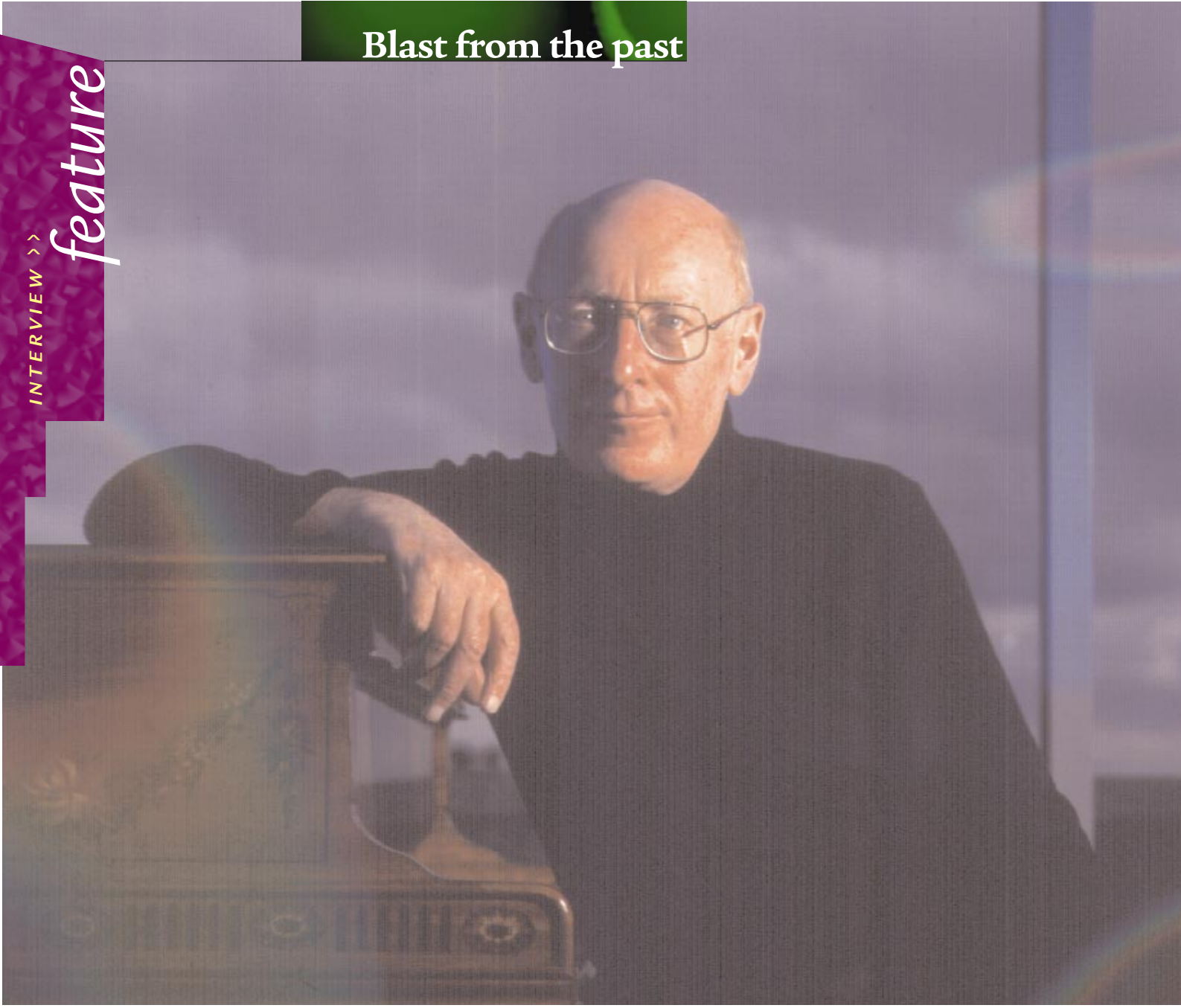

Photography by Nick Dawe

Comeback kid?

THE VISIONARY SIR CLIVE SINCLAIR BELIEVES THAT MICROSOFT AND INTEL ARE HOLDING BACK THE INDUSTRY THEY DOMINATE. HE VOICES HIS VIEWS TO ROBERT JUMAN-BLINCOE.

Sir Clive Sinclair doesn't suffer fools gladly, including the processor developers at Intel. He's also not keen on seeing a computer market conspiring to offer a complete lack of customer choice, with over-priced, over-powered machines, but he's not calling the rest of the IT giants incompetents.

It's in this climate that the man who ignited the personal computer market with sub-£100 machines in the early eighties is planning a return to the business. He says he can bring out a portable machine within two years which will be less than half the price of whatever is on the market at the time. It will also deliver the performance that corporates and consumers want.

The processor is pretty key to this. Sinclair has very strong ideas about how chips should have evolved, and though it's doubtful that Intel will be called to account for not doing things his way, he has long thought that the processor giant has dragged processor development, and the desktop computer, off in a wrong and power-wasting direction. It's this view, combined with the appearance and success of Linux, an operating-system alternative to Microsoft's overblown Windows, and exciting leaps in display

technology, that has spurred him to consider re-entering the computer business.

He sees his possible return, or the arrival of someone else with a similar vision, as the salvation the market needs. The dominance of Microsoft Windows and Intel processors is one that concerns Sinclair. He hopes the US Department of Justice's case against Microsoft and its control of the computer market will lead to PC suppliers unbundling Microsoft's products from their systems and allow customers to choose which software they want.

'It really needs something to happen like a dedicated Linux machine to break the mould,' he said. 'I think the situation is frightening. The manufacturers should be forced to unbundle. People shouldn't be effectively obliged to pay for having Microsoft software. There ought to be a choice — one price for Microsoft and one price for Linux.

'Linux looks like one way in — a Trojan horse. Apparently it's a good operating system and a lot of software suppliers are now supporting it. They wouldn't do that if they didn't have a lot of confidence in it. It will be very interesting to do a Linux machine. The standard PC is expensive because of the Intel chip. It's elaborate and cumbersome and consumes a large amount of power. The software is also very demanding of memory, which is also expensive.'

The machine that Sinclair has in mind could be considered a reworking of the Z88, the last computer he developed. The portable Z88, released in 1988, did not achieve the kind of sales the inventor had dreamed of, but he's obviously still fond of its concept. The technology he's now waiting for will give him the chance to resolve the issues that made that machine fail. 'It wasn't the success I'd hoped for partly because of the limitations of display. Also, it was completely non-standard. That's still a possible route to take if it's good enough, but if you can use an operating system that's out there, then at least you've got an audience that's already familiar with it. Linux looks to me as if it might be the one.'

Though he's obviously well disposed to Linux, Sinclair won't rule out other operating systems. 'There are others that are interesting. Psion's is well known and very successful, and there's Windows CE. I don't know how good or bad that is, but it's probably still developing.'

His approach to researching any new project is exacting. He enthusiastically hunts down the solutions to the problems he considers exist. He demands precision and accuracy from all accounts of developing technology. His knowledge of electronics lets him know what is possible and what isn't. If you haven't done or seen things his way, you'd better be able to justify why not. If you're telling him something new, that he's interested in, you'd better not give him half a story.

With this in mind, *Personal Computer World* can be proud it introduced Sinclair to Linux. But *PCW* already owes Sinclair an enormous debt of thanks. Before his ZX80 and ZX81 home computers the magazine was writing about complicated self-build machines or the more pricey systems from Tandy and Apple, and the Commodore PET. Sinclair's budget computers boosted *PCW*'s readership and then these people went on to work in every aspect of the IT industry — games developers, corporate information strategists, internet visionaries, and journalists. This was the generation introduced to programming, touch-insensitive keyboards, and temperamental and precarious 16K RAM pack upgrades. Ex-*PCW* editor Gordon Laing goes as far as describing Sinclair as 'a God.'

It's fitting, then, that a meeting between a *PCW* columnist and Sinclair could prove to be the pivotal summit which brings Sinclair back to the computer market. It was Chris Bidmead who, over lunch, first told Sinclair about Linux, the freeware operating system beloved of developers, techies, and everyone anti-Microsoft.

Sinclair had been looking at the computer market and had been thinking that certain technologies were in place or fast arriving to help him create a low-cost alternative to the Wintel machines. An operating system would be key, and one with a built-in plugged-in fan base was perfect. Display technology is another key element not more than two years away. These two things combined with a low-price, powerful processor, and he's in business. The ARM chip, forecast to be used in 70 percent of all cellular phones produced next year, is an example of the kind of processor Sinclair thinks will help smash the prices Wintel machines go for. 'ARM is an option in the sense that it's a low-cost processor with high performance. There are always processors coming along, but it looks an attractive option.'

Sinclair plans to sell his new device by mail order, the way he's launched everything he's invented, from the ZX80 to the Zeta bicycle motor and his miniature radios. He thinks his inventions create their own market, which isn't necessarily the kind of product retailers want to stock. However, he doesn't subscribe to the idea that retailers are assisting the Microsoft/Intel powerbase in keeping PC prices high.

'The retailers don't have much choice, they just sell what's provided. They don't give a hoot about the design, they just sell what's there. They don't get into the technology. They don't know

what's possible, what's not possible. They don't have a clue. Intel is desperately trying to keep people using very expensive and complex processors. It's what they supply and makes them money. It's a shame, but you can't blame them.'

What he can blame them for is leading computer development down a single processor design path. He finds this discouraging. 'Years ago Sinclair Research was looking at parallel processing machines and that's the way things should have gone.

'The whole business of having one chunk of silicon as a processor and other great chunks of silicon as the memory is a desperately inefficient use of the silicon. They all ought to be integrated and the memory and processing merged. Instead of having one processor here, and having you're memory there, with loads of wires connecting them and slowing everything up, you've got one piece of silicon. And all over that you've got blocks of processors and blocks of memory.

He knows what computers can do, what THEY WOULD ALLOW HIM TO DO, and it's still not enough for him

'So you might have, say, 100 processors in the amount of silicon you've got in a present-day machine all linked to their memory. Not only are they faster now because they're all on the same piece of silicon, but there's 100 of them so you've probably raised the speed of processing of the machine by 200 to 300 times.'

This setup would offer amazing performance for speed-absorbing problems such as speech input and complex display generation in real time. Sinclair knows Intel knows all about parallel processing because it produces parallel processing machines, and he doesn't believe the direction they've chosen is some conspiracy to hold computing back years and make them more billions of dollars, but he's annoyed by it. 'It's not a conspiracy, it's just profound incompetence.'

He backtracks slightly from this, but thinks Intel is just making too much money from the way it's doing things so it's going to take some external player to make it change its ways. The challenge might come from the games markets and the developments the console manufacturers have made in making machines which can handle complex graphics in real time.

'Sony Playstation 2 is going to shake people up because the performance is so striking. When you've got a Playstation 2 which makes a Pentium III look pathetic, people are going to say, "hang on a second, this games machine makes my computer look weak and feeble. What's happening here?" And that's just Playstation 2, which in itself isn't really pushing the boundaries.

'Because the games market is so huge, somebody, say me or somebody else, could design the sort of silicon I'm talking about — multi-processor silicon which will blow your socks off.'

Sinclair has read up on Sony's design and features for its next-generation games machine and is quite confident it will deliver what it promises. The Sony literature boasts the Playstation 2 has a CPU called the 128-Bit 'Emotion Engine' which has a clock speed of 300MHz, and its 3D graphics handling is listed as 66 million polygons per second.

'I've read the spec. I know what it does, I know how it's done. I've got to believe what I'm told, but I've no doubt it's true. People are going to be amazed that a games machine can completely outstrip a computer in any aspect. People are going to realise something strange is going on.'

Sinclair is confident his machine will undercut the market when it arrives for these very reasons, and the manufacturers will be unable to chase his pricing because they're too locked in to the Wintel way of doing things. 'Their costs are tied. The reason the machine I propose will be cheaper is because it will use a lot less memory, use a much lower-cost processor, a much simpler power supply and a lower-cost operating system.

'It will be less cost because of the fundamentals. The people who make these computers at the moment work on very narrow margins, so they can't cut their prices without going out of business.'

Sinclair's interest in creating a new computer seems academic as well as commercial. His knowledge of what Microsoft and Intel have created between them is probably based on exhaustive and detailed research and not on any first-hand experience. He doesn't actually bother using computers himself very often. 'The opinion I get is that they're very frustrating for people. They drive me round the bend, they're such bloody awful machines.'

He laughs at this. He knows what computers can do, what they would allow him to do, and it's still not enough for him. All his design work is mathematical so he uses a calculator. He thinks these assist him with his sums far better than computers can, and he has no interest or use for the graphical display a PC would give him. If a computer has to be used, he'll get someone else to do it for him, like carry out some CAD work or make a web search.

His own creations haven't been quite so annoying, though. 'They were nice and easy to use, but they were really only a thing to learn computers on.' ❐