

# A Slayed Beast History of the Dragon Computer

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## Part 1

### **The conception, the formative months and the birth.**

Rumours abounded in the summer of 1982 that a little known UK toy manufacturer was about to make an entrance into the home computer market. At that time Sinclair Research, pioneers of the early home computing scene in the UK, were having difficulties with their new machine - the Spectrum - and it was doubtful that a newcomer with such a lack of experience would be able to break into such a competitive market. Then the Dragon 32 was launched in August by Dragon Data (a subsidiary of Mettoy). For its time it was a good and powerful design but many were skeptical as the parent toy company appeared to be in serious financial difficulties.

The Dragon 32 was a revolutionary design - for the UK at least - in that it broke away from tradition and offered a Motorola 6809 microprocessor at its heart instead of the more popular, but less powerful, Zilog Z80 and Mostek 6502 ICs. This would appear to be a wise decision for it would make the programmers' tasks less daunting, but not many had seen these devices before - the popular machines of the market were the 6502 based Apple II and Commodore PET ranges, plus the early Tandy and Sinclair models of Z80 origin. But in the United States, Tandy had 2 years earlier released their Color Computer to great success - and this was a 6809 design using a standard Motorola chipset for the video display and interfacing.

Mettoy's staff were in close contact with Motorola at their UK semi-conductor base in Strathclyde (Scotland), and with their help (and offer of bigger discounts for purchasing more Motorola products) they constructed the Dragon from the same chipset as Tandy were using. The machine of questionable copyright even used the same keyboard layout, cartridge connector, joystick ports (Tandy 5-pin could be used, but not 6-pin due the Dragon's use of 5-pin DIN sockets), and memory map. You could also say that the tape connector was the same but as this was a standard, its hardly worth mentioning. Dragon Data; like Tandy/Radio Shack; enlisted Microsoft to provide the computer's Basic interpreter, but unlike Tandy they chose Extended Basic so all of the machines features could be unleashed with no upgrades necessary - witness the early Tandy models with no hires graphics. Admittedly this was partly due to these machines possessing pitiful amounts of memory (4K or 16K), but Mettoy worked around this by making their machine 32K: it was to be 16K, but Sinclair announced that another Spectrum model would be launched soon after the 16K version had arrived, and that it would have an extra 32K of RAM on board. Mettoy didn't want to be left behind in the technological stakes.

To solve possible legal action from Tandy, the Dragon engineers came up with a work-around solution. A parallel printer socket would be included instead of the serial device on their counterparts machine; this was a better solution for the end-user wishing to connect a printer because no setting up is needed - plug in and go - no messy dip switches to set baud rate and parity etc. So that the electronics would be simpler, the printer data lines would use the same Motorola 6821 PIA port as the keyboard - this allowed the keyboard to be remapped also, so that it looked the same as a Tandy, but operated differently (eg Dragon Q is Tandy 1). Most importantly though the Basic ROM had the keyword 'tokens' reworked and re-assembled so that both the Basic and Extended Basic parts were mixed, and as Tandy's were separate the routines addresses would be at different locations. Part of this re-assembly included a partially re-written BIOS (the original belonged to Tandy) - witness that the letters DNS appearing for no-reason, as these are the authors initials; Duncan Smeed who before joining Dragon lectured in computing at Strathclyde University (were he has since returned).

So the Dragon had been born. The idea of getting into the lucrative home computer market by a Mettoy employee keen to save the company had been conceptualised and launched to a waiting public. Although they had pulled a large coup by persuading Boots; the large high-street chain whose stores were traditionally pharmacies which stocked health and beauty products too, but now also included photographic equipment, calculators, tape-recorders and toys (including Mettoy's products); to take their machine, the unexpectedly high demand (mostly due to the problems Acorn and Sinclair had in supplying Electrons and Spectrums to shops - concentrating on mail-order instead) outstripped supply, and the fairy tale for Mettoy was not to last.

## Part 2

### The adoption part I and the early growth The Tony Clarke year

Come October 1982, Mettoy's finances were getting worse. If only the banks would provide them with the money to finance the expansion of the Dragon production lines everything would be okay. But they said no. Dragon Data management knew that a takeover was the only option and that they needed to take it.

Managing Director, Mr. Tony Clarke, talked to many financial institutions and persuaded them to buy into and re-finance Dragon Data. This left Mettoy with only a 15.5% shareholding after the Welsh Development Agency bought 23% and Pru-tech (the high-tech investment division of Prudential Insurance) the largest holding with 42%. With new money being ploughed in, Dragon Data would be able to contract out work (to Race Electronics who also built BBCs for Acorn), enabling them to build up the production rate to come closer to meeting the high demand for their product.

As part of the deal with the Welsh Development Agency, Dragon Data would prepare to move to a larger factory with increased manufacturing capacity compared to the current site within Mettoy - this being the infamous factory at Kenfig near Port Talbot which eventually led to their downfall.

Come Spring 1983 everything looked rosy. Forty Thousand Dragon 32s had been sold, Dragon Data had become the largest privately owned company in Wales and high-street shops were queuing up to stock the popular machine; Dixons, Comet and Spectrum joining Boots as a Dragon retailer though the stationers WH Smith and John Menzies both gave Dragon Data the thumbs down, complaining they had enough on their plate with the Spectrum, Commodore 64 and Oric. Dragon Data weren't too worried as it wasn't in their interests to have too many retailers competing on price, and with the capacity at the plant not large enough for demand others were only receiving a restricted allocation.

March saw the completion of the move to the new premises and 5,000 Dragons rolled off the production line every week, and this was to be increased to 10,000 units - Dragon Data rather naively believing that sales would continue strongly during the summer as they had on the run-up to Christmas. Although extra capacity did allow Dragon Data to extend its range and a formidable hardware expansion was planned for the rest of '83.

A single-disc system with interface would arrive in April at a cost of -£275 and the OS9 operating system would be licensed from Microware and made

available shortly afterwards, but they didn't. Although they would come to market later, many of the planned releases never made it. This included a 64K upgrade also adding twin RS232 interfaces at a cost of ~£30 and a monochrome 80-column card for increased usefulness of OS9 and the Dragon as a business solution, together with two new computers - the first a ~£400 BBC model B competitor and the second a full-blown business system aimed at the IBM PC/Sirius market.

April saw two major announcements for Dragon Data - even if the Disc system was delayed by a few months; this being a good time for Premier Microsystems who had been offering a disc drive for the Dragon for several months, as Dragon Data hit a technical difficulty which Premier themselves had previously solved, this doing their sales no harm. Dragon Data announced that the 32 would be launched in the US that year, and after discussion with three interested American companies it would be manufactured in the US for economic reasons as a joint venture with the chosen US company. More importantly though the path to the US markets was eased, when Tandy denied claims that they were planning legal action against Dragon Data (for the similarity of the 32 and the Color Computer), due to Tandy not owning any patents on its machine in the UK and that by the time it would be settled out of court, both machines would be out of date.

An enormously welcomed Dragon Data independent product was launched that month - Dragon User hit the shelves of newsagents nationwide and achieved respectable sales of 36,000 for the first 2 years of sale. Providing all users with something it had an excellent mix of news, help, program listings, reviews of games, hardware and utilities, interviews with prominent people in the world of Dragon and a competition which always required a well ordered approach to solve by computer program. This format of magazine is now sadly lacking in the current market - even for machine specific magazines - which is a great shame because it catered for new and more experience users alike. For users wanting something extra from a magazine, Elkan Electronics imported 4 Color Computer magazines from the US - The Rainbow, Colour Computer News, The Color Computer Magazine and Hot Co-Co. Having personally only seen 2 issues of The Rainbow I can't comment on these magazines, but The Rainbow impressed me from what I saw - it was thick and had plenty of articles and listings.

By May the 64K upgrade board for the Dragon 32 became a mainboard swap at an increased cost of ~£75, the board also being used in the newly announced Dragon 64 which was to be priced at ~£250-300 but with extras such as an RS232 interface included. A month later this had changed again, and Dragon Data were now going to offer a mainboard swap as before, but this would be a full Dragon 64 mainboard with RS232 interface and second Basic ROM onboard. (the first ROM was Dragon 32 mode, and the second a Dragon 64 mode with Basic occupying the upper 16K of 64K RAM). To facilitate the use of the serial port, service agents would also change the bottom half of the 32's moulding (adding an extra hole), at a total cost of ~£100 for the upgrade; the Dragon 64 was now expected to cost less than ~£275.

Although this upgrade would be costly for Dragon 32 owners, this method of upgrade would give them the new machine (but in a 32 case), enabling them to run the OS9 operating system when it arrived and any other 64 specific software (which was little). It was mainly a user decision by Dragon Data, it making more sense to produce a new machine which had software and hardware compatibility with the Dragon 32 than having to produce two versions of products (by them or third-party suppliers).

From that point the US was Dragon Data's goal and it had been decided that the Tano Corporation of New Orleans would be the Dragon manufacturer and distributor for the Americas and Caribbean Basin. The Dragon 64 would be available in the US from August at a cost of \$399, with the first few thousand machines being made in Wales and the rest in the US once Tano's production was up to speed. Tano was the chosen company ahead of five others, due to its background in marine automation systems with the 6809 microprocessor and that it already had experience of selling a micro – an Apple II clone designed in Holland and manufactured in Korea. When Dragon Data showed the 32 at an American computer show in April, 4000 dealers made inquiries about the machine and although Dragon-Tano would only involve 400-500 initially (rising to 1,500 once production rose from 2000 machines a week), the partnership believed that they would sell a lot of machines. Dealers had been losing margins as both Commodore, Atari and Texas Instruments cut the price of their machines and this would make them keen to stock the Dragon and promote it more than other brands – higher profit margins and a machine which had greater reliability than others, instigating in fewer returns. And higher prices can be an asset with many customers believing that they are getting something better – especially if the dealer persuades them so.

So August came and the Dragon 64 was launched on the 26th with a retail price of \$399 in the US and £225 in the UK where it could be bought from early September, but the US package would also include a much improved manual, spreadsheet, mail-merge and Telewriter 64 word processor). A statement by Dragon Data's marketing director Richard Wadman (who also wrote the manuals) told that this was because the US TV circuitry was easier to construct than for the UK, and so it could be done more quickly (shame they didn't mention that it was because the US standard is simple and crap), but apart from this the european and american machines would be identical.

Tano's production of the Dragon began in September and by October was up to the capacity of the 48,000 square foot new plant where the lines were housed. Being a large corporate of 20 years with divisions in oil and gasoline (who design systems for flow measurement on oil lines, ala the Alaskan pipeline), reliability of their products needed to be high and the Dragon was no different – each machine being soak-tested to hunt out any defects. Not to be out done, their design team began working closely with Dragon Data on the new machines that had been previously planned. First to arrive would be the Dragon 128 in November (in the US). Featuring dual 6809 processors, a numeric keypad, 128K

ram and OS9 selectable on power-up it seemed as if both companies had got their act together and times looked rosy.



## Part 3

### The adoption part2 GEC take charge as Clarke is ousted

Dragon Data's earlier decisions began back-firing for them in the late summer of 83. The thought that sales would continue through spring and summer at the level as at Christmas had proved to be a major misjudgment and it came as no surprise to industry analysts when Managing Director Tony Clarke was asked to resign by the shareholders - of course it was reported to the public that he had "previously indicated to the board that he wished to resign for personal reasons".

With this position clear, the shareholders asked GEC (General Electric Company - the largest electrical company in the UK with its fingers in many pies including defense, satellites, home-entertainment, industrial computing, power generation and many more) to provide a senior executive to become the new chief executive of Dragon Data on "temporary secondment", and they duly obliged with Brian Moore appointed to the post on September 12th, until a new business plan for the company had been worked out - though Brian could not put a time on this. It was no shock decision to appoint a GEC executive - Prutech who held 42% of Dragon shares were also the major investor in GEC - but he was suitable for the job, moving from a deputy managing directorship post at a GEC subsidiary specialising in microprocessor controlled heating and ventilation systems, together with his experience in general electronic engineering, financial management and business applications for computers.

Following on from this announcement came the news that a -£2.5 million investment package for Dragon Data had been made. With it came the claim "It's business as usual" or more specifically "It's business as it was earlier this year and not as it was this summer". The shortfall between sales fact and forecast placed a greater "strain on the company's immediate cash and borrowing facilities", because at the time "it was gearing up production to meet pre-Christmas demand". The link between a bad summer and the need for more money coloured reactions to the investment so that it was more interpreted as a rescue package, but the package in the form of loans (or loan guarantees) would enable Dragon Data to continue work on the next generation of home and small business machines which were said to be in the late stages of development. A Dragon spokesman also countered the bad reactions by arguing that further investment was natural at the current stage of development, and that the company expected a profit for its first year of operation, on a turn-over of -£18-20 million. It was also reported that although sales had dropped, Dragon's

market share had stayed constant, proving that times were difficult for even the market leader.

Although GEC had taken their time in entering the home-computer market, it was not unexpected. Earlier in the year the electronics giant were involved in talks with Torch - another British microcomputer manufacturer. But when these came to nothing it was thought they would soon invest in another company; particularly when their rivals' were making progress in this area; and Dragon Data would seem the obvious choice with the Prutech connection. With hindsight, the problems at Dragon Data should have been expected. An increasingly competitive market saw many companies going to the wall, or to the brink of it - even Sinclair was struggling in the US and Acorn couldn't even break into any other markets. To this day their machines are still over-priced and only bought by educational establishments (for pupils up to the age of 18) and Acorn enthusiasts. But remember, Dragon Data had an unorthodox start going independent from Mettoy after only 3 months of product launch and it transpires that they may have been under-capitalised from the beginning. At least with the investment and new management the shareholders made their position clear, in that they were confident Dragon Data could turn it around with the product they had and the new machines in development.

Previous to this the long awaited disc system appeared on the shelves of Boots and Dixons at a cost of ~£275 (or ~£475 for twin drives), for a single-sided 5.25" double density drive (180K formatted capacity) in a case with space for a second drive and built in PSU, together with a controller interface with software on ROM. The controller could control up to four 40 or 80 track, single or double sided drives interfaced via a standard Shugart interface, by using a Western Digital 2797 controller IC.

Although it had arrived late, it beat Cumana's system to the shelves, who were offering a Premier MicroSystems DeltaDos cartridge (which had been available for several months with a Cumana drive direct from Premier), together with a Cumana drive (of similar specs to Dragon's drive) inside a single drive case with inbuilt PSU. Their system was also more expensive than the official system at ~£300, but everyone agreed that DeltaDos was a better system than DragonDos, being bug-free (totally unlike DragonDos), easier to use and offering more features; e.g. a second ROM socket in the DOS cartridge for addition of utility ROMs such as Premier's Encoder09 assembler and Toolkit their Basic add-on. It's also widely accepted that the Delta documentation is in a different class to the Alan Mayer offering with the Dragon Data system. Although this was meant to be only a preliminary document it was never replaced.

Eventually the Dragon 64 made its UK public appearance, but not until the PCW show on 29th September (till 2nd October); a month later than planned. Costing a reasonable ~£225 it was essentially a Dragon 32 with 32K of extra memory, a second Basic ROM for 64K operation (tape only - doesn't work with discs since the Basic maps into where the cartridge port is), and an RS232C interface. The case also changed colour to a professional shade of grey (with blue hint), and

on most machines a new keyboard was used with the lettering being smaller which looked smart - though many had the original 32 keyboard which has the bigger and uglier lettering by comparison. It was unfortunate that Dragon Data decided not to rewrite the original 32 Basic manual (which was regarded as poor by many), but they supplied that manual (but debugged) with a separate 64 specific supplement instead. Even though the latest Dragon was the only new machine on display at the show, not many heads were turned by it; an upgraded Dragon 32 was all it was, but then not many really knew the power the beast had. Although the Dragon had been a success, the Tandy CoCo had flopped in the UK (-£400 for a 16K machine when a Dragon 32 was -£169) and no other popular machine used the 6809 and its capabilities had yet to be unleashed. The highlight of the show must surely have been Dragon Data's public relations - they turned off an arcade game running on a display Dragon so that a Dragon employee could communicate with a deaf person via the monitor and keyboard. Dragon Data wanting to help and care for their customers in any way they could - free information was always available; just write and circuit-diagrams and info for machine code programmers was sent out free of charge. How many other major computer manufacturers have employed this policy?

Eventually, the Dragon 64 hit the UK shops in November - 2 months later than in the US - but the promise of OS9 being available at the same time was not fulfilled. Dragon Data's enthusiasm for the product not matching its launch schedule. Richard Wadman, marketing director, was quoted as saying "The combination of the 64, OS-9 and drives gives the company the means to enter other markets". He was also sure that Dragon Data's move upwards would be as successful as its home-computing entry - if Dragon Data could keep to its launch times or not announce products till they were ready, maybe it would.

Together with the UK arrival of the Dragon 64, Dragon Data (France) announced that they had sold 5,000 Dragon 32s and that by Christmas 20,000 would have been shipped, and the US situation seemed even more rosy: Dragon/Tano held a booth at the three day Color Computer Exposition '83 in Pasadena, with the 64 together with disc drive being the main display item even out-doing Tandy/Radio Shack's launch of a 64K CoCo, and linked with good sales figures the future looked good. With the thoughts of that a British firm selling home-computers to the US was like 'carrying coals to Newcastle' seemingly dumb-founded, the return cargo for the UK would prove to be good news for UK users. Having the Dragon available in the US moved many more programmers writing CoCo games and utilities to convert them for the Dragon than what had already been, and so the range of software available grew. Unfortunately, not many UK Dragon programmers made the corresponding decision; if a good Dragon game or utility was converted to run on a Tandy and then sold to a US software house the rewards could be huge, but this never happened (or if it was, it was never publicised). Ironically, most of the software sold by Dragon/Tano in the US consisted of CoCo software originally from the US, and converted in the UK by Dragon Data or Microdeal to the Dragon and then sold in the UK and shipped back to the US for sale there too.

November also saw a sad day in the history of the Dragon. Toy-maker Mettoy, a shareholder in Dragon Data and the founder of Dragon computers called in the receivers - a year after selling Dragon Data to the current consortium of investors. Although the news was received with regret, Brian Moore; the new Dragon Data MD; emphasised that his company would not be affected. With Mettoy holding just a 15.5% stake, no significant difference in Dragon Data would effect. With these shares now being available for purchase, the receivers gave the Dragon Data shareholders first option, and it looked as if GEC missed a chance to invest when Pru-tech increased their holding to 49% by taking half of the Mettoy shares.

Talking in an interview for Dragon User (December 1983), Brian Moore officially announced in the UK that a Dragon 128 was under development (though it was a working title), and that it would be compatible with the Dragon 64 through the use of OS9 - not Dragon Basic. Together with the new home-computer which was announced at the same time, the future for 32 owners seemed bleak. But for Dragon users showing so much affection for their machines, he intended to support all users by offering upgrades to the 64 for 32 owners. Other avenues which the company were looking into included a WIMP driven computer, after Brian saw an Apple Lisa and viewed it as an "exciting system of the future"; this proved to be one vision by Dragon Data management which turned out as they had thought! Sales of the Dragon 64 were reported to be excellent, with "the order book full, and everything built being dispatched" and that the company had already sold all the machines that it could produce for Christmas. The 64 had also been "very well received in the US".

## Part 4

### More Products hit the shops as GEC wind the screw

Come December Dragon Data had finally made a decision regarding the upgrading of a Dragon 32 to a 64. After the scrapping of both an add-on board or main-board swap, ex MD Tony Clarke made it public that a CPU board and bottom of the case swap would be the method of upgrading. But now with Brian Moore in charge the company had further second thoughts - preferring to exchange Dragon 32s for 64s rather than upgrade them. Logistically this would prove to be a simpler option without the need for service agents - dealers could do the swap.

For the user this would be a painless operation - but not in the wallet. Simply by taking your Dragon 32 to a local dealer with ~£140 you could walk away with a 64. Part exchange was a new idea in this country, although Commodore had used the method in the US, reducing the price of its 64 to Vic20 owners who returned their machines. But with the move to the 64 Commodore broke with Vic20 software compatibility, instead producing a more advanced machine. With the Dragon 64 this wasn't the case and many users were disgruntled about the cost - many users preferring an allowance of ~£100 rather than ~£85 (for a Dragon 32 used basically constantly for a year) and ~£140 for a seven month-old machine, leaving ~£85 to be paid. The main problem was users not realising that Dragon Data couldn't do much with the returned 32 - they cost ~£169 to buy, so how much did they sell to retailers for? ~£100? ~£80? And remember that Dragon Data did not have to offer an upgrade, but they cared about their customers and it was the self-same customers who were disgruntled that they cared. If they could raise more by selling their machine second hand then they could if they want, but Dragon Data offered them an easy path to upgrade.

Several users wrote letters of complaint to Dragon User, saying that "it would be better to sell your 32 and buy a higher specification computer with improved display and sound" and to "sell your 32 and buy a machine from a manufacturer that will be truthful to its supporters", but its difficult to think of the manufacturers they had in mind.

And one letter to the editor of Dragon User had this to say: "One of the reasons we bought a Dragon in the first place was that Dragon Data looked like a company that wasn't out to rip off its customers. For example, it actually launched the Dragon by selling working computers in shops. You paid your money and carried one away. We wouldn't touch Commodore products with a barge pole precisely because of that company's attitude to its customers. Ditto Acorn." (commenting on that to buy a Commodore or Acorn you paid your money and waited a month for it to arrive, and then when it did, bits were usually missing from the box - e.g. manuals or a lead, or the computer was faulty.)

The problem for Dragon Data was that many micro buyers either disagreed with that reader or owned something longer than a barge pole. No matter what, opinions from businessmen in the micro industry suggested that Dragon Data's intentions may be too honorable for their own good.

February saw two major launches for Dragon Data with a technical book and after a long wait the OS9 operating system hitting the shelves. "Inside the Dragon" was written by Dragon Data's technical software manager Duncan Smeed and an ex-colleague of his; Ian Sommerville a computer science lecturer at Strathclyde University; and published by Addison-Wesley who described it as "No one who wants to do more with their Dragon than play games can afford to be without it". Duncan himself said that "the book contains virtually everything I know about the insides of the Dragon" - and that's from the design consultant of the Dragon 32 and 64 who was now working on the system software for the "128". Details on how to access and make use of the Basic ROM and all the hardware are covered, and together with data sheets for the Motorola chipset made it a book that has furthered Dragon users learning machine code like no other book did or could. It was testimony to that point, that all print runs of the book sold out.

Eventually Dragon Data got OS-9 into the shops. The modular, multi-tasking, multi-user, real-time and Unix-like operating system was released for ~£40 and with the single disc came the User manual. For ~£20 more a programmers manual could be purchased with application software extra; Stylograph (word processor) ~£80, Dynacalc (spreadsheet) ~£60 and RMS (Database) ~£55 with more to come such as 'Cash and VAT' and 'Stock Control'. Both of these appeared soon afterwards together with the programming languages; Basic09, Pascal and the C compiler - ranging in price from ~£40 for Basic to ~£80 for C. Although the pricing may appear steep considering the usual cost of Dragon software, it must be born out that this was high-quality and usually expensive applications running on equally expensive business computers. Dragon Data's policy on recovering the huge licensing fee payable to the owners was the "pile it high and sell it cheap" method; their thinking that it was better to get lots of cheap sales than few expensive. The OS9 system was well received by the reviewer for Dragon User and by the buying public, and it proved to be a popular purchase for 64 owners with a disc drive - although it later transpired that Dragon Data never got around to paying Microware (OS9's author) any of the license fees owed.

March 1984 saw GEC tightening their screw on the control of Dragon Data when it was announced that sales and marketing of all Dragon Data products would be handled by a GEC subsidiary - GEC McMichael (who had expertise in both defense and consumer electronics. The latter including radio, television, video recorders, intelligent telephones, viewdata, teletext, laser-disc players and cable and satellite TV) - and over the next few months, double page spread adverts appeared in the national computing press, with Dragon Data products going under the GEC Dragon brandname. GEC's activities before this, being very diverse within the whole electronics area, but they were now widespread in the

computing side alone ranging from specialised chip manufacture to viewdata systems. Although it wasn't clear what the GEC strategy was, they certainly had enough cash to support any move that they cared to make, and were willing to play a waiting game to get what they wanted – remember that they waited to invest after long talks with Torch broke down.

For Dragon Data, GEC's marketing influence seemed likely to benefit their push into the business computer market, with the giant's power probably having little effect on the home-computer market; apart from suggesting that the partnership was a stable operation. Interactivity between the two companies would be the key to their future: Dragon Data would obviously concentrate on developing products that GEC would be keen to market. So in this way GEC would be controlling Dragon Data's future direction without having a major financial stake invested in them.

Allowing Dragon Data to concentrate on developing computers was definitely GEC's plan when they announced that the McMichael subsidiary would introduce a range of printers, monitors and cassette decks for the Dragon, together with their sales and marketing tasks. A good Dragon compatible data-recorder had been on Dragon Data's drawing-board for a while, with one being expected to have been released during summer '83. But this failed to materialise and so GEC were set to fill in here, although the products would be marketed under the GEC McMichael banner due to their compatibility with other machines.

## Part 5

### **Dragon Data announce the future - as they collapse one month later**

May 1984 saw the official announcement that a new micro was ready to be launched by Dragon Data. The transportable 64K machine was expected to include a built in modem and would come with either one or two integral Sony 3.5" disc drives at a cost of ~£700. Making its public debut at the Consumer Electronics Trade Exhibition at the end of May, production samples would be available to the public some time around August/September. Although Dragon Data were reluctant to release further information until launch (the reason being late product launches after announcements in the past), managing director Brian Moore explained that the package would be marketed as part of Dragon Data's belief that micros should be "communications based" - that is future machines must have communication hardware installed as standard.

Speaking publicly for the first time about this machine - at the RETRA (Radio, Electrical and Television Retailers Association) annual conference in Torquay - GEC Dragon's (as Dragon Data was now called) Brian Moore spoke about what the market had in store and that this computer supplied it. About the computer market in general he commented that: "The home computer, together with all its support products, represents a retailing opportunity that cannot be ignored. The technology available, together with forecast explosive growth in home communications and information technology, will result in every retailer having to deal in computer-based products in order to survive."

Strong words and probably true in that all major retailers sold computers and all survived, but on the subject of the home computer business he said: "It's totally crazy, consisting of seventeen-year-old millionaires and big businesses failing to make a profit. Businesses producing peripherals, utilities, software and magazines are making money and the only people who aren't are the actual computer manufacturers."

To be of value a computer manufacturer needed to offer a package, and Dragon Data did with their "Passport to Professional Software". Consisting of a Dragon 64, GEC McMichael TV, OS-9, Dragon disk drive, joysticks, three tape games (!) and several business programs, this was aimed at the small business market that GEC Dragon believed to be the key to the future - games were considered to be have an "uncertain" market position. Little did they realise what a huge market it was actually about to be.

Perhaps the most apt quote of Brian's speech at RETRA was that "undoubtedly there will be a shake out of manufacturers over the next few years" - though doubtless excluding his company from within that trend.



Late May saw the public display of the new machine along with the announcement of yet another new computer. Project-named Alpha, the new transportable machine that had already been announced would be launched as the GEC Dragon Professional. Basically an upgraded Dragon 64 it contained an integral Sony single-sided 3.5" disk drive (with room for another), built-in DOS and disk interface, on-board three channel programmable sound-generator, internal BT-approved modem, RGB monitor socket and built-in power supply (as well as the other ports and features of the Dragon 64). Costing £700 for the single-drive version and £850 for two, Dragon Data's technical director Derek Williams described the micro as having "improved and expanded the 64 to the optimum, providing a neat package without wires trailing everywhere". Basically it looked like a Dragon 64 with a bit on top where the two drives were fitted, facing the user.

Basic on the new machine had also been re-worked so that a hi-res text screen of 51\*24 or 40\*24 could be utilised (ala Microdeal's Rainbow Writer and Compusense's Hi-Res and Edit+ programs) instead of the usual and mundane 32\*16, and on power-up the user could choose to use Basic or load a disk-based operating system. With the on-board floppy controller to run up to two external 5.25" drives, the Professional remained highly compatible with existing Dragon 32, 64 and OS-9 software.

Project Beta was something altogether different, and saw GEC Dragon really wanting to hit the big time. Expecting to retail at £2500-3000, the micro used twin 6809 processors, had 256K RAM (expandable to 768K) and offered two internal 3.5" floppy drives with an external hard disc available as an add-on. Together with an on-board power supply the machine also incorporated an 80-column display and an RGB monitor connection with the following display resolutions: 320\*256\*16 colours, 640\*512\*4, 640\*256\*4, 320\*256\*4 and a teletext mode of 160\*72 (teletext being 40\*24 with each character a 4\*3 block).

The main CPU unit had a flat-top to support a monitor and the detached keyboard also featured a separate numeric pad. Together with a parallel Centronics, RS232, light-pen and mouse port, a mother-card was supplied providing expansion boards to be fitted. At the time of announcement only three had been fully developed: 1200/75 1200/1200 and 300/300 baud modem, quad serial port for OS-9 allowing multiple terminal access and a networking card allowing one machine to be used as a file-server to the others.

With pre-production models already out both machines were due to go into full production in July, but in the same issue of Dragon User as these announcements took place (July '84), the editorial changed just before going to print to bring the devastating news that at the beginning of June the receivers had been called into Dragon Data. The company announced that "the continuing difficulties of establishing profitable trading in the UK and other parts of the world" was the reason for the decision. Although a huge blow to the future release of the new machines, the forever financially-troubled firm said that

"it has confidence in its new products and the market opportunities they represent and will be using its best endeavours in helping the receivers to explore ways of continuing trading." And this was followed up by one executive commenting that "the home computer market was not as buoyant as people believed".

Earlier in the year British Home Stores (a large department store chain) had decided to stop selling the Dragon 32, and cleared its shelves by offering the machine at a bargain basement price. Rival chain Boots; responsible for so many Dragon sales; was also expected to drop the 32 within the coming months too, even before the news of Dragon Data came through, though they would still stock software. The decision of the dealers was aroused by the fact that in microcomputing terms, the 32 was now an old machine. Dragon Data's problems of the prolonged delay of the disk drive system hindered the 32s growth, and their attempt to move up market produced the 64 - little more than an upgraded 32. Then the gap between the arrival of the 64 and its "killer" applications in OS-9 resulted in further damage.

The wheel of fortune had turned full-circle, and unfortunately for Dragon Data it landed on the Bankrupt zone. Original developer Mettoy were faced with their own financial problems and sold the Dragon 32 to a consortium of backers. A year later they called in the receivers. Now the continuing problems of finance, mismanagement and market predications had caught up with Dragon Data, and the fate of Mettoy had befallen the new company too.

## Part 6

### **Tandy takes a look but the Armada rescues the sinking ship.**

With the news of Dragon Data's demise spreading, Dixons; the high-street electrical chain; responded by cutting the price of all Dragon Data products. A Dragon 32 with five pieces of software would cost ~£79.99, a Dragon 64 was ~£169.99 and disk drives went for under ~£100. If anything positive was to come from the demise of the computer manufacturer, a lot more disk users was certainly one, with the systems selling out in most stores within days of Dixons announcement. With this in mind it came as a surprise that Boots did not alter their prices.

Accountants Touche Ross with receiver Robert Ellis had received several offers for Dragon Data, and it was known that both Tandy and GEC had expressed a very strong interest in acquiring the company. GEC had in fact paid for the GEC Dragon stand at the Earls Court Computer fair held just weeks before the news came through, and it was thought that they would concentrate on the Dragon Professional and an MSX type machine if they took-over.

MSX is a concept that micros with broadly the same hardware will all run the same software, and although it was a success in its native Japan and Holland (the manufactures of the range of machines were Sony, Sanyo, Hitachi, Toshiba and Philips etc) it was not so else where, with only a small user-base after several years in the UK - even with such a large advertising campaign and large range of machines, but they were quite expensive at an average of ~£250. Earlier in the year GEC Dragon MD Brian Moore spoke at a major conference about the dangers of MSX to UK manufacturers, saying "that predications indicated the Japanese will take 30-35 per cent of the home computer market - and that's for a product that hasn't even arrived in this country yet." The rumours that Dragon Data were thinking of producing an MSX computer were confirmed by John Sayers, Tandy UK managing director, who revealed that GEC had acquired the rights from Microsoft to be the sole producer of MSX machines in Britain. If GEC came to market with an MSX micro, it was thought that they would include an option to make it compatible with Dragon software also.

Tandy's interest in Dragon Data lied mainly with the 32, 64 and, importantly for users, service and support and to this they flew people over from the USA and Europe to have a look at the plant. Although unexpired warranties are legally unenforceable against a company in receivership, if Tandy had bought Dragon Data they would have been expected to fulfill any outstanding to maintain goodwill.

At this time it was known that another company was interested in buying the rights to the Dragon, and Philips was the name on most peoples' lips. But with only 52 staff remaining at the plant (after a further 100 had been made redundant), it was not known where manufacture of future micros would take place if the company were being taken over.

By August Tandy had withdrawn from negotiations after its final bid was rejected by the receiver. Hoping to acquire the Dragon name and remaining stock to support end users, the receiver turned down the bid in hoping to find a buyer for the whole company. The bid the receivers wished for came through when Spanish firm Eurohard SA appeared with an agreeable settlement, making them the first micro manufacturer in Spain.

Eurohard had many similar parallels to Dragon Data. With help in setting them up in business from government agencies they both set their manufacturing base in a regional development area - manufacture of the Dragon 32 and 64 in Spain would move to the new company's factory in Extre Madura, Caceres a development area 180 miles south west of Madrid, close to the border with Portugal, with the company's public relations and marketing based in Madrid. Funding for the venture was from two Spanish public sector development agencies - Soviex and Ini - and also privately from a large financial group headed by Spanish Visa card chairman Eduardo Merigo, though Visa card itself had no connection with Eurohard. Soviex is a local development agency and help 40% of Eurohard, and Ini is the national development agency with a 10% stake (but they own half of Soviex too).

Acquiring the assets of Dragon Data for a reported ~£1 million, Eurohard owned Dragon Data "lock stock and barrel" with rights to the Kenfig plant, machinery and intellectual property. It later transpired that prior to the receivers being called in, Eurohard had actually signed a license with Dragon Data to manufacture Dragons in Spain for the spanish home market and spanish speaking countries, though this now meant nothing.

The deal between Eurohard and the receivers Touche Ross was actually a tripartite arrangement with GEC continuing with the UK marketing and a new company, Touchmaster, providing after-sales support and distribution of Eurohard products to all territories other than Spain and Italy. Touchmaster was located in Dragon Data's old premises in Margam in Port Talbort, and made up of ex-Dragon Data employees, and headed by ex-managing director Brian Moore and former marketing director Richard Wadman. The main backer of this new firm once again was Pru-tech and the first project was to manufacture a touch-tablet (designed by Information Entry of Reading), that was first seen previewed at the CETEX show in May and from the September PCW show, interfaces for the Dragon, Commodore, MSX and BBC machines would be available. Dragon Data's existing stock of software and peripherals would also be sold by Touchmaster - at discount prices, though it was still not certain whether they or Eurohard would take over Dragon Data's existing liabilities.

Come September and the new deal was beginning to take full swing. Senor Alvarez of Eurohard (with four Touchmaster and ex-Dragon Data employees) began organising and overseeing the 6 week transfer of machinery and products from Dragon's UK plant to the new Spanish factory, with the hope that full production in Spain ; for world-wide distribution; could begin by the end of October. Although the company would start by producing Dragon Data spec 32s and 64s, they were "finishing perfecting" of the Professional design and hoped to have new machines including an MSX out in six months: Eurohard conceding that in their plans "Alpha (Dragon Professional) is not so important, we are more concerned with MSX and peripherals". As part of the Dragon Data package, Eurohard retained Dragon Data's share in the GEC Dragon MSX machines, though it was eventually leaked that GEC had not signed a licensing arrangement with Microsoft, but that Eurohard had. The confusion arising from that GEC had signed an agreement to distribute and manufacture Eurohard's products in the UK through GEC Radio and Television.

October saw GEC tie up a deal with the receivers to buy the remaining Dragon Data stock after Eurohard had taken what it had wanted, and they were also in negotiations with Boots, Comet and Dixons to sell it through the high-street. Only Comet agreed to take the stock - Dixons and Boots preferring to clear their lines and leave them cleared - and they offered it at exceptional prices; Dragon 64s were available for ~£130. And Eurohard announced their major marketing plans: In association with the Spanish government they would begin a computer education based television programme, in a similar role to what Acorn took in the UK with the BBC computer show - the programme in Spain would use Dragons and Dragons would also be sold to schools with a government subsidy resulting in very low cost machines. The programme trying to attract buyers to choose the Dragon because it was what was on TV and their children used them in schools - so it would help their education if they had one at home too.

In the UK there had been no news of the US scene since late 1983, and in the December '84 issue of Dragon User a letter was printed asking for companies to write to him with what they sold because the Tano Corporation was no longer supporting the Dragon. As a dealer this left him with little hardware and software available to sell to his frustrated customers. Realistically it was never thought that Dragon Data could truly break into the US market, and more bad news came with that issue with the news that GEC had sold all its stocks of Dragon products and had no immediate plans to promote the Dragon; it appeared that they were trying to cut loose of the home computer market that they had twice failed to get into successfully (Torch then Dragon). Although they were trying to establish a repair and warranty service; in conjunction with Touchmaster; to serve their customers needs (of GEC Dragon).

With sales of Dragon products falling for some following the demise of Dragon Data, Premier Microsystems, manufacturer of DeltaDos the first Dragon disk system, ceased trading in December '84. Fortunately for many firms this was not the case and at the first 6809 show (16-17th November at the Royal

Horticultural Halls in London) for Dragon and Tandy owners, over 7000 people turned up. With all major Dragon retailers there (except for new entrants Eurohard and Touchmaster), business was busy and many wondered if the closure of Dragon Data had any effect on the market what-so-ever.

For others not quite so sure there was some good news. Dragon User January '85 featured an article with Eurohard chairman Eduardo Merigo. Dragon production in Spain started in November (due to "teething" problems), and so to solve their advance sales order of 25,000 units they purchased 13,000 Dragon 32s, 64s and disk drives from GEC - all at marked down prices. With the Dragon 32 retailing at ~£200 in Spain and the 64 at ~£300 business was busy (the prices were slightly less than competitors products), and Eurohard were producing 500 units a day at their Caceres plant.

Eduardo went on to talk about how this venture into the micro-computer world began, saying that "the initiative to actually start manufacturing Dragons in Spain came from a number of people working for ICS - the Spanish importer of the Dragon". A spark fired his imagination and Eurohard SA was formed in May 1984 with the intention of obtaining a license to produce Dragons in Spain. Just before Dragon Data went into liquidation, an agreement with them was signed so that the company obtained the sole rights to manufacture Dragons in Spain for Spain and the Spanish speaking world at a cost of ~£7 per micro. But Dragon Data went into receivership and Eurohard bought them for ~£1 million.

Their future plans included selling enhanced Dragon 32 and 64 models (called the 100 and 200), a new Dragon with 128K RAM, networking and a hard-disk and also new Dragon peripherals; a 4-colour plotter, 2 printers, a slim-line 5.25" floppy drive and a 2.8" sequential floppy drive (operates like a tape) with a maximum loading time of 8 seconds for a 32K program. These announcements coincided with the news that Eurohard had now appointed long-time Dragon software house and developer Compusense as the UK distributor for the Dragon (though the MSX would still be pushed by GEC) - because of their competence and independent retailer status. Eurohard wanting to distribute the Dragon through specialist dealers and not large retail stores where there's little after-sales support. Dragon 64s would cost ~£195, single drives were ~£240 and the double drives ~£450. Compusense decided against importing the 32, wishing to push the 64 with drive as an entry-level business machine while lobbying Eurohard to develop new generations of Dragons and peripherals.

With Eurohard's Dragon products being sold in Spain, France, Italy, Greece, Israel and the Scandinavian countries, they intended to start producing add-on boards for the IBM PC and the MSX once their new board manufacturing plant began operation. And real big time looked their way when they announced that they had already signed a license with two US manufacturers for Eurohard to produce their boards in Spain for the European market.

## Part 7

### **Eurohard goes quiet as the beast dies a slow death.**

From April 1985, Dragon life was constantly good then bad. Compusense announced that the new machine would have 128K RAM and run OS9 Level II as an operating system and they as the UK distributors would not be importing the 2.8" tape drive. But that "Towards the end of the year, some fairly attractive systems should be produced, especially if Eurohard put in the networking system". The UK firm also confirmed that Eurohard had sold 20,000 machines in Spain before Christmas, and although January and February were obviously slow, they were going to try a new marketing tactic (in Spain) - door to door sales of the Dragon. My view is that this would seem to be a joke - though obviously not.

The Dragon MSX made its entrance in May '85 and was manufactured by Radofin of Hong Kong for Eurohard - the same company which produced the Aquarius computer for Mattel. Being based around a Z80 processor it was totally incompatible with the Dragon - Eurohard deciding against making it compatible with the Dragon as well as the MSX standard. Worse news was to come that month though - one of the biggest software distributors, Websters, stopped handling Dragon software. To users this would mean that Dragon software would be even harder to find in the high-street - although Boots stressed that they would still stock Dragon programs in their 150 top stores while there was a demand for it.

Compusense took delivery of a 128K Dragon prototype in June, although this was to little fan-fare because it was simply bank-switched by the SAM chip already present in all Dragon models. Compusense took advantage of Eurohard's development when they released their Plus board later in the year. Also that month, Compusense appointed Race Electronics (one time sub-contractor to Dragon Data - making Dragons for them when many machines had to be made) as the National Service Center for all Dragon/Eurohard products. Race too had their own news with the release of an RS232 interface, Sideways ROM cartridge, EPROM programmer, four cartridge expansion (similar to Tandy Multipak), and floppy tape drive all for the Dragon.

Competition for Race, with the floppy tape drive, arrived in July with the news that Radofin had launched the Triton Quick Disk (to be marketed in Europe by Eurohard). Files would load from the 2.8" double-sided disks in a minimum of 2 seconds and a maximum of 8. The price of the unit was a very reasonable -£119.95, for which you got the drive, interface, cables and instructions.

On a working August holiday to London, Eurohard's chief of development; Jordi Martinez; brought the news that 2 new machines were due to be launched and that another was in development. The first was a Spanish machine - the Dragon 200 -

which was basically a revamped Dragon 64 with a Spanish keyboard, and the second was called the 200-E and would also contain a piggyback board with built-in 80 column card. In development was the 128K Dragon, though Eurohard had not decided whether it should use a 6809 to remain compatible with older models, or a 68000 to make the machine more advanced and in line with new machines from Atari and Commodore (the ST and Amiga respectively).

With another announcement that month, it appeared that Compusense had developed the 128K and 6809 Dragon for Eurohard, or at least an upgrade for older Dragons. The Dragon Plus was released at a cost of ~£100 and with a simple installation procedure (take 2 chips out of the main board, plug them into the add-on and plug two cables from it into the main board, then wire up a simple socket for the monitor), your 64K Dragon would now have 128K RAM and an 80-column display (text only). Soon they would also have a hard disc interface available (to plug into a connector on the Plus board), but this was never marketed because Compusense thought users wouldn't pay the then high costs for a hard disc - although the unit was much cheaper than comparable systems for the Acorn BBC machines.

From August nothing was heard in the UK from Eurohard and the June '86 issue of Dragon User brought devastating news, but not about the prolific Spanish company. Instead they announced that Dragon User would be going Subscription Only from the next issue. This was a crazy situation and more notice should have been given. What would happen to those who only bought the magazine occasionally? The next time they tried to buy a copy they were told it didn't exist - Newsagents weren't told it had gone subscription, just that it was off the shelves. Surely Sunshine Publications had known for a few months that sales had dropped, and so could have given readers a 2 or 3 issue warning - but they didn't. Fortunately this reader of the magazine bought every issue and got his mother to write him a cheque and send it off straight away - even though ~£12 was a lot to an eleven year old then!

An even bigger shock was to come the next month, when in the first sub-only issue of Dragon User (now a black-and white on not too good paper affair, rather than the previous glossy colour magazine), ran a story where Compusense broke the news that Eurohard had "closed their Madrid premises and withdrawn to their factory. I've had a 1986 price list, but importing prices just aren't economic. I can't get through to anyone there". It now seemed that the end was nigh - like all before them, Eurohard's bubble had burst.

Nothing was to be heard again, until the December 1987 issue which carried a readers letter by Josep Jane of Barcelona, Spain which was written on September the 21st. It transpired that Eurohard had not been as successful as at first thought, or reported. Between November 1984 and October '85 they had sold only 17,000 Dragons, but had given away another 20,000 to institutes and schools. Although the Spanish government paid the deficit from October, they would not invest further when Eurohard needed serious amounts of money for expansion and entrance into the South American market, and so Eurohard arose a huge deficit.



President Eduardo Merigo resigned, with Eurohard owing money to Soviex, Planeta and TV3 - the TV company of Catalonia which broadcast the program on learning Basic on the Dragon computer. During October 85 to March 87, all the distributors sold their stocks of Dragons at ridiculously low prices, and at the end, the last Barcelona dealer was giving away his stock to Dragon users. The letter then went on to mention that Eurohard closed their Madrid base in November 1985, followed by the Barcelona facility in March 1986, and finally the Caceres factory in May 1987.

1988 was probably the worst year in the Dragon's chequered history since the disaster times of 1984. Microdeal; the software house who released about 200 Dragon games among a few utilities and peripherals (Tandy Speech/Sound cart and Electronic Book, plus their own Joysticks), and also a few products for other popular 8-bits but with not much success; announced that from January 1st 1988 they would be pulling out of the Dragon market. Commenting on that the lack of good new material was the reason for this, Microdeal owner John Symes said, "This time in 1987 we had 50 reasonable tapes to look at. This year we only had 10. There just isn't the material about any more."

Micordeal's stock of Dragon products were taken by mail order Dragon dealer Computape, and contained such titles as Telewriter, Rainbow Writer, Composer, ShockTrooper, Speed Racer, Tanglewood and Airball (both of which were later converted to the Atari ST and Commodore Amiga), among many more of both UK Dragon and American Tandy origin. John thanked all Dragon owners for their support and hoped that when they retired their beasts that they moved to the two machines they now supported - the ST and Amiga. Note that Microdeal were taken over by HiSoft in 1993, who are a UK company specialising in programming tools and utilities for the ST and Amiga. Their range includes assemblers, C, Pascal and Basic compilers together with video digitisers and sound samplers (provided by Microdeal).

May saw Sunshine Publications give up on producing Dragon User - it not being economically viable for a magazine producer to produce anymore. Fortunately for users around the world, Bob Harris of Harris Micro Software (a Dragon software house offering business programs for the previous three years), took over control. This was entirely off his own back, and he was offered no cash to take it off Sunshine's hands - though editor Helen Armstrong decided to stay and edit the magazine, which had always been on a part-time basis anyway.

Just 7 issues later, Dragon User died a quick death with the January 1989 issue being the last one to make it off the press. At the time of the take over in May, there were 2400 subscribers but this had fallen to a paltry 1450 by November. Take up rate of new subscriptions had also fallen from 65% to just 20%. Bob Harris was rightfully angry at this situation, after having typed in the name and addresses of the 2400 subscribers and paid for part of the final issue out of his own pockets, so that no debt would be incurred with the printers by the windup. Greater love had no Dragon User.

With this the only contact was with the user groups, and the National Dragon User Group benefited most (Bob Harris urged all who hadn't to join them). Membership skyed to a high of about 3000, though this has dropped at an alarming rate with only 300 members now in 1994; though this has stabilised as one user drops out, another re-discovers their machine (or buys one for ~£1 at a junk sale) and joins the group.

Support wise there are still a few people selling software and hardware, though no new items have appeared for a while. Except for the NDUG Up-2-Date disc magazine (which alternates monthly with NDUGs Dragon Update newsletter) which costs ~£2 bi-monthly and is always full of interesting items. Having started in September 1991 its now in its fourth year and still going strong.

The last Dragon show has probably taken place now too - held at the end of September 1994 in Liverpool, it was expected that if there wasn't enough support then it would be the last. This is even with it being at a cheap venue - held at a school on the same day as their autumn fayre. Previous shows were held in Ossett-Yorkshire (April 1993 was the last), London (last December 1987), and a few at other locations such as Cardiff Airport.

## Summary

I will always have a place in my heart for the Dragon. It was the first computer I owned, having been bought a 64 for Christmas '84 when I was only ten years old - I persuaded my late mother that I needed one to help with school, but I really just wanted it to play games on! Through finding another user in my area I heard of the North East Dragon User Club, though as they met in a public house I couldn't go in. But this didn't stop me from gaining their help, and through the club I purchased a printer, disc drive, monitor, Touchmaster pad and became interested in the more serious side of computing.

Stupidly I sold my Dragon to another club member in March 1989 and bought an Atari ST. This was stupid of me as I just went back to games and sold this machine in July 1990 to buy a Sega Megadrive. This went a year later and I bought a Dragon 64 with disk drive in August 1991 having seen the error of my ways - I didn't want to burn in the fires of hell with the wrath of Paul Grade, NDUG chairman, founder and dogsbody! Now being sixteen years old I had some more knowledge and began learning 6809 assembler, which I honestly thought was simple after about 4 weeks, though the simplicity of the Dragon helps here - the 68020 in the Commodore Amiga 1200 I have bought is also "simple" to program, but the OS is a complex-ass if there ever was one!

I have now written many programs for the Dragon, including a Ramdisk which is sold by the NDUG to try to raise funds - I believe 30 copies have been sold which I'd regard as a success - and also a Dragon to Amiga picture transfer suite, which transfers PMode 4 pictures via the 64s RS232 port. I got 2 sales of this - one to Alfred Knotig in Germany, so I'm an international software house now I guess!

I've never wanted to make a penny from programming; the £7 from the sale to Germany all went on insured posting, and I think its obscene the amount companies charge for software, but I will pay reasonable amounts for quality products; and this is why I chose to do an Electronics Engineering degree instead of Computing, preferring to keep that as a hobby. Electronics has always been a hobby of mine too - I'm about to start the second year of my course at York University next week (October 12th 1994) - and my new hobby of Amateur Radio of which I've been licensed for a year, encompasses both electronics, computing and my other "sad anorak wearing train-spotter" interest of short-wave listening. But hey, each to their own.

You've probably realised that I'm no literary wizard, and my prose style is lacking to say the least, but then I'm only an engineer! And one from the North East of England too, and up here we aren't renowned for our english. Strong accents and our own "language" set us aside from the rest of the country! Though no doubt where you are from in the world, you'll have heard of Newcastle

Brown Ale, Durham Cathedral, York Minster (which isn't as good as Durham - my opinion being a Geordie) and hopefully the enigmatic Kevin Keegan and Newcastle United - the football/soccer team who Kevin as manager has set alight. From the brink of extinction to the best side in Britain and one of the best in Europe.

But as a finale, have fun with your computer whatever it is. If it isn't fun and its just a hobby then what are you using it for? I don't like knitting so I don't do it. Just enjoy yourself in whatever takes you pleasure and take care of yourself - you only have one chance so lets have some fun and enjoy it while it lasts.

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Or see my web page: "<http://mudhole.spodnet.uk.com/~dragon/>"

**Acknowledgments:** If you think I've blatantly used the news pages and articles in Dragon User for the information my text, then you are right! But there was no other source of such information, and I wish to thank all those that wrote for Dragon User and managed it during its five and a half years of life.

I would also like to say a big thanks to all who supported the Dragon and all those who still do. Especially Paul Grade and Stephen Wood. Paul is the NDUG chairman, founder, printer, and dogs-body who is definitely over-worked. Even with the newsletter being bi-monthly and membership being much smaller than it was, he has a lot to do. What must it have been like in the days after Dragon User when the newsletter was monthly and the membership sky high?! And he DIDN'T VOLUNTEER for the job - he asked if anyone wanted to set up a group (Mid 1984), and everyone presumed that he would do all the work, which he mostly has even 10 years on! Have a few Smirnoff's on me Paul.

Stephen is in his second spell of Editorship of the newsletter and amongst pleading for members to send in articles, he likes to think he's Batman. I suppose I'll have to do him some more articles soon - its a while since I've done one and I promised I would.

Same with this article! When I first joined the coco mailing list on the Internet, I promised many that I would write a history of the Dragon. That was the middle of January 1994. Then when I was checking my e-mail at York from Durham University (isn't TelNet wonderful! My friend goes to Durham University, and anyway our permanent homes are just 6 mile from it, so its

a good Internet access point for us!), I noticed that I had a message from someone who had wanted a copy of the article when I wrote it. This was Monday September the 26th and so I thought I better get on and do it! I had honestly forgotten all about it, but now on Monday October the 3rd it is now finished and ready for the distribution.

Please send any comments by any of the above methods of contacting me - e-mail is best though. If I take a long time to respond (more than a week), this will be because they'll have changed the usernames on the computer system at York, or I've changed the BBS I use on the Packet Radio network or I'm at home during none term-time. Anyway if there's a delay then contact me by another method. Mail to home will be read every 4-5 weeks when I go home for a weekend or end of term.

Thanks for reading and all the best for the future - who knows, someone may use the Dragon Data name and bring out a machine that beats all others and becomes the best seller. Well you've got to have a dream!

Regards, David Linsley