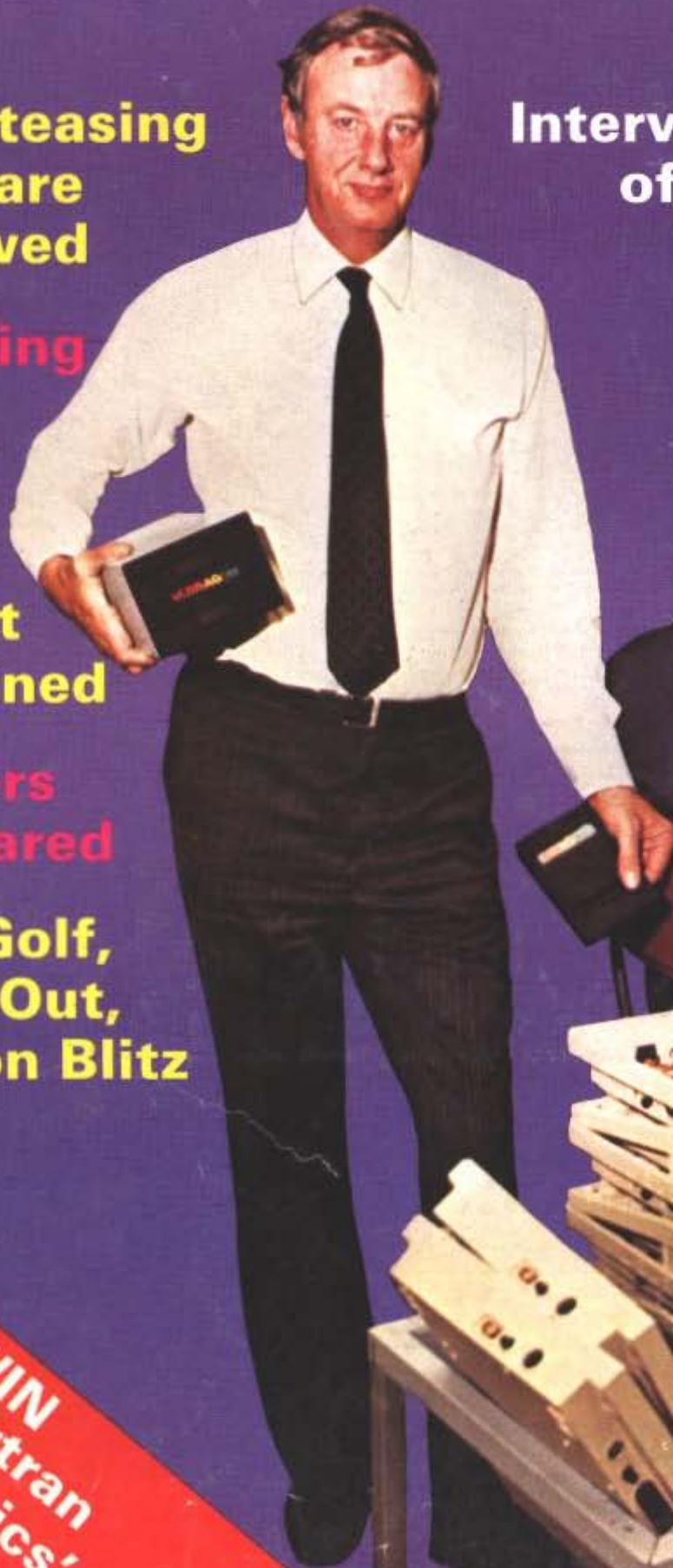**Brain-teasing software reviewed**

Stepping Forth

Input and output examined

Printers compared

Play Golf, Brick Out, Dragon Blitz

Interview: Tony Clarke of Dragon Data

WIN Powertran Electronics' Micrograsp robot

Dragon's giant strides

*Tony Clarke talks to **Graham Cunningham** about Dragon Data's future as the company prepares to attack new markets at home and abroad.*

WHEN YOU step into a taxi outside Port Talbot railway station, the driver says: "You must want Dragon Data." A lot of people want the Welsh company at the moment, both at home and in the US, as it expands the range of machines it offers.

By this time next year Dragon Data plans to be marketing four microcomputers, moving up gradually to attack the business market. The first step is the smallest one: a CPU swap for the Dragon 32 giving users 64K of RAM. But after that the steps get bigger and bigger: the Dragon 64 will be followed by a £400 machine and a £2,000 business model next year.

The guiding force behind these moves is managing director Tony Clarke — standing about 6 foot 4 inches tall he expects to be able to take them all in his stride.

A computer enthusiast as well as a businessman

One of the other striking things about Dragon Data's managing director is that he is an enthusiast as well as a successful businessman. While promoting the merits of the company's disk drive system he extols in detail the Western Digital controller chip it uses. Similarly conversation about the £400 machine moves into discussion of the NEC 7220 GDC.

And this enthusiasm spreads further than semiconductors. Talking of the business market, Tony describes network configurations and procedures to provide the automated office of the future. This includes Mumps, a little known operating system which began life, as its name suggests, with medical applications but has moved into the business market on such machines as Digital Equipment minis.

Also covered are the virtues of easy to use systems such as Apple's Lisa and Xerox's Star incorporating mouse devices. These are desktop controllers which can be used to move items displayed on a screen. Microsoft, whose Extended Colour Basic is used on the Dragon 32, has recently introduced a mouse for use on its Multi-Tool word processing system.

And in the office outside his own sits a range of machines which he will take apart and examine. Elsewhere in the company various models — including micros, minis and computer-aided design systems — are being put through their paces in practical applications.

As far as the business goes, Tony has a personal stake in the success of Dragon Data. The company began life as a subsidiary of Mettoy in the spring of 1982. In November a consortium, including Tony, was formed to purchase the firm which moved to a new factory in south Wales. Since then Dragon Data has become the largest privately owned company in Wales, and is set to grow even faster as the new products are launched and new markets are attacked.

The summer launches—the CPU swap and the disk drive system — immediately move the Dragon 32 into new markets as they introduce the
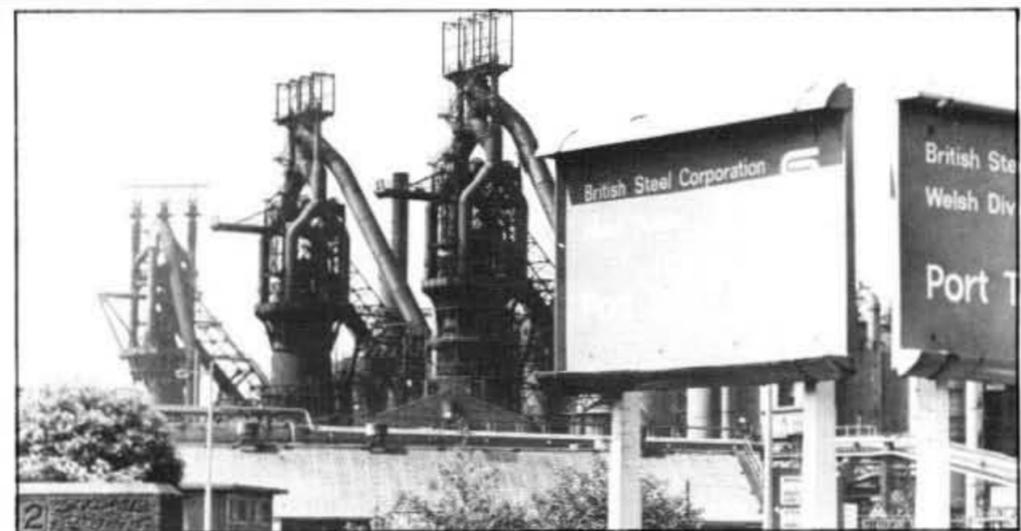

Tony Clarke – introducing OS9 on the new Dragon Data disk drive system and heading west

OS9 Unix-like operating system from American software house Microware.

This is a multi-user, multi-tasking system for small business users which has a very high reputation in the US — so high that some observers have suggested, tongue-in-cheek, that it is "too good" for home computers such as the Dragon. This hasn't prevented other micro manufacturers, such as Tandy and various Japanese firms, choosing it. Another British company, Positron, uses it on its £1,000+ 9000 system.

As a newer operating system it has less applications software available for it than more established systems such as CP/M, but a lot of languages are already around, including Basic, Pascal and Cobol. C compilers are also available which provide a high degree of software portability across different languages.

Microware says that "OS9 combines the same friendly system interfaces found in Bell Laboratories' Unix operating system with an efficient, modular design that is eminently practical for use with an advanced 8-bit processor." And it adds: "In the future, there will be upward-compatible versions for the Motorola 68000 processor."

Microware software is already being used by a wide range of customers, including Eastman Kodak, General Electric, the National Aeronautics and Space Administration (Nasa) and the United States Navy. This is the kind of company Dragon Data is joining.

But not too many Dragon 32 users are expected to be interested in the disk drive system which costs under £300 at entry level and about £500 with two drives. Tony commented: "We think about 10 per cent of Dragon 32 owners will take the double drive option — more on the Continent."

Demand abroad for the Dragon is strong and Tony says: "It is fast becoming the biggest selling home computer on the Continent." But he added: "It is a different market, with more home owners using the machine at work." He puts this down to labour costs being higher, so micros are used at work to provide information at little extra cost.

Consolidating the new operating system's launch

The introduction of OS9 will be consolidated with the launch of the Dragon 64 in September Tony is sure that "there is a demand for a small business computer that is relatively cheap" and that the 64 will meet this demand. He expects packages including the micro, a monitor and drives to sell for about £1,100.

The 64 will give 51 columns by 25 lines on the screen and will have an RS232 interface. The machine will involve a retailing change for Dragon Data — some 64s will be sold through high street chains like Boots, but more are expected to be sold by dealers as off-the-shelf systems.

An RS232 interface is also a feature of the American Dragons which will be launched this summer, costing about $399, in partnership with Tano Corporation of New Orleans. Tony admits: "We're not expecting to sell millions in the US because there are a lot of machines at that price in the market."

But interest is already high. He took the Dragon 32 to an American computer show last

April and about 4,000 dealers made enquiries. Only 400-500 dealers will be involved initially, but this will go up to 1,500 as production rises from a starting figure of 2,000 a week.

The marketing strategy in the US aims to profit from the pricing wars being fought there by the main manufacturers. Tony commented: "We think dealers will be keen because they are losing their profit margins." He added that he expects to lure Commodore, Atari and Texas Instruments dealers.

Tano Corporation, which has 100,000 square feet of manufacturing space, was chosen ahead of five other companies. Its background is in marine automation systems, including a lot of experience using the 6809 chip on which the Dragon 32 is based. And Tano already sells another micro — an Apple look-alike designed in Holland and manufactured in Korea.

Among all this activity, Dragon 32 users are not being forgotten. While plans to launch a printer have been shelved, a cassette recorder guaranteed to work with the Dragon is due out this summer.

Tony explained that "a printer was not very likely at the moment" because good ones were available and the falling value of sterling was creating financial problems when buying from abroad.

Dragon Data's other machines will also be sold in the US. The £400 micro, so far without a name, will be a twin-6809 system stepping up the company's attack on the educational and business markets. In addition to OS9,

the intention is that it will run Flex, a longer established operating system which has more applications software available for it.

At £400 the machine is also aimed at the home user, offering improved Basic and high quality graphics. And it will break away from the Dragon 32 mould, looking different to previous machines.

While Tony agrees that there is an overlap between the machines discussed so far, he argues that each has excellent facilities in terms of value for money.

Aiming to achieve a high level of software portability

The appearance of next year's micro will again be different. Retailing at under £2,000, this will offer "a unique bus structure" giving a high level of software portability. Tony added that it will run "68000-based and 8086-based software either individually or both together".

This avoids the problem suffered by early 16-bit users who found themselves short of easily available software. A lot of the development work is already finished for this machine, which Tony expects to sell more of in the US than in the UK.

Dragon Data is expanding its present factory to cope with these plans and negotiating with the Welsh Development Authority for another site. While Port Talbot's traditional employer, the steel mill, is struggling, the microcomputer manufacturer down the road is thriving. ∎

Port Talbot's traditional employer, the steel mill, is struggling while Dragon Data thrives.