included
- in libraries of Public Domain Software for that purpose

```

LDR  ASMDEFPS
ORG  0C100
LDR  START
NN   PCB 1

* specifies the message to be displayed, terminated by 004
TEXT  FCC  "Type: Condensed, Double-strike, Emphasised, Hash, Italic"
      FCB  00004                               Newline
      FCC  "          eleven inch, No page skip, Pica, Single sheet, 3 lines/in"
      FCB  004
```

\* specifies the printer commands to reset the printer to a standard start state

```

GO    PCB  27,'R,27,'H,12,0FF  Reset, Elite, Skip over Perf
```

\* now specify the printer commands to set the various printer options

\* for details see your Epson manual; each line is terminated by 0FF

```

03   PCB  27,'3,72,0FF          Set 3 Lines/inch
0C   PCB  27,'P,13,0FF         Set Condensed
0D   PCB  27,'0,0FF            Set Double Strike
0E   PCB  27,'0,0FF            Set Emphasised
0F   PCB  27,'H,0,0FF          Set Hash
10   PCB  27,'I,0,0FF          Set Italic
11   PCB  27,'C,0,11,0FF       Set Eleven inch Paper
12   PCB  27,'0,0FF            Set No Skip over end of Page
13   PCB  27,'P,0FF            Set Pica
14   PCB  27,'S,0FF            Set Single Sheet
```



# Disc controller

D. Marriott brings Cumana under control with this menu utility.

I HAVE been trying to invent a utility not covered in magazines. After a bit of thought I came up with Disc Controller to help me and my father use the Cumana system. The users range from 'killing' and 'catalog' to 'sector read' and 'sector write'. The latter two are not important and can be omitted when typing is desired. This program is held on a disc which is only needed to load the program at the beginning. Please note the dual in line 16, which can stop programs loading with the lack of memory.

The program options are:

- 1-Reformat
- 2-Kill
- 3-Chain
- 4-Load
- 5-Catalog
- 6-Backup
- 7-Protect
- 8-Sector r
- 9-Sector w

**REFORMAT** can create any type of disc: single-sided, double-sided, etc, and can delete all the programs on it. All the pro-

grams, if any, are first displayed on the screen so that they can be checked off, and the identity of the disc confirmed. There is an abort function, if it is wrong, which returns to the menu. It will then ask for the drive, disc sides and the number of tracks, and after a wait the menu will return.

**KILL** will remove a program from disc providing that it is not protected. First insert the disc. All the programs on it will be displayed. An abort key is the only chance to abort if you have made an error. It will ask for the title of the program to be killed followed by **BACKUP**, which stands for **BACKUP MACHINE CODE/DATA BACKUP COPY**. It will then kill the program and return to the menu.

**CHAIN** loads and auto-runs a program. It will first catalogue the inserted disc and then ask for the title of the required program. There it asks for the file type that is **DATA** or **MACHINE CODE/DATA**. If the wrong disc is inserted or an error has been made then do not type **RM** or **D**.

**LOAD** does the same as chain except it does not auto-run. If an error is made then do not type **RM** or **D** but another key and

you will enter catalogue.

**CATALOG** asks for a disc and then it prints out all the programs on it.

**BACKUP** will either backup a single program or a whole disc. If another key besides **RM** or **D** is input it will ask for the drives to be used. If they are the same use drive 1. You will then have to keep swapping discs if one drive is used, so ensure that a write-protected flag is on the disc to be copied from. For a single program it will ask for the title and requires an input of either **MACHINE CODE**. This uses just one drive, so discs must be swapped quite often depending on program size.

**PROTECT** will guard any programs so that they cannot be killed except by reformatting the disc. It will show what is on the disc and then ask for the program title. It will then ask whether the program wants protection added or removed. If neither **N** or **P** is typed it will revert to the menu.

**DISK SECTOR WRITE** will ask for a track and a sector. You then type in two sections of words, characters, etc. This is then written on to the disc. There is no abort for this option. First type in the program then save it onto disc using your own preferred filename.

```
10 CLEARROW
20 CLS:PRINT"THIS IS A MASTER CONTROL DISC:"
30 PRINT"1-REFORMAT 2-KILL 3-CHAIN 4-LOAD"
40 PRINT"5-CATALOG 6-BACKUP 7-PROTECT"
50 PRINT"8-SECTOR R 9-SECTOR W"
60 PRINT"0-EXIT"
70 PRINT"ENTER A KEY"
80 PRINT"1-REFORMAT 2-KILL 3-CHAIN 4-LOAD"
90 PRINT"5-CATALOG 6-BACKUP 7-PROTECT"
100 PRINT"8-SECTOR R 9-SECTOR W"
110 PRINT"0-EXIT"
120 IF INKEY="" GOTO 100
130 IF INKEY="1" GOTO 130
140 IF INKEY="2" GOTO 140
150 IF INKEY="3" GOTO 150
160 IF INKEY="4" GOTO 160
170 IF INKEY="5" GOTO 170
180 IF INKEY="6" GOTO 180
190 IF INKEY="7" GOTO 190
200 IF INKEY="8" GOTO 200
210 IF INKEY="9" GOTO 210
220 IF INKEY="0" GOTO 220
230 IF INKEY="1" GOTO 230
240 IF INKEY="2" GOTO 240
250 IF INKEY="3" GOTO 250
260 IF INKEY="4" GOTO 260
270 IF INKEY="5" GOTO 270
280 IF INKEY="6" GOTO 280
290 IF INKEY="7" GOTO 290
300 IF INKEY="8" GOTO 300
310 IF INKEY="9" GOTO 310
320 IF INKEY="0" GOTO 320
330 IF INKEY="1" GOTO 330
340 IF INKEY="2" GOTO 340
350 IF INKEY="3" GOTO 350
360 IF INKEY="4" GOTO 360
370 IF INKEY="5" GOTO 370
380 IF INKEY="6" GOTO 380
390 IF INKEY="7" GOTO 390
400 IF INKEY="8" GOTO 400
410 IF INKEY="9" GOTO 410
420 IF INKEY="0" GOTO 420
430 IF INKEY="1" GOTO 430
440 IF INKEY="2" GOTO 440
450 IF INKEY="3" GOTO 450
460 IF INKEY="4" GOTO 460
470 IF INKEY="5" GOTO 470
480 IF INKEY="6" GOTO 480
490 IF INKEY="7" GOTO 490
500 IF INKEY="8" GOTO 500
510 IF INKEY="9" GOTO 510
520 IF INKEY="0" GOTO 520
530 IF INKEY="1" GOTO 530
540 IF INKEY="2" GOTO 540
550 IF INKEY="3" GOTO 550
560 IF INKEY="4" GOTO 560
570 IF INKEY="5" GOTO 570
580 IF INKEY="6" GOTO 580
590 IF INKEY="7" GOTO 590
600 IF INKEY="8" GOTO 600
610 IF INKEY="9" GOTO 610
620 IF INKEY="0" GOTO 620
630 IF INKEY="1" GOTO 630
640 IF INKEY="2" GOTO 640
650 IF INKEY="3" GOTO 650
660 IF INKEY="4" GOTO 660
670 IF INKEY="5" GOTO 670
680 IF INKEY="6" GOTO 680
690 IF INKEY="7" GOTO 690
700 IF INKEY="8" GOTO 700
710 IF INKEY="9" GOTO 710
720 IF INKEY="0" GOTO 720
730 IF INKEY="1" GOTO 730
740 IF INKEY="2" GOTO 740
750 IF INKEY="3" GOTO 750
760 IF INKEY="4" GOTO 760
770 IF INKEY="5" GOTO 770
780 IF INKEY="6" GOTO 780
790 IF INKEY="7" GOTO 790
800 IF INKEY="8" GOTO 800
810 IF INKEY="9" GOTO 810
820 IF INKEY="0" GOTO 820
830 IF INKEY="1" GOTO 830
840 IF INKEY="2" GOTO 840
850 IF INKEY="3" GOTO 850
860 IF INKEY="4" GOTO 860
870 IF INKEY="5" GOTO 870
880 IF INKEY="6" GOTO 880
890 IF INKEY="7" GOTO 890
900 IF INKEY="8" GOTO 900
910 IF INKEY="9" GOTO 910
920 IF INKEY="0" GOTO 920
930 IF INKEY="1" GOTO 930
940 IF INKEY="2" GOTO 940
950 IF INKEY="3" GOTO 950
960 IF INKEY="4" GOTO 960
970 IF INKEY="5" GOTO 970
980 IF INKEY="6" GOTO 980
990 IF INKEY="7" GOTO 990
1000 IF INKEY="8" GOTO 1000
1010 IF INKEY="9" GOTO 1010
1020 IF INKEY="0" GOTO 1020
1030 IF INKEY="1" GOTO 1030
1040 IF INKEY="2" GOTO 1040
1050 IF INKEY="3" GOTO 1050
1060 IF INKEY="4" GOTO 1060
1070 IF INKEY="5" GOTO 1070
1080 IF INKEY="6" GOTO 1080
1090 IF INKEY="7" GOTO 1090
1100 IF INKEY="8" GOTO 1100
1110 IF INKEY="9" GOTO 1110
1120 IF INKEY="0" GOTO 1120
1130 IF INKEY="1" GOTO 1130
1140 IF INKEY="2" GOTO 1140
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1160 IF INKEY="4" GOTO 1160
1170 IF INKEY="5" GOTO 1170
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1190 IF INKEY="7" GOTO 1190
1200 IF INKEY="8" GOTO 1200
1210 IF INKEY="9" GOTO 1210
1220 IF INKEY="0" GOTO 1220
1230 IF INKEY="1" GOTO 1230
1240 IF INKEY="2" GOTO 1240
1250 IF INKEY="3" GOTO 1250
1260 IF INKEY="4" GOTO 1260
1270 IF INKEY="5" GOTO 1270
1280 IF INKEY="6" GOTO 1280
1290 IF INKEY="7" GOTO 1290
1300 IF INKEY="8" GOTO 1300
1310 IF INKEY="9" GOTO 1310
1320 IF INKEY="0" GOTO 1320
1330 IF INKEY="1" GOTO 1330
1340 IF INKEY="2" GOTO 1340
1350 IF INKEY="3" GOTO 1350
1360 IF INKEY="4" GOTO 1360
1370 IF INKEY="5" GOTO 1370
1380 IF INKEY="6" GOTO 1380
1390 IF INKEY="7" GOTO 1390
1400 IF INKEY="8" GOTO 1400
1410 IF INKEY="9" GOTO 1410
1420 IF INKEY="0" GOTO 1420
1430 IF INKEY="1" GOTO 1430
1440 IF INKEY="2" GOTO 1440
1450 IF INKEY="3" GOTO 1450
1460 IF INKEY="4" GOTO 1460
1470 IF INKEY="5" GOTO 1470
1480 IF INKEY="6" GOTO 1480
1490 IF INKEY="7" GOTO 1490
1500 IF INKEY="8" GOTO 1500
1510 IF INKEY="9" GOTO 1510
1520 IF INKEY="0" GOTO 1520
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1550 IF INKEY="3" GOTO 1550
1560 IF INKEY="4" GOTO 1560
1570 IF INKEY="5" GOTO 1570
1580 IF INKEY="6" GOTO 1580
1590 IF INKEY="7" GOTO 1590
1600 IF INKEY="8" GOTO 1600
1610 IF INKEY="9" GOTO 1610
1620 IF INKEY="0" GOTO 1620
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1640 IF INKEY="2" GOTO 1640
1650 IF INKEY="3" GOTO 1650
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1670 IF INKEY="5" GOTO 1670
1680 IF INKEY="6" GOTO 1680
1690 IF INKEY="7" GOTO 1690
1700 IF INKEY="8" GOTO 1700
1710 IF INKEY="9" GOTO 1710
1720 IF INKEY="0" GOTO 1720
1730 IF INKEY="1" GOTO 1730
1740 IF INKEY="2" GOTO 1740
1750 IF INKEY="3" GOTO 1750
1760 IF INKEY="4" GOTO 1760
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1790 IF INKEY="7" GOTO 1790
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1850 IF INKEY="3" GOTO 1850
1860 IF INKEY="4" GOTO 1860
1870 IF INKEY="5" GOTO 1870
1880 IF INKEY="6" GOTO 1880
1890 IF INKEY="7" GOTO 1890
1900 IF INKEY="8" GOTO 1900
1910 IF INKEY="9" GOTO 1910
1920 IF INKEY="0" GOTO 1920
1930 IF INKEY="1" GOTO 1930
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1950 IF INKEY="3" GOTO 1950
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1970 IF INKEY="5" GOTO 1970
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2380 IF INKEY="6" GOTO 2380
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2490 IF INKEY="7" GOTO 2490
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2980 IF INKEY="6" GOTO 2980
2990 IF INKEY="7" GOTO 2990
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3270 IF INKEY="5" GOTO 3270
3280 IF INKEY="6" GOTO 3280
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3310 IF INKEY="9" GOTO 3310
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3330 IF INKEY="1" GOTO 3330
3340 IF INKEY="2" GOTO 3340
3350 IF INKEY="3" GOTO 3350
3360 IF INKEY="4" GOTO 3360
3370 IF INKEY="5" GOTO 3370
3380 IF INKEY="6" GOTO 3380
3390 IF INKEY="7" GOTO 3390
3400 IF INKEY="8" GOTO 3400
3410 IF INKEY="9" GOTO 3410
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3440 IF INKEY="2" GOTO 3440
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3480 IF INKEY="6" GOTO 3480
3490 IF INKEY="7" GOTO 3490
3500 IF INKEY="8" GOTO 3500
3510 IF INKEY="9" GOTO 3510
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3580 IF INKEY="6" GOTO 3580
3590 IF INKEY="7" GOTO 3590
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3630 IF INKEY="1" GOTO 3630
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3650 IF INKEY="3" GOTO 3650
3660 IF INKEY="4" GOTO 3660
3670 IF INKEY="5" GOTO 3670
3680 IF INKEY="6" GOTO 3680
3690 IF INKEY="7" GOTO 3690
3700 IF INKEY="8" GOTO 3700
3710 IF INKEY="9" GOTO 3710
3720 IF INKEY="0" GOTO 3720
3730 IF INKEY="1" GOTO 3730
3740 IF INKEY="2" GOTO 3740
3750 IF INKEY="3" GOTO 3750
3760 IF INKEY="4" GOTO 3760
3770 IF INKEY="5" GOTO 3770
3780 IF INKEY="6" GOTO 3780
3790 IF INKEY="7" GOTO 3790
3800 IF INKEY="8" GOTO 3800
3810 IF INKEY="9" GOTO 3810
3820 IF INKEY="0" GOTO 3820
3830 IF INKEY="1" GOTO 3830
3840 IF INKEY="2" GOTO 3840
3850 IF INKEY="3" GOTO 3850
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3880 IF INKEY="6" GOTO 3880
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3910 IF INKEY="9" GOTO 3910
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3940 IF INKEY="2" GOTO 3940
3950 IF INKEY="3" GOTO 3950
3960 IF INKEY="4" GOTO 3960
3970 IF INKEY="5" GOTO 3970
3980 IF INKEY="6" GOTO 3980
3990 IF INKEY="7" GOTO 3990
4000 IF INKEY="8" GOTO 4000
4010 IF INKEY="9" GOTO 4010
4020 IF INKEY="0" GOTO 4020
4030 IF INKEY="1" GOTO 4030
4040 IF INKEY="2" GOTO 4040
4050 IF INKEY="3" GOTO 4050
4060 IF INKEY="4" GOTO 4060
4070 IF INKEY="5" GOTO 4070
4080 IF INKEY="6" GOTO 4080
4090 IF INKEY="7" GOTO 4090
4100 IF INKEY="8" GOTO 4100
4110 IF INKEY="9" GOTO 4110
4120 IF INKEY="0" GOTO 4120
4130 IF INKEY="1" GOTO 4130
4140 IF INKEY="2" GOTO 4140
4150 IF INKEY="3" GOTO 4150
4160 IF INKEY="4" GOTO 4160
4170 IF INKEY="5" GOTO 4170
4180 IF INKEY="6" GOTO 4180
4190 IF INKEY="7" GOTO 4190
4200 IF INKEY="8" GOTO 4200
4210 IF INKEY="9" GOTO 4210
4220 IF INKEY="0" GOTO 4220
4230 IF INKEY="1" GOTO 4230
4240 IF INKEY="2" GOTO 4240
4250 IF INKEY="3" GOTO 4250
4260 IF INKEY="4" GOTO 4260
4270 IF INKEY="5" GOTO 4270
4280 IF INKEY="6" GOTO 4280
4290 IF INKEY="7" GOTO 4290
4300 IF INKEY="8" GOTO 4300
4310 IF INKEY="9" GOTO 4310
4320 IF INKEY="0" GOTO 4320
4330 IF INKEY="1" GOTO 4330
4340 IF INKEY="2" GOTO 4340
4350 IF INKEY="3" GOTO 4350
4360 IF INKEY="4" GOTO 4360
4370 IF INKEY="5" GOTO 4370
4380 IF INKEY="6" GOTO 4380
4390 IF INKEY="7" GOTO 4390
4400 IF INKEY="8" GOTO 4400
4410 IF INKEY="9" GOTO 4410
4420 IF INKEY="0" GOTO 4420
4430 IF INKEY="1" GOTO 4430
4440 IF INKEY="2" GOTO 4440
4450 IF INKEY="3" GOTO 4450
4460 IF INKEY="4" GOTO 4460
4470 IF INKEY="5" GOTO 4470
4480 IF INKEY="6" GOTO 4480
4490 IF INKEY="7" GOTO 4490
4500 IF INKEY="8" GOTO 4500
4510 IF INKEY="9" GOTO 4510
4520 IF INKEY="0" GOTO 4520
4530 IF INKEY="1" GOTO 4530
4540 IF INKEY="2" GOTO 4540
4550 IF INKEY="3" GOTO 4550
4560 IF INKEY="4" GOTO 4560
4570 IF INKEY="5" GOTO 4570
4580 IF INKEY="6" GOTO 4580
4590 IF INKEY="7" GOTO 4590
4600 IF INKEY="8" GOTO 4600
4610 IF INKEY="9" GOTO 4610
4620 IF INKEY="0" GOTO 4620
4630 IF INKEY="1" GOTO 4630
4640 IF INKEY="2" GOTO 4640
4650 IF INKEY="3" GOTO 4650
4660 IF INKEY="4" GOTO 4660
4670 IF INKEY="5" GOTO 4670
4680 IF INKEY="6" GOTO 4680
4690 IF INKEY="7" GOTO 4690
4700 IF INKEY="8" GOTO 4700
4710 IF INKEY="9" GOTO 4710
4720 IF INKEY="0" GOTO 4720
4730 IF INKEY="1" GOTO 4730
4740 IF INKEY="2" GOTO 4740
4750 IF INKEY="3" GOTO 4750
4760 IF INKEY="4" GOTO 4760
4770 IF INKEY="5" GOTO 4770
4780 IF INKEY="6" GOTO 4780
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6230 IF INKEY="1" GOTO 6230
6240 IF INKEY="2" GOTO 6240

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(25a)

```

0000 INPUT "Y/N: ", Y%
0010 IF Y% THEN GOTO 0040 ELSE IF Y% THEN 20
0020 INPUT "FILE NO. TO KILL: ", KILL%
0030 INPUT "TYPE OF PROGRAM TO REMOVE": T%
0040 IF T% THEN GOTO KILL%+1000
0050 IF T% THEN GOTO KILL%+1010
0060 IF T% THEN GOTO KILL%+1020
0070 IF T% THEN GOTO KILL%+1030
0080 IF T% THEN GOTO KILL%+1040
0090 GOTO 1000
0100 GOTO 1000
0110 CLIPRINT "  (MAIN COMMAND) PRINTING: (C, Y)"
0120 PRINT "ENTER DISC AND PRESS A KEY"
0130 ERROR 601000
0140 GOTO 601000 IF 10 THEN GOTO 601000
0150 GOTO 601000
0160 INPUT "DISK: ", DIS%
0170 INPUT "TYPE OF PROGRAM": T%
0180 IF T% THEN GOTO 601000
0190 IF T% THEN GOTO 601000
0200 IF T% THEN GOTO 601000
0210 GOTO 601000
0220 GOTO 601000
0230 CLIPRINT "  (MAIN COMMAND) PRINTING: (C, Y)"
0240 PRINT "ENTER DISC AND PRESS A KEY"
0250 ERROR 601000 IF 10 THEN GOTO 601000
0260 GOTO 601000
0270 FOR T=1 TO 1000000: GOTO 601000
0280 PRINT "PRESS A KEY"
0290 GOTO 601000 IF 10 THEN GOTO 601000
0300 GOTO 601000
0310 FOR T=1 TO 1000000: GOTO 601000
0320 PRINT "PRESS A KEY"
0330 GOTO 601000 IF 10 THEN GOTO 601000
0340 GOTO 601000
0350 INPUT "DISC TO KILL NUMBER: ", KILL%
0360 IF KILL% THEN BACKUP=601000
0370 BACKUP A TO B
0380 RUN
0390 INPUT "NAME OF PROGRAM": DIS%
0400 PRINT "THE SAME DISC DRIVE TO WHICH"
0410 GOTO "THE DISC/KILL/DISK"
0420 GOTO "TO DISC TO KILL"
0430 GOTO 601000
0440 CLIPRINT "  (MAIN COMMAND) PRINTING: (C, Y)"
0450 INPUT "NAME OF PROGRAM": DIS%
0460 INPUT "ON OR OFF": DIS%
0470 GOTO 601000 IF DIS% THEN GOTO 601000
0480 IF DIS% THEN GOTO 601000
0490 IF DIS% THEN GOTO 601000
0500 IF DIS% THEN GOTO 601000
0510 IF DIS% THEN GOTO 601000
0520 IF DIS% THEN GOTO 601000
0530 GOTO 601000
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0690 GOTO 601000
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0980 GOTO 601000
0990 GOTO 601000
1000 GOTO 601000

```



# Expert's Arcade Arena

Write to "The Expert" at Dragon User  
12-13 Little Newport St, London WC2H 9PP,  
with all your arcade tips and hints.

HILLD and welcome to the Expert's public  
confession. Yes, the mystery is history. The  
Expert is revealed! Before the amazing  
games round up, here is a brief c.v:

**NAME:** The Expert.

**BORN:** Obviously.

**SEX:** Regularly jibe another's sex by  
himself — dit!

**CHILDHOOD:** The Expert's mother, to her  
relief, died at birth (his, not hers). The Expert  
spent his childhood in prison serving a  
twelve year sentence for involuntary man-  
slaughter and making useful contacts. His  
release was marked by fireworks, street  
parties, spontaneous three minute dances  
and British Telecom getting SEVEN  
numbers right in a row!

**EXPERIENCE ON COMPUTERS:** After  
several months' reading, The Expert  
designed his own computer. Following  
established trends (Apple, Apricot he called  
his design The Herring. It had no RAM  
and no ROM, as it was, in fact, a box with  
one of those horrible Sinclair keyboards.  
Consequently, it was simple to use, and  
sold quite well for a while. The Expert went  
on to design the Red Herring. This had  
128K RAM, 128K ROM, Fort, C, Pascal  
and Basic as standard, and was even  
simpler to use, as he took the advice of the  
microsecond and removed the keyboard. Un-  
fortunately, this made programming rather  
difficult.

The Red Herring sent, The Expert

bought a Dragon 32 and decided to write  
games.

After some three years locked in a game  
with a continuous supply of games, he had  
yet to write a coherent program (Or anything  
— such — Et.), but he knew more than  
anyone else in the world about Dragon  
games. Emerging from his game, he found  
that Dragon Data had gone down the drain.  
Attempting to simulate its progress, he tripped  
over a veritable vision of cloudiness who

was throwing up about Martini in a gutter  
in Little Newport Street. Its name was Helen  
Armstrong. Much has been written about  
their strained relationship in the mass  
media. The end is History. (The Expert was  
looking for his specs at the time. The editor  
he tried on was Mr John Cook, who always  
carries a game of bocceball to protect  
himself from confused and emotional soft-  
ware reviewers. The Expert accepted the job  
on the spot. — Et.)

## Games roundup

So, on to this month's promised 'games  
roundup'. What I have done is picked fifty  
games from the back catalogue and give you  
an opinion. This should sort out some of  
the letters asking my opinion on this  
game and that.

If you feel this column has been useful,  
I will consider a lot of what gamers avoid,  
and why.

Every game listed is one that I have en-  
joyed playing, and the list is intended to  
help those adding to their own collections.  
Under 'Graphics', I have considered how  
the game looks while PALSED — making  
no allowance for smoothness of move-  
ment. All ratings are from zero to five. In  
'Speed', the rating goes from zero (in-  
credibly slow) to five (No time limit). Please  
note: the overall rating does not corre-

spond to the usual Dragon ratings,  
because these games are ALL FOUR  
DRAGONS AT LEAST in the normal  
rating. They are all good; some of them  
are brilliant.

Under 'Type' I have assigned the follow-  
ing categories: **Shoot-em-up**: left-right  
fire games; **Collection**: railways, lead-  
ers, from Mine Miner to Dons for Dots;  
**Penetration**: variable type games;  
**Adventure**: true Darts et al; **Strategy**:  
games where thought is as important as  
speed. **Kung Fu** et al.

The games listed are not all necessarily  
still available, but suppliers like John Rein  
and Computop may still have copies.  
Prices will vary. As a rough guide, the first  
thirteen are fairly games, the next twenty  
seven are microdads.

Name	Graphics	Speed	Type	Comment	Rating
Born for Dots	4	3	Collection	If you can get hold of one of the copies which allow you to play without the hazard of power surges, this is a really great fun game.	4
Break's Kingdom	2	2	Adventure	With the map (see last issue) the game's a cinch, but try it without.	2
Caverns of Chaos	5	3	Collection	This one's too close to Mines for comfort, but sometimes, aside, the game has some very devious surprises, and a very nice feel to it.	3
Cryptic Smash	3	5	Penetration	The ultimate test for arcade game players. If you can do this one without cheating (and yourself) among the elite few who will be remembered after their death!	5
Dragon Darts	4	n/a	Strategy	Excellent design makes this one work. It's very difficult to transfer traditional games to a computer, but this works very well thanks to the way they've done it. It's not the same as playing darts at the table, but it's almost as much fun!	3
Fingers	2	2	Collection	It's not the fastest of its type, or the best looking, but it's pretty damn hard, and at a high difficulty level it's really rather playable.	2
Dr's 4-Job	3	3	Adventure	Ignoring the fact that unemployment isn't the most tasteful subject for a game, this one will make a great set of images, if anyone wants to do them!	3
Kung-Fu — The Master	4	4	Kung Fu	This is the THE BEST kung fu game available for the Dragon. Ignore the fact that only one person can play it at a time because this one has very good accuracy and really does provide a challenge that becomes progressively more difficult.	5
Mutator War	1	2	Adventure	This is one of the many not good versions of Herkules available for the Dragon.	1
Olympic	2	2	n/a	This is one of the many not good versions of Fairs and Fairs available for the Dragon.	2

Name	Graphics	Speed	Type	Comment	Rating
Rudy Robbo	3	3	Strategy	This really is a good little thinking and reacting game. I wouldn't rave overly about it, but it looks good and sounds great.	3
Star Sweep	4	2	Shoot-em-up	This is a game for when your friends come round and want to play a shooting game but really aren't very good. Fine for beginners, but it doesn't get any more difficult, so it's only a warm-up.	2
Starman-Jones	4	4	Penetration	Based vaguely on a Spectrum game called Luster-Jensen, this is not very good but it's fun on those long winter evenings.	
Speed Racer	5	3	n/a	This is the best driving game the Dragon will ever know, so get one today. It's 3-D, with a choice of four tracks and really great for competitions with other people, as each track has its own high score.	5
Danger Ranger	5	3	Collection	This is a typical Ken Kalish game, it's almost complete!	4
CatMan in Space	3	2	Collection	The closest to Jet-Pac the Dragon has ever seen, with the most irritating 'extra bit' ever seen, as well. I mean, who wants to spend half an hour lining numbers up?	3
Cut-throat govt Walkabout	2	3	Strategy	A very under-rated Amstrad that admittedly suffers from lack of variation.	3
Mr. Q	2	2	Collection	The only half-way decent version of the arcade classic available for the Dragon, and this is really only half-way decent!	
The Official Frogger	3	3	n/a	This is really very good, and for some obscure reason, seems to be more favoured among women than men!	5
Phantom Slayer	4	4	Adventure	If you like Escape then you'll love this bit of 3-D ghoulishness!	3
Cut-throat in the Cooler	3	3	Adventure	The only thing wrong with this game is that there aren't really not enough screens to provide sense of satisfaction when it is finished.	3
Qu'bert	2	2	Strategy	It's a pity there aren't more versions of Q'bert about, but Qu'bert is the best I've seen.	3
Burner-Ball	3	3	n/a	At its best, in two player competitions this version of Joust is now available single-less, which means it now costs a sensible amount.	
Beam Rider	4	4	Strategy	Highly under-rated, this is probably one of my favourite games for the Dragon. It's totally original, requires a lot of skill and should have been a best seller.	5
Taking Android Attack	3	2	Adventure	This is another of the not very good versions of Burner for the Dragon. This one has the worst speech impediment I've ever heard.	
Athlete	2	3	n/a	This is another of the not very good versions of Back and Field for the Dragon. This is the one that overnight increased joystick sales by 400% due to the snapping of so many while trying to play it.	2
Chambers	4	3	Adventure	This is a game based upon one that came out for that video-games machine with the vector screen whose name I can't remember (Mr. My pain there! Can it be — the Vector machine? When man has wasted trying to vector the chicken and zap the asteroids then any other so-called mini game is the history of the universe. Where are you now? — Ed.) and it's very challenging indeed, even if it does get a bit boring after a while.	3
Grabber	4	3	Collection	This is the best version of Pin-Man seen on the Dragon. It's so simple — why is it so hard?	5
Fastballer II	4	4	Shoot-em-up	This is an excellent version of Centipede, and once you get used to playing it without a track-ball it becomes maddeningly addictive.	4
Eight Ball	4	3	Strategy	Almost like a game of pool, except you don't knock someone's disk over as you pull the cue back!	3
Starblade	4	2	Penetration	This is a game that you really CANNOT go on playing for ever. Try it, and you'll see what I mean!	3



# Hooks and Ns

Extra facilities can be hooked onto Dragon BASIC. Philip G. Scott does the hanging.

DRAGON Basic has a set of 25 'Hooks' (or 'Expansion Vectors') — see Dragon User February 1986, Foreword) which enable you to hang extra facilities onto the Basic-provided. Many of these are used by the various DOS programs (DRA60N, DRA60S, SUPERDOS, DCSplus etc.) to add the disc commands. After reading this article, you should be able to add your own facilities, in the correct way, without interfering with any other programs already using the hooks.

As an example, a facility is described to give a 'RESTORE' facility to restore to a line number, together with a 'RETURN' facility to renumber the lines in the 'RESTORE' command, something that has been requested time and again in Dragon User without a satisfactory answer. The example has been simplified by making one assumption, that this is the only add-on which affects a 'RETURN/RESTORE' combination.

**Table one** gives a recap of the hooks and the BASIC routines that call them. This is not identically worded to the *Dragon* magazine article, but is my interpretation of the usage.

To use a hook correctly, a number of things have to be done to ensure your extra feature works correctly and does not remove another feature already using the hooks.

Firstly, of course, you must have a routine to be called through the hook! For most of the hooks, this routine should preserve the state of the condition codes and any other registers used, in case they are assumed to be in a certain state by any other routine using the hook (or indeed the Basic routine which called the hook). This is done in the 'RETURN' facility of **Figure one**, but not in the 'RESTORE', as the state of the registers before a call to this hook is undefined.

Secondly, any routine added through a hook should exit through the hook vector which initiated before the routine itself was initialised, if the routine has not been accessed. This ensures that any other facilities in use are not lost.

Finally, the vector to the new routine should be entered in the hook. Ideally, this is done by an initialisation routine that attempts to prevent itself being called twice, if this should happen, the hook routine will exit to itself.

The example program of **Figure two** is a modified version of that in DCSplus, is fully position independent and gives a facility to restore to a line number (or the program start if no line number is given). The example is in three parts, an initialisation routine (SETUP), the RESTORE extension (RESTO) and the extension to RETURN (RETURN).

SETUP starts by copying the vectors for the hooks to be used into the exit point of the relevant routine, then writes a jump to each routine in the hooks. Finally, the address of the 'NO ERROR' routine is written as the ERROR address, to prevent an inadvertent

second initialisation, before returning to BASIC.

After SETUP is obeyed, RESTO takes precedence over the built-in RESTORE command, by detecting the token value (RESTO) as the first character of a BASIC statement. If RESTORE is found, the default GATA pointer (the address of the start of the program, in \$1FF000) is loaded into the X register and a test made for a line number through GATECHA. If the presence of a line number is detected, ADDRESS is called to convert the ASCII string of digits to binary, and FNDLIN is called to find the line (if the line is not found then C flag goes on) and TUL ERROR message is output, otherwise the GATA pointer is set to point at the end of the preceding line. Note that the line specified need not itself contain a GATA statement, as the first GATA statement occurring after the specified line will be used by the next READ.

The final part of the program covers the RETURNing of line numbers in RESTORE commands. The hook used for this is also called from three other places (Function — GETSPUT and CLS), so that the registers must be preserved. As only X and CC are affected, these are pushed onto the stack. The return address is then tested to see if RETURN is the calling routine and,

if not, X and CC are pulled and the original hook vector used to move on. If the calling routine is RETURN and the token value is RESTO, this is changed to RTHEX (the token for THEN) before returning to RETURN to renumber the line number following THEN (not really good programming practice, but very effective in this instance).

You should now have an idea of how to use the BASIC hooks effectively to hang on extra goodies, and a useful RESTORE to line number facility. To make it easier to load the routines, **Figure two** is a hex dump in 'standard' form of

address 8 data bytes = checksum

After loading, the 195 bytes of the program should be saved by

SAVE LA, LA+195, LA

where LA is the address at which it was loaded (\$100 in the dump). (Remember it is position independent, so can be put anywhere.) Note that only 194 bytes are shown in the dump, as the value of the remaining byte is used by SETUP. **Figure three** is a simple test program to check the facility, including RETURN if desired.

Table 1 — Hooks

Hook address	Called From	Function
0158	8028	Open drive or file
0161	8788	Check I/O device number
0164	8595	Return device parameters
0167	854A	Character output
016A	850A	Character input
016D	8425	Check device is open for input
0170	843C	Check device is open for output
0173	845C	Close all devices and files
0176	8463	Close a single device or file
0179	8488	About to deal with first character of statement
017C	8782	Find file item scanner
017F	8078	Call for BREAK or special keys
0182	85C8	Read a line of input
0185	84F8	Finish loading ASCII program
0188	8488	End of file (EOF) function
018B	853A	Evaluate an expression
018E	8344	User error trap
0191	8343	System error trap
0194	85A5	RUN statement
0197	842A	CLS statement
	8038	String copy check
019A	84F8	Fetch next statement
019D	84D1	LET string copy check
01A0	8508	Function assignment validation
	8788	RENUM statement, token processing
	8A27	PUT/GET statement
	8A57	CLS statement
01A3	87A7	Compress BASIC lines for storage
01A6	8708	Expand BASIC line for listing

Figure 1 — Assembler Listing

```

0C0C                                *****
0C0C                                * RESTORE N
0C0C                                *****
0C0C                                * Equates
0C0C                                *****
0C0C      1400      REM      EQU      *
0C0C      0C1C      ORG      3100
0C0C      009A      ASCII      EQU      $009A
0C0C      0033      GETPOS      EQU      $33
0C0C      008D      ERRPC      EQU      $008D
0C0C      0344      ERRSPT      EQU      $0344
0C0C      009D      ERRCAD      EQU      $9D
0C0C      83FF      FNOLIN      EQU      $83FF
0C0C      009F      GETCHA      EQU      $9F
0C0C      009D      ERRSPT      EQU      $9D
0C0C      00BF      KTHIN      EQU      $BF
0C0C      9EEE      REVEN      EQU      $9EEE
0C0C      003B      SACHLN      EQU      $3B
0C0C      0019      STPROG      EQU      $19
0C0C      000E      ULERR      EQU      $0E
0C0C                                *****
0C0C                                * PROGRAM
0C0C                                *****
0C0C                                * Copy hook vectors for exit
0C0C                                *****
0C0C      06 0179      SETUP      LDA      $179
0C0F      A7 8C 48      STA      REST0,PCB
0C23      F8 017A      LDW      $17A
0C23      8F 8C 43      STU      REST0-1,PCB
0C2B      86 01A0      LDA      $1A0
0C2B      A7 8C 34      STA      REWM2,PCB
0C2E      FE 01A1      LDW      $1A1
0C31      EF 8C 4F      STU      REWM2-1,PCB
0C34                                *****
0C34                                * Setup new hook vectors
0C34                                *****
0C34      33 8C 38      LEAU      REWM,PCB
0C37      FF 01A1      STU      $1A1
0C3A      33 8C 11      LEAU      REST0,PCB
0C3B      FF 017A      STU      $17A
0C40      84 7E      LDA      #57E
0C42      B7 01A0      STA      $1A0
0C43      B7 0179      STA      $179
0C46      CE 008D      LDW      #ERRPC
0C48      BF 9D      STU      ERRCAD
0C4D      39      RTS
0C4E                                *****
0C4E                                * RESTORE
0C4E                                *****
0C4E      81 90      REST0      CMPA      #ERRSPT      Test for RESTORE token
0C50      26 14      BNE      REST1
0C52      32 42      LEAS      2,S
0C54      98 19      LWS      STPROG      Load default pointer
0C56      90 3F      JSR      GETCHA
0C58      27 08      BEO      NONUM      No line number
0C5A      80 849A      JSR      ASCII      Get line number
0C5D      80 83FF      JSR      FNOLIN      Find required line
0C60      23 03      BCS      ENHIL      Jump if line not found

```

```

0062 30 1F          MOVEM LEAX -1,X
0064 9F 33          STX DATPOS      Set DATA pointer
0066 39            RTS
0067 C6 0E          BEMUL LDB #ULXSS
0069 78 8344        JEP ERSOFT      Output TUL ERROR
006C             REST1 RMB 3
006E             *****
006F             * RESTORE
006F             *****
006F 34 11          MOVH PSRS X,CC
0071 A8 63          LDB 1,X
0073 8C 9EEE        CMPE RSRMUM      From RSRMUM
0076 26 08          RNE RSRM1      Jump if not
0078 81 90          CMFA RSRSTO      RSTORE taken?
007A 26 04          RNE RSRM1      Jump if not
007C 86 8F          LDA RSRMUM      RSRMUM THEN 1
007E 35 91          PULS PC,X,CC
0080 35 11          BEMM1 PULS X,CC
0082             BEMM0 RMB 3
0085             *

```

Figure 2 — Hexdump

```

3100 182 1 121 167 140 74 254 .1 = 940
3108 122 298 340 69 182 1 140 167 = 1080
3116 140 84 234 1 161 239 140 79 = 1088
3124 51 140 56 235 1 161 51 140 = 855
3132 17 235 1 122 134 126 183 1 = 839
3140 160 183 1 121 206 139 141 221 = 1174
3148 157 57 129 144 38 26 50 98 = 499
3156 158 25 157 139 38 8 189 134 = 869
3164 154 189 131 235 37 5 48 31 = 850
3172 159 51 57 198 14 128 131 68 = 804
3180 57 198 14 53 17 174 99 140 = 751
3188 156 138 38 8 129 144 38 4 = 757
3196 134 191 53 145 53 17 0 0 = 591

```

Figure 3 — Test program

```

10 INPUT "RESTORE TO (1 TO 5):" I
20 IF I<1 OR I>5 THEN PRINT "OUT OF RANGE" : GOTO 10
30 ON I GOSUB 110,120,130,140,150
40 READ AS : PRINT AS
50 GOTO 10
110 RESTORE 500 : RETURN
120 RESTORE 300 : RETURN
130 RESTORE 520 : RETURN
140 RESTORE 330 : RETURN
150 RESTORE 540 : RETURN
500 DATA "DATA LINE 1"
510 DATA "DATA LINE 2"
520 DATA "DATA LINE 3"
530 DATA "DATA LINE 4"
540 DATA "DATA LINE 5"

```

# The Answer

This is Gordon Lee's own solution to the December competition see page 38 for results

**ANSWER:** The substitution should be performed as follows:

A P H M R O R S T W  
9 4 2 7 6 5 8 1 0 3

Thus: SANTA = 19609 (a prime number)  
PROST = 48810 (a multiple of 7)  
HORSH = 68827 (a multiple of 11)  
SHOWMAN = 195279 (1299 squared)

**Solution:** The problem is solved by using the three programs given, plus some cross-checking of results. First, we need to find all those square numbers which have seven digits. Have the second digit the same as the seventh, and have all other digits different. This results in seven possibilities as listed in table 1. From this we can now find possible values for 'SANTA'. We know that 'W' must be '6', and 'S' can only be 1, 2, 4, or 8. 'O' as we have already observed must be 1, 2, 7, or 9. This is included in **Listing one** of line 40. In the program, line 40 repeats all seven squares in which the second and seventh digits do not match, and lines 40 to 90 test the other digits are different. The results in seven possibilities as listed in table 1. From this we can now find possible values for 'SANTA'. We know that 'W' must be '6', and 'S' can only be 1, 2, 4, or 8. As we have already observed must be 1, 2, 7, or 9.

Program **Listing two** takes these known values and finds possible values for the letter 'T' which form prime numbers. A test for primes is performed in lines 106 to 150. This produces **Listing two**. We know from our 'snowman' list that 'SANT' can only equal either 176, 196, 276, 416, 916, or 1016, so all entries which do not begin with these digits are crossed off the list. The digit represented by the letter 'T' is also checked against the seven digits in the seven-digit square as it cannot be amongst them. Further numbers can then be crossed off the list. For example, the prime 19607 has the substitutions S=1, A=7 and M=0 so must be paired with the 'snowman' substitution 102076. In this prime the 'T' is represented by digit 0, but this is already in 'snowman' where 0 represents an 'O', therefore this substitution is not possible.

This results in seven possible pairings of 'SHOWMAN' and 'SANTA', and from these the digits represented by the letters 'OST' can be found in each case:

SHOWMAN	SANTA	'OST'
195279	19607	216
195279	19609	216
2943876	27617	421
2943876	27687	429
4882316	48821	842
4882316	48881	848
4882316	48821	842
4882316	48881	842
4882316	48880	848
8034216	80321	362
8042316	80402	436

We now need to find all five-digit multiples of 7 which end in the 'OST' digits

from the above table. This is done using **Listing three**, line 40 eliminating all values which do not end in the required digits. Each entry is then tested to ensure that all digits are different. The results are given in table 2. The two 'new' digits are represented by the letters 'PR' are then compared with the digits in 'SHOWMAN' and 'SANTA' in

each case. Those in which the digits are duplicated can be crossed off list 3. We are left with ten possible sets of figures. In each case we have a substitution for all letters except 'W'. This is found in the word 'NORTH' which is a multiple of 11. This substitution is made, only one case out of the ten will produce the required result.

## Listing 1 - Snowman

```
10 FOR N=1111 TO 3162
20 S=N*N: S=STR$(S): S=HID$(S,2)
30 V=VAL(RIGHT$(S,1))
40 IF V=0 OR V=2 OR V=4 OR V=5 OR V=6
   OR V=8 THEN 110
50 IF MID$(S,2,1)<>MID$(S,7,1) THEN 110
60 S=LEFT$(S,1)+MID$(S,5,1): FL=0
70 FOR F=1 TO 5: FOR G=F+1 TO 6
80 IF MID$(S,F,1)=MID$(S,G,1) THEN FL=1
90 NEXT: NEXT
100 IF FL=0 THEN PRINT N: " "; N*N
110 NEXT
```

## Listing 2 - Santa

```
10 FOR S=1 TO 9
20 IF S=3 THEN S=4
30 IF S=5 THEN S=6
40 FOR A=1 TO 9 STEP 2
50 IF A=5 THEN A=7
60 IF A=6 THEN A=7
70 FOR T=0 TO 9
80 IF T=5 OR T=A OR T=S THEN 160
90 SANTA=S+10000*A+1000+S+10+A
100 LIMIT=9999(SANTA)+1
110 FL=0
120 FOR F=3 TO LIMIT STEP 2
130 IF SANTA/F=INT(SANTA/F) THEN FL=1: F=LIMIT
140 NEXT F
150 IF FL=0 THEN PRINT SANTA
160 NEXT T
170 NEXT A
180 NEXT S
```

## Listing 3 - Frost

```
10 FOR N=10003 TO 99999 STEP 7
20 S=N: S=STR$(S): S=HID$(S,3)
30 V=VAL(LEFT$(S,2))
40 IF V=215 OR V=510 OR V=421 OR V=429 OR
   V=42 OR V=48 OR V=342 OR V=345 OR V=349
   OR V=392 OR V=438 THEN 50 ELSE 90
50 FL=0: FOR F=1 TO 4: FOR G=F+1 TO 5
60 IF MID$(S,F,1)=MID$(S,G,1) THEN FL=1
70 NEXT: NEXT
80 IF FL=0 THEN PRINT N
90 NEXT
```

Table 1

1291	102076
1294	195279
1628	2943876
2148	4882316
2154	4882316
2304	8034216
2306	8042316

Table 2

17607	48821
19609	48821
27617	80321
27687	80402

Table 3

27648	70362
48848	80376
50421	98042
50498	97048
51409	98042



THERE seems to be no stopping young Michael Edwards of BroccoliSoft, who as well as seemingly writing about his million adventures a year, now seems to be involved in magazine production as well. He's sent me a copy of something just called *Dragon Magazine*, produced by BroccoliSoft and Adventure Software, which will cost \$2.50 for six months — or £1.80 if you also send your sixpence stamps into cover the postage. The reason it's so cheap is that it's obviously produced very cheaply. The issue I saw was just ten photocopied pages stapled together, but the pages contained lots of useful information — and even an adventure column by someone called Puncture, though needless to say it does not come up to the exceedingly high standard of the *Adventure Trail*. I mean, how could that ever be feasible?

## Rivals and upstarts

As an amateur enthusiast's effort, *Dragon Magazine* isn't bad. There are a few adventure codes included, with more promised, and a review and solution or two, so you may care to fork out the pennies and try it, though there's no note of what a single sample issue would cost you. You can get details from Michael Edwards at 30 Broomfield, Witley/GardenCity/Herts AL7 9BF. And if you can tell him how to open the system's Pyramid of Doom at the same time, so much the better.

I seem to be surrounded by young upstarts and rivals at the moment, with Simon 'Can-I-get-in-every-issue' Hargrave still sending me lots of hints and tips to pass on to readers every month, so many that I think he must spend at least 20 hours a day playing *Dragon* adventures. Here's some of the latest batch, and as usual with lengthy tips I'll be pointing them forwards rather than backwards, so look for the title of the game in each paragraph and decide whether you'd prefer to see the hints or miss them by reading on.

On *Wizard Quest* from Microdeal, there are five map levels: attic, first floor, ground floor, basement and secret passages. There also seem to be four types of keys, and to complete the quest you have to deposit seven objects in the right order: a horseshoe, a candle, twig, crucifix, hat, diamond and rabbit. To get the rabbit you must visit the wizard over the hat.

Although it's technically my field, *Benjamin and the Adventures*, I'll nevertheless find a

tiny space to squeeze in one of Simon's codes for *Guthbert and the Golden Chalice*. To extend the number of your lives, poke 20912 with the number you want, from 0-255. Flogging it with zero, though, will tend to make the game somewhat tricky.

Next move tip on the tangled net of *Angewood*. To see a character, move Bearbag next to it and type "T0UCH". To make the rock cakes, get some flour and go to the kitchen in Dogwood Cottage and COOK CAKE. To get Peabody, first get the spade and dig in the western garden then drop the bone in the Doghouse. Feed the hamster the rabbit (pretty handy one to figure out, that one). Tell Peabody to dig on the island. Toss the spade for Foghorn, use the fishing rod. Search Mallow Marsh at night.

A problem that's apparently confusing lots of players is how to get the whisksers, and that's hardly surprising when you see the lengthy details of how to do it. Simon's solution is first to send Bruce in via the eastern entrance of Dwarf Dive to the mushroom with the reset button and get him to press it then leave via the lifts out through the southern exit. Step two is to send Foghorn in through the southern entrance and down the lifts to the eastern mushroom two-thirds of the way down the left side of the screen and then up and out through the southern exit. Next step is to switch from Foghorn to any other character, type T888, switch back again, 0888P Foghorn, then T888 again. Then take Foghorn to Goliath, avoiding the subway where you will be mugged and lose the whisksers. Transfer the whisksers and put Foghorn in a safe place. Finally switch to Goliath and tell him to wear the whisksers. The third mushroom holds the Archangel in a vase and Goliath can then get him. Got that? Phew!

Hargrave the Happy Hacker has also come up with a full list of verbs for *Angewood*, but some of the abbreviated ones are rather puzzling. The verb list includes 888E (breath?), 88E (read?), 8P (opening?), 888D and 888D (any suggestions as to the use of those last two? Simon's offering thought *Angewood* as far as he's got, and on lots of other adventures he's finished, too numerous to list in full, so check it out with him on his Postal realties no. 05380000 or at Colesley Hill Farm, Uley, Dursley, Glos. GL7 1BB. If you've ever passed through Gloucester you could probably spot Simon's home by the steam ro-

ing out of his *Dragon* and listening to the deafening sound of keyboard banging.

Craig Graham of 91 Arrowcroft Gardens, Edinburgh EH6 6HF both has help and needs help. He's stuck for one thing on a *Tandy* adventure called *Isleban*, so can anyone help him? No adventure-starved people but there might be one to note that this is one *Tandy* adventure that obviously does run on a *Dragon*. Craig also needs help in *Survive* where he keeps getting transported into space when he enters the co-ordinates and pulls the lever, but offers co-ordinates help in *Tealooze*, the numbers needed being 7162, 1042, 3896, 8050. I know I've given these before, but my postbag tells me that newcomers are still staring adventures every month, and they may find the information useful, along with Craig's tips for the same game that you must climb the canyotch to get the smelter, and to keep the plant alive you must put the ice in the tank then plant the plant in the room with the lamps.

People who are new to adventures often write in and apologise for asking questions on adventures they assume must be very easy for seasoned players, and then the questions they ask show they're getting on very well with the games, or they're asking about adventures that are pretty tough for everybody. There are no hard and fast rules with adventures. One person's code is another person's nightmare. I've found games like *Black Sanctum*, *Sea Quest*, *Shogunsgate* and *Calisto Island* very straightforward, with the likes of *El Diablo* and *Return of the Ring* giving me the heebie-jeebies, but then I got a letter from someone saying they finished *El Diablo* in an evening, but can't get anywhere on *Black Sanctum* after weeks of trying.

## Newcomers and toughies

You mustn't be put off if you find your first adventure really daunting and difficult. It may well be that you've simply started on one of the tougher games. Lots of people have heard of Scott Adams adventures, for instance, and therefore decide to begin their adventuring avoine of his games. I certainly wouldn't recommend those for a newcomer. I've not too been on those games anyway as the screen layout is very confusing and unattractive, and also the problems often require you learn (or vocabulary) to be turned round through ninety degrees at least. Try other adver-



ture if your fiction one proves a toughie — and believe me, they do get easier as you go along and pick up the tricks of the adventurer's trade.

Duncan Collins offers High Road, Bloom, Biggleswade. Beds offers help to anyone stuck in Calisto Island or Stenengars, which he says he found remarkably easy and yet other adventures are obviously struggling with. Here are a few of Duncan's tips for getting on with. In Calisto Island, if you can't get out of the first few locations: CLIP ERAT. If you can't get out of the glass cellar: YLUUCYAC GMIHTYUVE ENRASEE. If you can't get up the hill: STODGEHTALF W. If you want the master: GSH EMT SGANT.

In Stenengars, if you don't know which mailbox to open: RDOO EHT TA RDOO. It suggests prove to be a problem: ETRN NEPO. If you can't find your way out of the city streets: REEBA EWH. To get past the snake: RDOORAHG EHT PORO. And if you can't get across the river: HAES HAS. Duncan will answer any of your other questions on these adventures in exchange for the usual

S&L, and that obviously also applies when writing to anyone else in these pages — and that includes me! In fact my posting seems to be dwindling a little since the magazine went subscription only. It does make the work, but it's not half as interesting. Perhaps you might be more inclined to write if I tempt

you with another treatise — This time a solution for The Master Roster which I know lots of people have had problems with. And while you're writing, tell me what else you've been up to — in the world of adventures, that is. This is Dragon User, after all, not the News of the World.

## Adventure Contact

To help puzzled adventurers further, we are instituting an Adventure Helpline — simply fill in the coupon below, stating the name of the adventure, your problem and your name and address, and send it to Dragon User Adventure Help-

line, 121D Little Newport Street, London WC2H 7PP. As soon as enough answers have arrived, we'll start printing them in the magazine.

Don't worry — you'll still have Adventure Mail to write to as well!

**Adventure** .....  
**Problem** .....  
 .....  
**Name** .....  
**Address** .....  
 .....

## Adventure Contact

**Adventure:** (1) Pickbox (2) Tanglewood

**Problem:** (1) I remove spool and try to cross the bridge and it breaks. (2) Everything!

**Name:** Mark Jackson  
**Address:** Osleiden, Wiltshire Hill, L. Waltham, Cheltenham, Essex GL53 5LJ

**Adventure:** Englewood  
**Problem:** I have found Pear

bodybut cannot get any further in the adventure. Help!

**Name:** Mark Coope  
**Address:** 16 Willow Drive, Main Heath, Stoke-on-Trent, ST3 7LZ

**Adventure:** Total Eclipse

**Problem:** When I approach an abandoned castle (the keyboard tanglewood) I'm left in space. SCIS.

**Name:** Joe Brinjal

**Address:** 75 Annunciation Str., Harnau, Malta. (Thanks for the beer wishes, Joe.)

**Adventure:** Pickbox

**Problem:** How do I open the cabinet, and the action panel, and where can I find a spool so that I can walk on the bridge?

**Name:** Alexander Heim  
**Address:** Hopfleveien 3d, 5080, OSLO-8, Norway

**Adventure:** Return of the Ring

**Problem:** I have got the time ring, but I cannot use it. What do I do next?

**Name:** Derek Standbrook  
**Address:** Ashfield Cottage, Howe Green, Harlow, Herts.

**Adventure:** Winter Factor

**Problem:** What is the safe combination? What do I do in the pyramid?

**Name:** Johan Kornold, Norway

## Communication

**Problem:** wanted: supplier of paper on a roll for my Gemini 100 printer (ratings quality). Enquiries: John Appleyard, 17 Can Bridge Avenue, Leeds, LE16 5Z.

**Problem:** I want a copy of the Spirit Basic Computer is anybody selling them, or does anybody know where I can get a copy?

**Enquiries:** John Peden, 64 The Oval, Firth Park, Sheffield S5 8SP.

**Problem:** Does anyone know where I can get a copy of Dragon Data's Information for Machine Code Users, also a new copy of the circuit diagrams (mine are getting a bit tatty now)?

Secondly, does anyone know where I can get informa-

tion on the circuits, and software, as mentioned in *Discontinued and Compromised*. Monthly for connecting a Dragon to a BBC's I/O, dated 1987.

**Enquiries:** D. Loomer, 15 Byngwood Close, Tocky, Swindon, S. Wales SA2 9EY.

**Problem:** Can anyone suggest a foolproof solution to cure MO errors on an Omega cassette recorder?

**Enquirer:** Paul Smith, 17 Balfour Close, Ruislip, Northants NN10 5UL.

**Problem:** As I now have a high quality printer, I wish a position to offer a service. For help per 1000 lines I can print single or multiple copies of your Basic programs (for runs worth over 25 please enquire).

However, I desperately need

a high quality 14-line screen dumper, like the one which appeared in February 1985's Dragon User. It must be compatible with the Panasonic KX-11000.

**Enquiries:** R. Rogers, 25 Edington, Kings Lynn, Norfolk PE30 4TB.

**Problem:** Does anyone have any Dragon Users from 1985?

Write-down your problems on the coupon below (make it as brief and legible as possible) together with your name and address and send it to Communication, Dragon User, 121D Little Newport Street, London WC2H 7PP.

**Problem** .....  
 .....  
**Name** .....  
**Address** .....  
 .....

which they could sell?

**Enquiries:** Robin Hemmings, 6 Ingley Road, Wigton, Leicester LE18 1DD.

**Problem:** Can anyone in Belfast tell me where to get roll paper for my Brother HB5, I have tried everywhere I know.

**Enquiries:** Desmond King, 46 Farnham St., Omagh Road, Belfast BT7 2PH.

# Never a cross word

Gordon Lee continues the vocabulary of terms and sets a number puzzle.

**THIS** month we are continuing our glossary of terms frequently used in the field of recreational mathematics.

**Olivest.** (See Factor.)

**Dodecahedron.** One of the Platonic solids having twelve regular pentagonal faces.

**Exponent.** The number indicating the power of a quantity. The exponent of 10 in  $10^5$  is 7.

**Factor.** The factorial of a number is the product of all whole numbers from that number down to 1. Factorial 6, usually written as 6!, is  $6 \times 5 \times 4 \times 3 \times 2 \times 1 = 720$ . Factorials are frequently used in permutational problems.

**Fermat, Pierre de.** Seventeenth century mathematician noted for many important discoveries in number theory. His 'Last Theorem', which is believed to be true but which is still unproven, states that the equation  $x^n + y^n = z^n$  has no solution in whole numbers where  $n$  is greater than 2. Where  $n$  equals 2 we have the Pythagorean relationship of the sides of right-angled triangles, eg.  $3^2 + 4^2 = 5^2$ , of which an infinity of whole number solutions exist. However, for higher powers, no solutions have been found.

**Fibonacci.** The greatest European mathematician of the Middle Ages. He was the first to introduce the Arabic (Hindu) system of notation in favour of the clumsy Roman system. The 'Fibonacci series' is named after him.

**Fibonacci series.** A series of numbers, each term being the sum of the preceding two terms. The simplest such series is 1, 1, 2, 3, 5, 8, 13, 21 ... Such series possess many unusual properties.

**Figurate numbers.** Various numbers which have a related 'geometrical' relationship. In their simplest form they are either linear (two-dimensional), or solid (three-dimensional). The simplest linear series are the 'triangular' numbers, ie numbers in the series  $1+3+5+7+9+11+13+15+17+19+21+23+25+27+29+31+33+35+37+39+41+43+45+47+49+51+53+55+57+59+61+63+65+67+69+71+73+75+77+79+81+83+85+87+89+91+93+95+97+99+101+103+105+107+109+111+113+115+117+119+121+123+125+127+129+131+133+135+137+139+141+143+145+147+149+151+153+155+157+159+161+163+165+167+169+171+173+175+177+179+181+183+185+187+189+191+193+195+197+199+201+203+205+207+209+211+213+215+217+219+221+223+225+227+229+231+233+235+237+239+241+243+245+247+249+251+253+255+257+259+261+263+265+267+269+271+273+275+277+279+281+283+285+287+289+291+293+295+297+299+301+303+305+307+309+311+313+315+317+319+321+323+325+327+329+331+333+335+337+339+341+343+345+347+349+351+353+355+357+359+361+363+365+367+369+371+373+375+377+379+381+383+385+387+389+391+393+395+397+399+401+403+405+407+409+411+413+415+417+419+421+423+425+427+429+431+433+435+437+439+441+443+445+447+449+451+453+455+457+459+461+463+465+467+469+471+473+475+477+479+481+483+485+487+489+491+493+495+497+499+501+503+505+507+509+511+513+515+517+519+521+523+525+527+529+531+533+535+537+539+541+543+545+547+549+551+553+555+557+559+561+563+565+567+569+571+573+575+577+579+581+583+585+587+589+591+593+595+597+599+601+603+605+607+609+611+613+615+617+619+621+623+625+627+629+631+633+635+637+639+641+643+645+647+649+651+653+655+657+659+661+663+665+667+669+671+673+675+677+679+681+683+685+687+689+691+693+695+697+699+701+703+705+707+709+711+713+715+717+719+721+723+725+727+729+731+733+735+737+739+741+743+745+747+749+751+753+755+757+759+761+763+765+767+769+771+773+775+777+779+781+783+785+787+789+791+793+795+797+799+801+803+805+807+809+811+813+815+817+819+821+823+825+827+829+831+833+835+837+839+841+843+845+847+849+851+853+855+857+859+861+863+865+867+869+871+873+875+877+879+881+883+885+887+889+891+893+895+897+899+901+903+905+907+909+911+913+915+917+919+921+923+925+927+929+931+933+935+937+939+941+943+945+947+949+951+953+955+957+959+961+963+965+967+969+971+973+975+977+979+981+983+985+987+989+991+993+995+997+999+1001+1003+1005+1007+1009+1011+1013+1015+1017+1019+1021+1023+1025+1027+1029+1031+1033+1035+1037+1039+1041+1043+1045+1047+1049+1051+1053+1055+1057+1059+1061+1063+1065+1067+1069+1071+1073+1075+1077+1079+1081+1083+1085+1087+1089+1091+1093+1095+1097+1099+1101+1103+1105+1107+1109+1111+1113+1115+1117+1119+1121+1123+1125+1127+1129+1131+1133+1135+1137+1139+1141+1143+1145+1147+1149+1151+1153+1155+1157+1159+1161+1163+1165+1167+1169+1171+1173+1175+1177+1179+1181+1183+1185+1187+1189+1191+1193+1195+1197+1199+1201+1203+1205+1207+1209+1211+1213+1215+1217+1219+1221+1223+1225+1227+1229+1231+1233+1235+1237+1239+1241+1243+1245+1247+1249+1251+1253+1255+1257+1259+1261+1263+1265+1267+1269+1271+1273+1275+1277+1279+1281+1283+1285+1287+1289+1291+1293+1295+1297+1299+1301+1303+1305+1307+1309+1311+1313+1315+1317+1319+1321+1323+1325+1327+1329+1331+1333+1335+1337+1339+1341+1343+1345+1347+1349+1351+1353+1355+1357+1359+1361+1363+1365+1367+1369+1371+1373+1375+1377+1379+1381+1383+1385+1387+1389+1391+1393+1395+1397+1399+1401+1403+1405+1407+1409+1411+1413+1415+1417+1419+1421+1423+1425+1427+1429+1431+1433+1435+1437+1439+1441+1443+1445+1447+1449+1451+1453+1455+1457+1459+1461+1463+1465+1467+1469+1471+1473+1475+1477+1479+1481+1483+1485+1487+1489+1491+1493+1495+1497+1499+1501+1503+1505+1507+1509+1511+1513+1515+1517+1519+1521+1523+1525+1527+1529+1531+1533+1535+1537+1539+1541+1543+1545+1547+1549+1551+1553+1555+1557+1559+1561+1563+1565+1567+1569+1571+1573+1575+1577+1579+1581+1583+1585+1587+1589+1591+1593+1595+1597+1599+1601+1603+1605+1607+1609+1611+1613+1615+1617+1619+1621+1623+1625+1627+1629+1631+1633+1635+1637+1639+1641+1643+1645+1647+1649+1651+1653+1655+1657+1659+1661+1663+1665+1667+1669+1671+1673+1675+1677+1679+1681+1683+1685+1687+1689+1691+1693+1695+1697+1699+1701+1703+1705+1707+1709+1711+1713+1715+1717+1719+1721+1723+1725+1727+1729+1731+1733+1735+1737+1739+1741+1743+1745+1747+1749+1751+1753+1755+1757+1759+1761+1763+1765+1767+1769+1771+1773+1775+1777+1779+1781+1783+1785+1787+1789+1791+1793+1795+1797+1799+1801+1803+1805+1807+1809+1811+1813+1815+1817+1819+1821+1823+1825+1827+1829+1831+1833+1835+1837+1839+1841+1843+1845+1847+1849+1851+1853+1855+1857+1859+1861+1863+1865+1867+1869+1871+1873+1875+1877+1879+1881+1883+1885+1887+1889+1891+1893+1895+1897+1899+1901+1903+1905+1907+1909+1911+1913+1915+1917+1919+1921+1923+1925+1927+1929+1931+1933+1935+1937+1939+1941+1943+1945+1947+1949+1951+1953+1955+1957+1959+1961+1963+1965+1967+1969+1971+1973+1975+1977+1979+1981+1983+1985+1987+1989+1991+1993+1995+1997+1999+2001+2003+2005+2007+2009+2011+2013+2015+2017+2019+2021+2023+2025+2027+2029+2031+2033+2035+2037+2039+2041+2043+2045+2047+2049+2051+2053+2055+2057+2059+2061+2063+2065+2067+2069+2071+2073+2075+2077+2079+2081+2083+2085+2087+2089+2091+2093+2095+2097+2099+2101+2103+2105+2107+2109+2111+2113+2115+2117+2119+2121+2123+2125+2127+2129+2131+2133+2135+2137+2139+2141+2143+2145+2147+2149+2151+2153+2155+2157+2159+2161+2163+2165+2167+2169+2171+2173+2175+2177+2179+2181+2183+2185+2187+2189+2191+2193+2195+2197+2199+2201+2203+2205+2207+2209+2211+2213+2215+2217+2219+2221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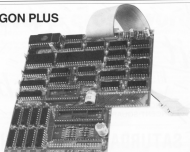
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