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The Maturing of the Computer Game

Look through the pages of most national newspapers on 29 March 1983 and somewhere you will find a picture of a smiling, bespectacled teenager sitting next to a computer. His name was Eugene Evans and he was aged 16, from Liverpool and was apparently making a fortune from writing computer games. To the amazement of journalists, Evans seemed well on his way to becoming a millionaire, earning seven times more than his father, and casually discussing taking early retirement; all despite being too young to buy a house, drive a car or have a credit card. From *The Times*' 'Teenager with a Midas Touch' to the *Daily Mail*'s '£35,000 Whiz-kid!' it was no accident that the stories beneath the headlines were all very alike. It was less breaking news than inspired publicity campaign, orchestrated by Evans's employer, a software company named Imagine. 'Because he was so young and in such glamorous and exciting times, we made him one of the centrepieces for our PR campaign,' recalls Bruce Everiss, Imagine's head of marketing. The promotion of the teenage programmer was a shrewd move for the publicity-conscious Imagine, but by the time Eugene Evans was making headlines the home computer games industry was already a few years old.

There was little in the way of a video games industry in Britain when computing first spread to mass audiences. What microcomputer games there were tended to be simple, home-brewed efforts. Within a short few years, a whole new industry emerged and computer games took exciting and sophisticated new forms. As we shall see in this chapter, both the industry and the games it created were marked by the influence of contemporary British society and culture. Home computers opened up games creation to anybody with a computer and a

grasp of programming, and there were no barriers to entry to the games market at first. Creating and selling games was relatively simple. 'It wasn't work. If we went to the pub and didn't come out with a game by closing time we'd have failed. Think it up, sketch it up, do the marketing, go down to the office and program it. It didn't take long,' recalls Mel Croucher, who launched one of the very earliest games companies, Automata Software, as an extension of his travel guide publishing business. 'Getting a game out there was simply a matter of getting a game out there. There was no approval process.' Games companies began in all sorts of low-key ways and brought in all sorts of people. Bedroom programmers turned kitchen-table entrepreneurs, creative teenagers launched family businesses with their parents, enterprising friends partnered up to make and sell games, and small businessmen began touting for trade as software publishers. 'I sent off my game to, I think, three different publishers, and got an answer back the next day saying, yes, we want to buy it!' remembers Jon Ritman of his start in the software industry. 'Offered me a ludicrously low amount of money, which I accepted because I had no idea... £150. God knows how much money they made out of it.'

There was a homespun quality to many of the outputs of these early companies; cassettes duplicated using domestic tape recorders at home, tapes shipped in cassette boxes with typed inlays, or in Ziplock plastic bags with photocopied instructions. The steady demand for type-in programs to fill the pages of programming books and magazines offered another way of getting software published, albeit as a paper listing rather than a cassette. For users, typing in a listing was cheap and educational, whereas cassettes were costly but convenient. For programmers the relative benefits of sending a program to a magazine or a software house were rather different. Not least finding a reliable way to get rewarded for the effort, when there were many less than entirely honest operations, as Simon Goodwin found out when he had a program accepted by a software publisher. 'After a while I received no royalties, so I went down and I was

told, “Oh, no, nobody’s really interested.” And I discovered that actually the thing was on sale in the Ziplock bag hanging up in the shop.’ Goodwin demanded and got his royalties, but realised that magazine listings offered a less risky income stream. ‘I could get £30 a page for writing computer games, and it was possible to write a three-page game – if you had a bit of practice – in a day. And we’re talking a student day, so you don’t get up terribly early and you’re finished by half five to catch the post.’

One of the downsides to a market with no barriers to entry was the lack of quality control. When anybody could write and sell a game, anybody did. Quality varied enormously and there was little guidance available as to what was worth buying before the magazines began reviewing software. The industry relied on mail-order sales at first, and there were few details in the small magazine adverts beyond vague descriptions along the lines of ‘exciting space arcade game’. ‘You wouldn’t have a clue what you were buying by mail order,’ recalls Simon Goodwin. ‘There wasn’t any way of explaining what it was. You’d get a name, a price and a platform. And after that you’d take a punt.’ And were the games any good? ‘They usually weren’t. Occasionally they were. You’d go back to publishers you’d bought a good one from before.’

Manic Merseyside minors

There was a certain crudity to many early games – simple graphics, basic gameplay, badly laid out controls and the occasional game-crashing killer bug. Home computers were a new creative and technical medium. It took time for programmers to discover how to get the best from their hardware and to start experimenting with new game ideas. One of the earliest to get the killer combination of creative and technical brilliance just right *Manic Miner*, developed in 1983 by a Merseyside teenager named Matthew Smith. From the shrill rendition of *Blue Danube* on the title screen, through colourful screens of killer toilets and mutant telephones, to a Pythonesque game-over sequence featuring a

giant boot, *Manic Miner* was an acid trip of an action game. Like so many games of the time, it trod a fine line between fun and frustratingly difficult. Guiding miner Willy through the mine required almost pixel-perfect precision to avoid death from all manner of surreal hazards. Just how many people completed *Manic Miner* without resorting to cheating is highly debatable, but POKE-ing around inside a game to give an advantage was an accepted part of gaming. At a time when flickering graphics and awkward gameplay were not uncommon, it was notably smooth to play. That Smith managed to fit 20 unique screens of action into the Spectrum's 48k memory was thought quite an achievement. It also had the novelty of in-game music. The repetitive *In the Hall of the Mountain King* soundtrack beeping out through the Spectrum's tiny speaker was one of the first game tunes to imprint itself on the memories of a generation.

Manic Miner exemplifies two features common to 1980s video games. Firstly, it was a platform game, a two-dimensional, sideways-on world, where players could move left and right, and up and down between platforms, as they collected things and dealt with enemies. Platform games were relatively simple to program, and were one of the most common types of game of the day. Among the more prominent examples, both from 1983, were *Chuckie Egg*, a game of running up and down ladders collecting eggs and jumping over chickens; and the fast-paced *Jetpac*, a game of guiding a jet pack-equipped spaceman to assemble the parts of his rocket ship while zapping aliens. The same basic formulas of moving, jumping, platforms, enemies and collecting would feature in dozens of other variations over the 1980s. Secondly, *Manic Miner* exhibited the surreal streak that was a feature of many early British video games, an anarchic, weird and sometimes childish humour. As well as *Manic Miner*, the trend was pronounced in the creations of teenage programmer Jeff Minter, such as *Attack of the Mutant Camels*, a 1983 side-scrolling shoot-em-up that pitted the player's spaceship against giant camels; and in the wacky creations of Mel Croucher at Automata, of which more will be said later.

While it may have become archetypal, at the time *Manic Miner* stood out as a hit in a way few other titles had before. ‘Instant winner’, was the verdict of *Sinclair User*, which praised the sound and graphics, and the ‘depth of concept’.¹ *Manic Miner*’s success created two of home computer gaming’s earliest icons. The first was Willy the miner, who went on to star in the sequel, *Jet Set Willy*, the following year. Another surreal adventure, in which Willy had to tidy the mansion bought with his new-found mining wealth, *Jet Set Willy* was another hit despite originally containing a crippling bug that made it almost impossible to complete. The second icon was its creator, Matthew Smith. The zany, long-haired teenager became the archetypal star programmer who had made it big from writing games, with the rock-star lifestyle to match – or as he put it in an interview to *Sinclair User* ‘partying, getting drunk and falling over a lot’.² Smith gained further fame by mysteriously dropping out of the industry and disappearing from public view, living for a time on a Dutch commune. He became a cult figure during his absence, even inspiring a website in the 1990s, devoted to pondering his whereabouts.

Inspired by an earlier game named *Miner 2049'er*, Matthew Smith originally cooked up *Manic Miner* working at home on his TRS-80. As he later told reporters, the computer had a habit of crashing whenever the kettle was switched on, leading him to generally work at night. However much it represented a new high in what bedroom programming could accomplish, at least part of *Manic Miner*’s success was down to its publication by Bug-Byte. Established in Liverpool in 1980 by Oxford graduates Tony Baden and Tony Milner, Bug-Byte was one of the earliest games companies to take on a more professional air. ‘They actually had offices; it wasn’t being operated from somebody’s kitchen,’ explains Bruce Everiss, who enhanced the fledgling company’s marketing approach. Everiss replaced crude photocopied packaging and small ads with colour inlay cards and bold full-page colour adverts in magazines: ‘We did

proper advertising, using an advertising agency that would do properly designed adverts and proper campaigns, and we did lots of things in a professional manner that hadn't been done in a professional manner at all in the computer games industry before.'

Bug-Byte was the first of a cluster of games companies to emerge around Liverpool in the early 1980s, as the area turned into one of the centres of the nascent games industry. Like most high-tech clusters it was a rather incestuous milieu, built on personal connections that sucked in a variety of characters in informal ways. Teenagers hanging around the Tandy shop playing with computers, businessmen sensing new opportunities, and Saturday boys and salesmen from Microdigital. 'A lot of our staff and a lot of our customers still are in the industry in one way or another,' reflects Bruce Everiss. 'I think it's the thing that led, really, to so many computer games companies setting up in Liverpool, because there was the expertise, the enthusiasm and the knowledge.' In Bug-Byte's wake followed Software Projects, Psygnosis, Denton Designs, Imagine and others. The computer press of the time records a lively scene of people falling out with each other over creative differences or money, and joining competitors or taking their ideas to start new firms. Tales abounded of secret game projects, executives finding their telephones bugged, and programmers insulting rivals, when they were not driving around in their expensive sports cars. It was a brash and profitable new industry finding its feet, and at the centre of most of the hype was the enfant terrible of 1980s games companies, Imagine Software.

Programmers in Porsches

Founded in 1982 by former Bug-Byters David Lawson and Mark Butler, Imagine became one of the biggest gaming brands of the day. With a few exceptions, such as the bug-ridden but rather innovative war game *Stonkers*, much of their output was of middling quality. Typical of this were the distinctly average arcade games *Arcadia* and *Ah Diddums*, in which the player had to help a badly animated teddy bear escape its toy box. Both

games were plagued by flickering graphics, irritating sound and poor playability, yet this did little to limit their commercial fortunes. Imagine prospered during 1982 and 1983, its titles regularly placed in the top-ten selling games charts. The (not very secret) secret to its success was a marketing effort that went beyond anything seen previously, even in Bug-Byte. 'Although the product was of an adequate and merchantable quality, I don't think that we ever produced anything that was massively groundbreaking,' reflects Bruce Everiss, who left Bug-Byte to join Imagine as operations director, with responsibility for sales and marketing. 'I think a lot of it was the impetus from the brand, the general image of Imagine, that people went and bought their games.'

Marketing was central to Imagine's success. Indeed, it was among the very first British games companies to fully exploit the idea that games were part of the entertainment industry, and not just about computers. 'We were not slow to make parallels with the 1960s pop movement that had been in Liverpool and included the Beatles. So I think it's no accident that the company was called Imagine Software,' recalls Everiss. 'We really did want people to know that there was a new, creative wave going through Liverpool.' Imagine's games were lavishly advertised in magazines with full-page colour adverts. The company made every effort to get its face in the news, sponsored a motorbike racing team and, for a time, discussed moving into the revolving restaurant that towers over Liverpool. 'What we were doing was very, very, very newsworthy, so we got a professional PR company, we issued press releases, then the world's press came to our door,' explains Bruce Everiss. 'That PR is what gave us our business. We got millions of pounds worth of marketing coverage, and it only cost us pennies.' The national media coverage that greeted millionaire-in-the-making Eugene Evans, in reality paid far from as lavishly as reported, was another example of Imagine's genius for publicity. Adding further gloss to this picture of success, Imagine rented its programmers' sports cars; that many were too young to drive them just added to the image.

The Beatles aside, there was another aspect to the Liverpool connection that deserves attention. The elevation of a video games-writing whizz-kid to celebrity status also tapped into something bigger. Eugene Evans's youthful success validated all the promises of children finding brighter futures through learning about computers. Yet perhaps the biggest surprise was not that Evans was 16, but that he was in Liverpool. The city was hard hit by the decline of industry and dockworking, with some of the highest unemployment in the country. Riots flared in the inner city, militant left-wingers gained control of the council and Yosser Hughes, the desperately jobless Liverpoolian from the hard-hitting television drama *Boys from the Blackstuff*, became a national icon of life on the dole. Liverpool was almost a tabloid byword for Britain's industrial and social decline. It was a proud city going through a bad patch. It was not just Evans's youth that caught journalists' attention, but that he was from a council estate in Liverpool. The *Daily Mail* even noted that while finding a job was the biggest problem for most Liverpool teenagers, Evans was unique in having problems deciding what to spend all his money on. Gaming magazine *Big-K* described the growth of the Merseyside games industry as electronic tendrils clutching bundles of money growing out of Liverpool's 'smouldering ash heaps'.³ The apparent success of Evans and Imagine was virtually a local case study in the sort of prosperity and economic revival that information technology was predicted to bring. It was just a shame that it would be so fleeting in this case.

Imagine's eventual, spectacular demise makes it too easy to dismiss the firm as nothing more than marketing, but in several respects the company was an innovator. It made one of the early efforts to expand out of mail order and get its programs widely available in shops, as Bruce Everiss recalls: 'We had every *Yellow Pages* in the country... we rang every shop that we thought we could convert over to the dark side of selling computer games.' Indeed, the company started selling its programs overseas too, one of the earliest British games companies to go international. Rather than have programmers working at normal home

computers, it invested in expensive SAGE IV development systems to speed up the process. At a time when games were often written by individuals, Imagine employed a team of specialists to support the programmers, such as graphic designers to storyboard its ideas and work up animations. However, the large staff, the specialist equipment, the offices and everything else were lavishly expensive. 'We had profligate overheads,' remembers Everiss. 'Every time we grew to a certain size we'd move to another building but not get rid of the old one.'

By 1984 the company was in trouble. 'Sales hit a brick wall because of piracy. Basically people went from buying games to copying them off their mates. And sales just collapsed,' recalls Bruce Everiss. 'Over one Christmas it flipped into being loss-making and sales going downhill. And it just happened like that.' Worse still, Imagine's cunning plan to corner the Christmas market by buying up tape-duplicating capacity so rivals could not use it had left it sitting on a warehouse of unwanted stock. To make matters even worse, a lucrative contract to supply *Input* magazine with software listings, reputedly worth as much as £11 million, fell through as resources were sucked into Imagine's grand plans for making 'Megagames'.

The Megagames – *Psychapse* and *Bandersnatch* – were a suitably big idea, titles so advanced that they needed the extra power of a specially developed hardware upgrade, with the handy side effect of making piracy more difficult. With firm details shrouded in secrecy, their development was expensive and seriously delayed. In the absence of progress a series of teaser adverts continued to build the hype, with photos of Imagine's star programmers engrossed in their development equipment, and breakdowns of how many coffees and sandwiches they had consumed to date. To be priced around £40 when the typical game was typically between £5–£15, the Megagames were a commercially dubious proposition. Their delays and development costs were perhaps the final straw.

The cumulative effect caught up with Imagine in 1984, when the firm's unravelling was accidentally captured for posterity by a BBC documentary crew filming an episode of

Commercial Breaks. Rather than the success story they expected to collect, the cameras recorded a death spiral of development problems, a factional split among company directors, financial rescue attempts, unpaid suppliers and a growing sense of resignation. It culminated in Imagine's programmers being barred from the office by bailiffs. Broadcast for the nation to see, the last days in the bunker of the collapsing Imagine empire were as well publicised as everything else it had done. Imagine's collapse was dissected at length in the press in unflattering terms. It became something of a cautionary tale for the whole games industry, a warning about what happened when a company believed its own marketing hype rather than concentrating on the quality of its products. As stories emerged of unpaid advertising bills, poor financial controls and problems managing creative talent, it became clear that the company had fallen short of its glossy professional image.

Imagine may have failed, but other companies would emerge out of its ashes as staff moved on. Among them were independent developer Denton Designs, which found success with the surreal adventure *Frankie Goes to Hollywood*, based on the popular new-wave band; and Psygnosis, whose first release, the science-fiction action-adventure *Brataccas* was rumoured to be cobbled together from what had been done towards *Bandersnatch*, but reinvented for the more powerful computers of the later 1980s.* It says much about the power of Imagine's marketing effort that even at the end its brand was worth something too. The Imagine name lived on, sold on to Ocean Software, the other games company featured in *Commercial Breaks*.

Despite sharing screen time with the disgraced Imagine, Ocean would become a major success, one of the most

*Much later, Psygnosis scored a success far beyond anything achieved by Imagine by publishing the addictive puzzle game *Lemmings* (1991) and its sequels, on behalf of DMA Design. A few years later still, DMA Design would top the success of *Lemmings* with *Grand Theft Auto* (1997), the first of a long-running and hugely profitable series of crime-based adventure games.

significant games publishers of the 1980s and '90s. Based in Manchester, the company was started by businessmen Jon Woods and David Ward in 1983, building on their earlier Spectrum Games company. Ocean was initially a publisher that marketed the works of bedroom programmers, but it soon recruited an in-house development staff to produce its own software too. Gary Bracey's start as Ocean's head of development began as informally as most involvements with the games industry, with a conversation with Jon Woods. 'He told me "we understand business. What we need, while we're growing a bit, is for someone to manage the development side of video games,"' recalls Bracey, who ran a computer game shop in Liverpool at the time. 'I said, "Well, I play them a lot and I sell them so I know what people like." And so I went on board. In those days there was no discipline. We were inventing the business as we went along.'

Ocean's software came from a variety of sources. Some titles were sourced from smaller developers and bedroom programmers. Others, many based on conversions from arcade machine games or high-profile film licences, were developed by Ocean's in-house development staff. With an average age of just 19, they were a productive but lively group. 'It was completely undisciplined... you'd try to plan it out so people would work together, and quite often the older, more experienced ones would lend a hand, but they'd end up four weeks from completion and realise they had a fair bit of the game to go,' chuckles Bracey. 'Then having to work 24 hours a day for the next week in order to deliver, and that wasn't untypical.'

Based for much of the 1980s in the unlikely setting of a Quaker meeting house, Ocean's office arrangements reflected the two worlds that games companies increasingly needed to operate in. On the surface were spacious corporate offices for managing the business, marketing and sales. Underneath, in the coffee and cigarette fumes of the basement, were the dungeons of development staff at their computers. Much of the success of Ocean, and a big difference from Imagine, lay in successfully combining the worlds of marketing and development. 'The two

often conflicted, because the developers wanted the best possible product, and marketing is only concerned with having a product to sell, on time. And that was a conflict,' remarks Bracey. But it was a conflict that Ocean managed successfully, on the whole, to keep a reliable flow of titles.

Ocean not only excelled at marketing, with big adverts, good press and retailer relations, and titles based on high-profile films, but it managed the creativity of developers to keep the games coming out. The style and quality varied enormously: platform games arcade conversions, adventure games, car games, sports games and more. A few titles, such as *Knight Rider*, were panned by reviewers, and others were of middling standard, but much of the output was solid and well received. Several games, such as *Frankie Goes to Hollywood* (published on behalf of Denton Designs), *Matchday*, *Daley Thompson's Decathlon*, and *Batman*, were critically acclaimed classics. Good or bad, individual titles faded in the context of how prolific the company was; it had released dozens of mostly successful games a year for different computers by the mid-1980s. 'We had a good sales force, a good marketing force, an excellent art component,' concludes Bracey. 'And a very, very prolific, creative and technically competent development team.' Success in the games developer world would increasingly rely on similar combinations of creative and business expertise.

Of moles and miners and missiles

The media interest in teenage tycoon programmers was just one aspect of a more complex relationship between games and 1980s society. Just as art, film, music and other media reflect the wider society they were created in, computer games took on – sometimes unlikely – themes from contemporary Britain. 'If you can't put your social and moral mores into your own work, what can you do?' argues Mel Croucher of Automata software. Based in a former wool shop in Portsmouth, Automata was the antithesis of Imagine, less a corporation and more a cooperative creative collective, where everyone earned the same £25-a-week wage. The company's early releases, many

for the 1k ZX81, such as the 1982 eight-game collection *Can of Worms*, were simple but surreal, and often included songs and comedy sketches recorded on the B-side of the cassette.

Political themes came easily to Automata's games. Among these were the political management game *Dole*, and *Reagan*, in which the player had to dye the hair of the ageing US president to stop him starting a nuclear war. 'Absolutely political,' reminisces Croucher. 'I was trying to subvert the children of the country. Reagan was a warmongering tosser. There were three and a half million people on the dole at the time... there was a class war going on and I knew which side I was on.' Later Croucher recalls finding himself defending the political messages of his games in a radio interview: 'We went live on air and he asked, "Is this game not a front for CND?" I said, "No, it's not, it's overtly anti-nuclear."'

On the other side of the divide were games that turned the Cold War hot, notably Atari's iconic 1980 arcade game *Missile Command*, in which players had to intercept incoming missiles to protect their cities from nuclear destruction. Several commentators of the time described the premise as tasteless, but there was no shortage of versions for home computers. To the mainstream press of the time, gore and violence-filled 'video nasties' for the newly popular home video players were a far more important target of outrage than crudely animated video game violence. Although there were few moral panics on the scale of those that would greet violent games like *Doom* and *Grand Theft Auto* in the 1990s,* there were still reservations about the effects of video games. In 1981, Labour, MP George Foulkes became concerned by stories about children resorting to theft and vice to fuel their arcade machine addictions, and attempted to place greater controls over them. Foulkes's

*At least in Britain. The US had already witnessed its first moral panic over violent video games with the controversy over the 1976 arcade-machine game *Death Race*, in which the player had to run over stick figures. These were claimed by the game's developers to be gremlins, but looked rather more convincingly like pedestrians.

'Control of *Space Invaders* and Other Electronic Games' bill was defeated, after Conservative opponents objected to it as a 'socialist' restriction on free enterprise and people's personal freedoms to have fun. More generally, from browsing through computer magazines it is clear that some in the microcomputing world, both ordinary users and programmers, were concerned over video game violence, and worried that barbarous games would create a world of philistines.

'I just assumed that games were meant to be funny,' recalls Mel Croucher, one of the developers concerned by violent video games. 'The idea of killing stuff, simulated death on black and white screens, that was just so alien to me.' Croucher unexpectedly found himself facing criticism of a different sort from the tabloid *Sunday People* over Automata's allegedly 'sexy' games. 'They said I was trying to corrupt the morals of our country's youth,' recalled Croucher, after Automata provocatively advertised its games collection tapes as 'Adult' or 'Censored'. The potential of silly, simple ZX81 games with slightly rude titles, like *Vasectomy* and *Smut*, to corrupt the young was, to say the least, rather overblown, but Croucher's defence rested also on Automata's anti-violence stance: 'Would you rather teach your kids to kiss or to kill?'

While they rarely made much difference to the gameplay, contemporary themes featured in the offerings of many companies of the time. A good example was *Dennis Through the Drinking Glass*, a 1983 text adventure game starring Dennis Thatcher on a quest to find a gin and tonic in 10 Downing Street while avoiding Margaret. Social climbing from the dole to the heights of yuppie London society was the theme of 1984 text adventure *Hampstead*. The Falklands War inspired such titles as *Falklands '82*, *Bomb Buenos Aires*, and *Harrier Attack*. Yet perhaps the best example of how Thatcher's Britain flavoured the software of the day was the 1984 platform game *Wanted Monty Mole*.

Written by Peter Harrap, the son of a mine worker, the game was set against the background of the 1984–85 miners' strike. Players controlled monocled mole Monty on his

adventure through a South Yorkshire pit, contending with picketing miners as he searched for coal to keep his family warm. The game won much free publicity for its chief villain, Arthur Scargill, general secretary of the National Union of Miners. To win, Monty had to infiltrate Scargill's castle and collect enough secret ballot papers to remove him from office, an unlikely democratic way to complete an action game. The game's publishers, Gremlin Graphics, even thought it best to make a donation to the Miners Welfare Fund to demonstrate their political neutrality in this highly emotive dispute. Of course, not all games so overtly reflected the society they were created in as *Monty Mole*, but there was undoubtedly an undercurrent of popular culture and current affairs in many titles of the time.

Tie-in games themed on various films and television programmes began to appear in numbers, often featuring ear-wrenching attempts at the original theme music played through the computer speaker. *Blockbusters*, *Spitting Image*, *Postman Pat*, *Minder*, *Bullseye*, *The Krypton Factor*; the games industry's attempts to recreate 1980s British TV in game form knew few boundaries, even if it sometimes resulted in unlikely scenarios for play. *Auf Wiedersehen Pet*, based on the hit TV comedy about builders who had left recession-hit Britain to work in prosperous West Germany, included the chance to play a Geordie bricklayer building a wall in Düsseldorf.* At their worst, tie-ins were mediocre attempts to cash in on an existing

*This is not to say that seemingly mundane activities could not be the basis of surprisingly enjoyable games, indeed there was something of a trend in turning innocuous daily activities into computerised entertainment. Jeff Minter's *Hover Bover*, for example, was based around mowing the lawn, carefully avoiding the risks of the mower overheating or neighbours trying to reclaim their borrowed lawnmower. Malcolm Evan's *Trashman* pitted players against speeding traffic in a quest to collect bins around the streets of Bath. Both were fun, with a streak of humour and good gameplay, and were well received by reviewers, proving that the game itself was generally more important than its theme.

franchise with a tenuously linked game. One of the worst was *Eastenders*, taking inspiration from the long-running soap opera. For £9.95 players got a collection of mini-games about pulling pints at the Queen Vic, washing clothes at Dot Cotton's laundrette and other tedious tasks described by *Sinclair User's* reviewer as 'almost too awful for words'.

At their best, tie-ins allowed the industry to harness a good game to a recognisable brand, bringing the powerful combination of critical and commercial success. Programmer Jon Ritman already had a three-dimensional game in mind when he and artist Bernie Drummond started kicking around ideas for a theme. 'We need to find some sort of hero that people recognise,' thought Ritman. 'I was thinking of things like the gods, Thor, anything that people might recognise and I threw out Batman.' With the garish 1960s TV series enjoying a revival at the time, they showed a demo to Ocean Software, who sorted the licensing rights with DC Comics, with a few provisos. 'I'd given him some power-ups that I called Bat Pills. They were just like miniature Batmen, and DC Comics came back with Batman doesn't take drugs. So we just called them Bat Powers instead,' chuckles Ritman. Released in 1986, *Batman* earned a series of 90 per cent plus magazine reviews praising its graphics, inventive puzzles, the game's size and its little flourishes. 'You fit in what you can. *Batman* stopped development when I found out I had 12 bytes left in the entire machine,' recalls Ritman, who used the tiny space to make Batman tap his foot when the player left the machine idle. 'That was a well-spent 12 bytes. Nearly every single review carried that story, because it gave him character.'

As *Batman* shows, well-considered licences based on film and television could contribute to notably good games, and while they could impose a few creative limitations, they undoubtedly made good business sense too. 'The film titles were so successful because you were buying a brand; you were buying instant recognition,' explains Ocean Software's Gary Bracey. 'If we got it right, which we did fairly occasionally, and did a top game with a top title, then it went through the roof.'

Ocean became well known for games based on blockbuster Hollywood films and other big franchises. 'It guaranteed what we call the "Granny purchase",' explains Bracey. 'Granny goes into a computer shop wanting to buy little Johnny a game, and she doesn't know what Sensible Software's *Matchday* or *Whizkid* are, but she knows what *Top Gun* and *Robocop* and *Rambo* are.' The growth of big-name licences based on Hollywood films was another sign of the growing acceptance of computer games as part of the mainstream entertainment industry, not just as a diverting offshoot of hobbyist programming.

At first microcomputing had been exciting in ways that were perhaps more worthy, instructive and intellectual than they were straight-up entertaining. Games changed that, breeding a new computing culture that was more about consuming ready-to-run entertainment products than it was about creating or learning. As teenage boys retreated to their bedrooms to spend hours wagging joysticks with the curtains drawn, parents began to suspect that the allegedly educational computers they had bought as Christmas presents were perhaps unhealthily addictive and rather expensive toys. As with many other aspects of microcomputing, there was a gender aspect. Most of the games players were male, as were most of the games programmers and journalists. Researching the culture of microcomputing at the time, the academic Leslie Haddon noted that computer gaming, particularly around the school yard, was surrounded by a competitive, bantering and generally masculine context.⁴ While girls played games too, from an early stage the wider culture of gaming was prominently male.

The transformation of the computer into a plaything went beyond just the act of actually playing games; rather it took on the characteristics of previous childhood entertainments. Older generations of schoolboys had competed to get the best collections of marbles, bragged about seeing the latest films, argued over which football team was best and gone round to each other's houses to play with train sets. 1980s schoolboys

competed to get the biggest game collections and be the first to play the new releases, had passionate debates over whether the Spectrum or the Commodore 64 was best, and played video games at each other's houses. Computer games slotted into the childhood experience like so many other toys before them, and the industry grew on the demand this culture generated.

Much of it was encouraged by a new breed of magazines dedicated to video games, titles like *ZZap64*, *Crash* and *Computer & Video Games (CV&G)*. They lacked much of the old dedication to explaining how things worked, the type-in programs and discussions of socio-economic effects. In their place were colourful screenshots, interviews with teenage programming stars, adverts, game maps, top ten charts, cheat codes and a fun informality that appealed to their young readership. There was always a creative tension in the work of gaming magazines. They made much of their money from advertising games, yet at the same time were tasked with writing impartial reviews on those same games. 'If you gave someone a bad review,' explains *CV&G* journalist Robert Schifreen, 'the first thing they'd do is ring up the publisher and say I'm going to take my advertising out. And any publisher worth his salt would say, "fine," and then they'd not bother doing it because they knew the magazine was worth advertising in.' From the games publisher's point of view it was not a matter of bias but of business. 'We may spend £5,000 advertising this particular game in a magazine... On the following page they give a crap review of 10 per cent, so it doesn't make sense for us to advertise that game, because the review is going to carry more weight,' explains Ocean's Gary Bracey, 'but we needed to advertise.' It was a delicate relationship, but it demonstrates just how much the games and magazine industries grew with each other. 'It was a symbiotic relationship. They needed us, and we needed them,' concludes Bracey. The success of this symbiosis was clear in the soaring sales of gaming magazines and of games themselves.

Pirates

A less welcome part of gaming culture, at least for the software publishers, was piracy. With new computer games typically costing around £5–£15 in the early 1980s, and cassette tapes very easy to duplicate, there was a clear incentive for all sorts of people to copy games. With intellectual property rights something few people were accustomed to, and copying and swapping an established part of early microcomputing culture, there was little taboo against it. ‘It seemed to be completely moral,’ notes Simon Goodwin. ‘I’ve never held that it was, but we were accustomed to taping music off the radio.’ School yards and many computer clubs were rife with informal software piracy. ‘If you went along to a computer club,’ recalls Goodwin, ‘somebody would turn up with a suitcase and they would have hundreds of games and they would swap and collect them.’

Copies of copies made with twin cassette recorders became less reliable with each new generation of duplicate, so could only spread so far. More concerning for the industry were the professional copies that appeared on market stalls across the country, or were even slipped into official supply chains after being churned out by organised pirates with access to proper duplicating machines. Organised piracy too could be a surprisingly open activity at first, as Malcolm Evans found out when a prolific pirate of *Trashman*, New Generation’s popular action game of rubbish collection, introduced himself to the company’s staff at a computer fair. ‘He had done very well out of our *Trashman* and he had given up piracy now and could he have a copy of *Travels with Trashman*?’ remembers Evans. ‘He had sold about 50 per cent of what we had sold of *Trashman*... my brother physically kicked him off the stand. It really was blatant.’

The industry fought back with a variety of methods, the start of a battle of wits between developers and pirates that continues to this day. Requiring people to enter codes printed on instruction sheets was common, but easily thwarted by

photocopiers. A few games were shipped with a plastic prism device named Lenslok. This was supposed to unscramble an on-screen validation code when you put it up to the screen, but was fiddly to use and would not work at all if the game was shipped with the wrong prism. The lengths games developers went to thwart pirates is well illustrated by a story told by Simon Goodwin about his 1983 ZX Spectrum game *Gold Mine*. Yet another game with a mining theme, *Gold Mine* was actually about mining. Players dug underground looking for gold, avoiding flooding and other hazards, and trying to be strategic with their tunnel routes. 'I always liked the kind of game where the early decisions that you make influence the constraints later on,' explains Goodwin. 'An exploring game where you create a maze yourself was something I wanted to make.' The game sold well and got into the charts, partly, Goodwin suggests, because misguided parents got it mixed up with *Manic Miner*, but also because he had devised a copy-protection method to thwart bulk copying methods. 'I spent as long on writing that technique as I did on writing the game,' he recalls.

Stored after the program on the *Gold Mine*'s cassette was a short tone, which the game checked for when it loaded up. Neither a one nor a zero, the tone was undetectable by copying software and missed out on bulk pirated copies, which then would not work. 'It wouldn't say, "you are a pirate go away", but would do what every Spectrum owner dreaded most, and expected: it would say "R tape loading error",' explains Goodwin of the psychology behind the protection. 'That was going to cause them endless frustration and grief and maybe it was better to move and copy something else, and I think that was crucial to the game staying in the charts.' *Gold Mine* disappeared from the charts after the anti-piracy protection, complicated to implement by the legitimate duplicator, was discontinued by the publisher. 'It could be that the product life was short anyway, but I think that that could well have been a contributory factor,' sighs Goodwin. The impact of piracy was hard to measure. It undoubtedly happened on a large scale, and

several bankrupt software companies blamed illegal copying for their collapse. By 1984, estimates of lost revenue from copying ranged as high as a barely creditable £100 million a year, but its impact was unquantifiable, a great unknown that bedevils games, and most of the other creative industries, to this day.

Quite apart from piracy, controversies over sexy games and violence, the rise of this new industry was not uncontested. Within the personal computing world, games were a challenge to the high aims of computer literacy. In the very first episode of *The Computer Programme*, computer expert Ian McNaught-Davis bemoaned people using computers just for playing 'silly' games as 'degrading' given everything else computers could do. Games did not depend on people developing a detailed understanding of the machine, just on being able to grasp a few simple controls and consume software. Letters to magazines complained about the misuse of microcomputers for playing games as a waste of potential, given how precious a resource computer runtime had been in the past. Yet the charge that games were a misuse of technology does not stand up when we consider the technical achievement of crafting software in the tightly confined computers of the day.

That so many good games would emerge in the constraints of these essentially simple platforms was a testament to the developing skills of games creators. While millions of ordinary people were learning BASIC, most games programmers moved on to learn the black arts of machine code and assembler. Instructing the machine in its own language saved memory and meant programs ran faster as BASIC commands did not need to be translated into the ones and zeros the computer could understand. Forsaking ease of use allowed programmers to create smaller, faster and more efficient programs, and for a time 'machine code game' was advertising jargon for 'it runs fast'. As they explored the computer and learned from what others had done, programmers found ways of doing things that the machines' designers had never expected. During 1983 and 1984 this maturing technical expertise would lead to some

masterpieces of the programmer's craft that reveal the great leaps made in games development in a very short time.

An incredible use of technology?

It would need an entire book to adequately cover all the innovation and creativity of early 1980s games developers. The gaming scene was vast, with thousands of games of diverse genres, produced by hundreds of companies, on dozens of different platforms. However, an examination of just some of the most inventive titles and techniques of the early 1980s illustrates the great technical and creative achievements of games developers. Many of the most innovative games of the early 1980s originated on the ZX Spectrum, albeit they were quickly ported to other platforms too. The machine was among the most popular, meaning there were not only many people programming for it, but a large market to supply. By 1984, over 3,500 games had been released for the machine in some form or another.⁵ The quality and sophistication varied enormously, but it included a large number of critically acclaimed and innovative titles. Curiously, the Spectrum itself was not as optimised for games as some of its more expensive rivals. It needed an adaptor to plug a joystick to it, the sound capability was simply a beeper, and the way the machine produced a colour display could create some odd-looking effects on screen. Other machines had more sophisticated sound and graphics, and provided built-in features to make writing games easier. A good example is the Commodore 64, which not only had an advanced sound chip, but the ability to use 'sprites', graphical objects that made animations easier to create. 'The trouble was, that guided everyone into making games that all looked incredibly similar,' recalls Spectrum games programmer Jon Ritman. The Spectrum had no such hardware support, yet its simplicity and origins as a machine to be explored made it a flexible medium to create games that did not have to obey the rules. 'The Spectrum was just "here's a bit of screen". It's laid out in a funny way, which is a bit of a pain,' explains Ritman. 'But you just draw things. And you could do whatever

you want. It might not be as fast, but you can do whatever you want, and I think that as a result you got more interesting ideas on it.'

Many of the titles mentioned so far in this story have been action games of various types, but it would be entirely misleading to suggest that this was all that was on offer. Text adventure games were a hugely popular genre at the time. In 1983, nearly 130 were released on the ZX Spectrum alone, the same year that saw the launch of a dedicated computer adventure game magazine: *The Micro Adventurer*. At their best they were immersive works of interactive fiction, notably those actually based on books, such as *The Hobbit* and *The Hitchiker's Guide to the Galaxy*, which was co-created by its original author Douglas Adams. Very quickly they evolved beyond simple text games, as programmers started illustrating them and adding other dimensions to the gameplay. The most impressive example was probably *Lords of Midnight*, written by a former teacher from Liverpool, Mike Singleton, in 1984.

Drawing heavily on *The Lord of the Rings*, *Lords of Midnight* was a quest to defeat the Witchking Doomdark, but offered far more than 'YOU ARE IN A ROOM'-style descriptions and typed 'GO NORTH' commands. Rather, it was a mix of strategy war game and fantasy adventure, based around the remarkable 'landscaping' graphical technique developed by Singleton. The first-person perspective this provided created an impression of travelling through a vast fantasy land of citadels, villages, mountains and plains. It was a whole world for the player to explore, populated with enemies and potential allies, and like any good fantasy tale, the game even came with a map. *Lords of Midnight* was far more open-ended than typical adventures: there were multiple characters to control, and it could be played as an adventure to destroy Doomdark's ice crown, or as a war game by gathering forces to defeat Doomdark in battle. With 4,000 different locations and innovative gameplay, *Lords of Midnight* was one of the earliest games that could be considered an epic. The cast of characters, atmospheric

surroundings, and enormous size and scope of gameplay made it a game that players could lose themselves in for many hours. Reviewers praised its well-realised world, landscapes and coherent storyline, attributes more often associated with books and films than mere games at the time.

Also visually impressive, but in a rather different way, was 1983's *Ant Attack*. Playing as either a boy or a girl character, a novelty in the male world of video gaming, the game's object was simple enough; players had to enter the lonely ruins of the city of Antescher, dodge the giant ants (or, more aggressively, blow them up with grenades) and rescue their significant other. What was striking was the world the action played out in. *Ant Attack* was one of the earliest home computer games with three-dimensional graphics, using a technique known as isometric 3D, where the objects in the game were drawn to look like they were solid rather than flat. The game's creator, Sandy White, was a trained sculptor. With little more than shaded blocks, White created a sprawling three-dimensional city for the player to explore. The isometric 3D technique was so novel that the game's publisher, Quicksilver, attempted to take out a patent on it, but it became a widely emulated technique on the Spectrum.

Isometric 3D was taken to another level the following year when Ultimate Play the Game released *Knight Lore*, an action-adventure quest of collecting the ingredients needed to stop Sabreman turning into a 'werewolf'. Ultimate, a trading name of Ashby Computers and Graphics, was rare among British games companies in already having experience of creating arcade machine games before the home computer boom. It became well respected for a series of superbly realised and highly successful computer games such as the platform game *JetPac* and action-adventure *Atic Atac*. The company cultivated an air of mystery; its lead developers, brothers Tim and Chris Stamper, rarely gave interviews, which paradoxically led to even greater press interest and a loyal fan base. Convinced that it had a winner, Ultimate delayed the release of *Knight Lore* for some months to avoid upsetting the market for its other

games. Whereas *Ant Attack* featured an expansive but essentially static city where nothing moved save for the player and the ants, *Knight Lore* used isometric 3D to create a miniature interactive world. Essentially a three-dimensional platform game, *Knight Lore* was a maze of claustrophobic dungeons that exploited the extra dimension to good effect, with objects that could be moved around, puzzles that needed to be solved in three axes and hazards hiding behind things. The graphics were also precisely detailed; the animated paroxysms of Sabreman as he turned into a werewolf were a joy to behold. It was an approach widely considered revolutionary; *Crash*'s reviewer declared that it 'resembles nothing I've played before'. Other programmers were impressed too. 'You could have heard our jaws hit the floor basically,' recalls Jon Ritman of first seeing the game. 'I looked at it and thought that's what I've always wanted to do, as I saw it; to make a Disney cartoon that you could play.'

After *Knight Lore*, isometric 3D became a staple of Spectrum gaming. Indeed, so many games used the format that some magazine reviewers seem to have got rather bored with it after a while, but it was the basis for a number of inventive and polished games. Three-dimensional games were generally more technically demanding than two-dimensional ones, and few players appreciated all that was required to make isometric 3D work on a simple machine like the Spectrum. 'It required a number of things,' recalls Jon Ritman, who employed the technique to good effect in 1986's *Batman*. The smooth three-dimensional animation as objects moved across the screen relied on emptying a space in the graphic, then drawing into the gap that was created. 'You work out the area of the screen that's changed because something's moved,' explains Ritman. 'You work out the order of the room from the back of the room to front, then you draw all the things that come in that area that you need to update, in order, all the way to the front.' To avoid the Spectrum's problem with colour clash, the action in most isometric games was drawn in monochrome, albeit with different colours used for different rooms and to display

information around the gameplay area. 'And then there was the physics, being able to move things around,' continues Ritman. It seems such a simple thing today, but having items moving around in a virtual world, not just scenes being drawn, but objects that the player could interact with, was curiously novel for the time.

A good game was not just about the graphics technique employed, but also about using it to make a fun experience that was large enough to entertain players for a good few hours. *Batman*, for example, had 150 rooms to explore of puzzles, enemies and items, requiring another set of techniques to fit the game into the confines of the Spectrum's memory. 'It required some intense storage, so the maps and things were incredibly condensed,' recalls Ritman. The following year Ritman and artist Bernie Drummond surpassed even this, with *Head Over Heels*, another detailed, and rather surreal, isometric game. *Head Over Heels* also offered some impressive gameplay innovations: enemies that homed in on the player's character as they moved, fiendish combinations of conveyor belts and enemies, and strange Prince Charles–Dalek hybrid creatures controlled by buttons within the game environment itself. Most notably, *Head Over Heels* had two characters with different abilities to control, the dog-like Head and Heels, who could be combined into a single symbiotic organism, allowing a number of different ways to play. When new, *Manic Miner* had been complimented for squeezing 20 two-dimensional screens of action into the 48k ZX Spectrum. A few years later *Head Over Heels* managed 300 three-dimensional rooms in the same computer; a striking demonstration of maturing programming techniques. Isometric games such as these were probably the most impressive displays of how far games programmers could push the simple capabilities of the Spectrum, creating what were essentially miniature interactive universes.

Playing God with the machine

One of the most ambitious conceptual developments on the Spectrum, though sadly a commercial failure, was Automata's

Deus Ex Machina. Based on Shakespeare's seven ages of man, the game followed a 'defect' in a dystopian future world from the 'DNA welder' through the stages of its life to eventual old age and death. The idea was a sophisticated one, but the realisation was extraordinary and almost impossible to describe. *Deus Ex Machina* was less to be played than to be experienced, a multimedia concept album of mini games, graphics, philosophy, music and poetic narration. 'I wanted to make a movie. A full-length movie, with a synchronised soundtrack, that you could be in. That's all I wanted to do. In 48k. Not very ambitious,' explains Automata's Mel Croucher with more than a hint of understatement.

A full-length movie with soundtrack was far beyond what should have been possible with a ZX Spectrum, but Automata was thinking outside the box in more ways than just the game's concept. 'We overcame how to get the sound. We overcame how to get an hour's worth of gameplay. We overcame how to get more memory into the computer than it actually had,' explains Croucher. *Deus Ex Machina* was split into two sections on different sides of the game's cassette tape, to be loaded up halfway through the experience.* The mini games themselves were a simple but surreal mix, involving such things as keeping DNA strands spinning or destroying the clots in a geriatric's blood-stream, but they were really secondary to the overall experience. Automata had a history of mixing media in its releases, often including music or sketches on the B side of the game's cassette. *Deus Ex Machina* took this mixing of media a step further and put a soundtrack on audio cassette to be listened to in time with the game.

For probably the first time ever, it would be a game with a celebrity cast providing the voices. 'I was just trying to get everyone I could get to. I was trying to get the most ludicrous people,' recalled Croucher, who tried to recruit monocled television astronomer Patrick Moore as the voice of a sperm in

*Splitting games into multiple episodes, each loaded separately, would become a more common practice later in the 1980s.

one of the mini games: 'Patrick Moore asked his mum's permission and she told him not to do it.' Despite this minor setback, the final cast was impressive, including former Doctor Who Jon Pertwee, peace campaigning historian E. P. Thompson, rock-and-roll star Ian Dury, and comedian Frankie Howerd playing the voice of the 'Defect Police'. 'They didn't have a clue what was going on, not a clue. It was just another radio jingle,' reminisces Croucher of the celebrities. The challenges of *Deus Ex* were overcome to the thoughtful lyrics of an ever-changing musical soundtrack; Jon Pertwee reading Shakespearean verse, Frankie Howerd's threatening remarks, and philosophical musing on video game violence, obeying orders and the nature of life. In spite of the sometimes serious tone, there was a streak of surreal humour to keep it fun, notably a mini-game about guiding a sperm to fertilise an egg, set to Ian Dury singing about being the fertiliser. 'Ian Dury, the whole sperm thing, I think it's hilarious,' chuckles Croucher. 'Getting people to fertilise an egg, come on! And enjoying it and bobbing around while they're doing it!'

The game ended with the poignant and inevitable death of the Defect, questioning the machine that created them. For Croucher, one of the satisfactions was the deep effect it had on many players: 'They put headphones on. They turned the lights off. They played it and they wept. They laughed. And at the end they wept.' Reviewers were puzzled over whether it was a game or a work of art, but they were united in praise and amazement. *Crash's* reviewer went so far as to call it a 'milestone in computer history'. It was a startlingly creative experiment that blurred the boundaries of art and game to create something different and new. Unfortunately, Automata had difficulties getting the game into shops, and many people played it on pirate copies. After spending on celebrities, and reasoning that as *Deus Ex Machina* included a movie, a poster, an album and a game, *Automata* set the price at £15, making it an attractive target for piracy, but not in its entirety. 'Most people who had it, only had the game. Not the poster, or the soundtrack or the philosophy behind it. It was rubbish, this crude thing on

the screen. What are you supposed to do with it?’ sighs Croucher, who quit the games industry not long after *Deus Ex Machina*’s release and commercial failure. Other games may have stretched the Spectrum to produce more exciting gameplay or better graphics, but none was quite so impressively different as *Deus Ex Machina*.

Load new commander?

Not all of the gaming innovation was on the Spectrum. Indeed, the rather worthy BBC Micro was scene to a particularly noteworthy piece of conceptional and technical boundary breaking, courtesy of David Braben and Ian Bell’s seminal 1984 space-trading game *Elite*. Players began the game on board a space station, with 100 credits, a minimally armed Cobra Mk III spacecraft, and a combat rating of ‘harmless’. What happened next was largely up to the player. *Elite* was set in an open-ended universe of over 2,000 unique worlds, and offered countless opportunities for combat and trading, with no set path to follow; players’ destinies were in their own hands.

As if that was not enough already, *Elite* offered a truly three-dimensional gameplay experience that went beyond any achieved on a home computer before. Isometric games, like *Knight Lore*, allowed movement in three dimensions, but their worlds were small and consisted of two-dimensional drawings of solid objects only viewable from fixed perspectives. *Elite*’s spaceships floated in a three-dimensional universe, free to move in any direction they chose, and when they did they seemed to change shape accordingly. Looking out from the cockpit of their Cobra, players could see the line-drawn space ships constantly shifting in perspective and size as their positions changed. The constant underlying number crunching that made it all happen was a serious test of the computer’s hardware, and the cockpit display mixed the BBC Micro’s display modes in a way its designers had never expected, but the effect was magical.

‘Even before I had a computer I was mesmerised by the idea of making 3D graphics,’ recalls David Braben. He did just

that after his parents bought him an Acorn Atom, devising his own line-drawing techniques after finding the built-in methods too slow for smoothly flowing action. 'I spent ages pouring over these few lines of assembler,' recalls Braben. 'That was quite appealing. It's sort of like weeding.' At Cambridge, Braben teamed up with another student named Ian Bell, who had already published a number of BBC Micro games. At first, the idea was a three-dimensional space dogfighting game, graphically impressive but nothing conceptually groundbreaking, but as they talked the concept changed into something rather different. As Braben remembers it, the big ideas followed as a series of logical steps based on questioning the assumptions that many action games relied on. 'Why three lives?' asks Braben. 'Why not just make that one life three times as good? It was that sort of logic. What is the score a measure of? Is it my rank? Is it prestige? Is it money? And as soon as you ask the 'is it money?' question it's very hard to row back from that because you think, "oh, I could spend it on something for my spaceship".'

Money suggested new aspects to the game, such as bounty hunting, shopping for ship upgrades and trading goods between planets. Several commentators have suggested a political symbolism in *Elite*. An independent trader in a universe devoid of society, setting out to make money and spend it on fancy ship upgrades, had a certain resonance with 1980s Britain, but it was more about game mechanics. 'We weren't intending to make a game that was overtly Thatcherite,' explains Braben. 'Elements of it came very much more from the game scene than, "I'd like to spend the score."' As well as money the other score was your combat rating, ultimately rising to the dizzying heights of 'elite' after 6,400 kills. Considering the frustrations of other games led to refinements such as enemies that were not impossibly tough and who might unpredictably run away. 'We were not competing with the player,' explains Braben 'We were entertaining the player and making it just hard enough to be rewarding.'

Squeezing all these ideas into the Model B BBC Micro was a challenge, particularly as much of the 32k of memory was taken up by systems software and unavailable to programmers. 'We had to fit the entire game into 22k,' explains Braben. 'I remember agonising that we were going to need at least 20 worlds for it to be interesting. How much memory can we afford? Almost none.' The solution was not to individually craft and store each planet, but to generate them all from a few lines of clever code as they were needed. 'That was a real nirvana moment,' recalls Braben. 'I suddenly thought that we don't have to have twenty, we have a hundred, we can have a thousand.' Even the unique short descriptions of each world that noted its statistics and notable features, such as fame for 'evil brandy' or 'ancient sitcoms', were computer generated from lists of words. 'We had a lot of fun with that,' chuckles Braben, although they did have to swap an entire galaxy when they discovered that their algorithms had spawned a planet named 'Arse'.

Gaming historians point to earlier games as precursors to *Elite*, but the world was not so interlinked in 1984, and Braben and Bell were largely unaware of them. *Elite* shared elements with earlier games, but nothing had really combined all these ideas together in such an elegant and imaginative way. What all of it added up to was widely recognised as something conceptually new: a blend of three-dimensional action arcade, stock-market trading and role-playing game, set in a free and essentially limitless universe. Depending on the choices you made, you could be an honest trader, asteroid miner, bounty hunter or anything else that you imagined. 'We started to realise that there are professions here, and you can play the game in so many different ways,' remarks Braben. 'The beauty from a writer's point of view is that it's the very same bit of code.' There was a moral element too. Get caught in space piracy or trading in contraband, and you would be branded a criminal and pursued by GalCop. Just like in real life, how you played the game in the *Elite* universe had consequences.

Compared to the confined worlds of most other games, *Elite* was vast and offered incredible freedom. The concept was

too novel for the first publisher Braben and Bell approached to get its head around. ‘Thorn EMI said it’s a wonderful tech demo but we want three lives, we want a score,’ recalls Braben. They found a readier reception at Acornsoft, the software publishing offshoot of Acorn. ‘They knew how hard the problems were and they were really impressed. They said, “How did you do the 3D so fast?” The fact we’d got colour at high resolution on their computer, they said, “How have you done that?”’ The innovative way the machine was used surprised even the designers of the BBC Micro. ‘Some people found trade-offs we hadn’t imagined,’ recalls its co-designer Steve Furber. ‘So David Braben’s *Elite* program changed the display mode partway down the display in a manner that was sort of clearly impossible.’

Journalists reviewing the game were almost unanimously impressed. ‘Undoubtedly a masterpiece of programming’, was *Beebug*’s view on the BBC Micro version. ‘One of the most imaginative games ever to be designed to run on a home computer’, was *Crash* magazine’s verdict on the Spectrum version, one of the many platforms the game was exported to. Yet not all the reactions to *Elite* were so positive. As the media historian Alison Gazzard points out, a sizeable number of people struggled with the advanced gameplay, the investment of time required and the brutal finality of losing the one life the game offered.⁶ As anyone who repeatedly crashed into the space station while lining up with the tiny letterbox of its docking bay could attest to, controlling the ship in three dimensions could be tricky. That some people seem to have found trouble adjusting to it speaks volumes for what a different experience it was compared to the simpler games that predominated at the time.

In many ways *Elite* also marked the wider watershed moment the games industry was going through in the mid-1980s. It started off with a programmer seeing what their computer could do, but somewhere along the way *Elite* bridged the gap between hobbyist programming and professional development. Far from being finished in time to catch the post, *Elite* took about 18

months to bring to fruition after Acornsoft signed the game. Acornsoft's marketing was lavish, with the novelties of television adverts and a launch party at Thorpe Park theme park. The game shipped with Lenslok anti-piracy protection and even a novella setting the back story, by fantasy writer Robert Holdstock. It was very far from the small adverts and photocopied instructions that the games industry had started from.

From the bedroom to the boardroom

In a few short years computer games evolved from blocky graphics and elementary gameplay to offer far more sophisticated and varied entertainment experiences. Even the best games of 1981 looked almost prehistoric compared to those of 1984. It was not just a matter of improved computer technology, but of maturing developers and of creative freedom. The widespread uptake of home computers, combined with the games market's lack of barriers to entry, had democratised the development of computer games and allowed countless opportunities for creative interpretation. For a few years anybody with a computer and a grasp of programming could be a developer, but it was a situation that could not last.

Just as computer games had evolved, so too had the industry that made them. 'There was an immense change in the way games were developed and an immense change in the way they were distributed and sold,' remarks Bruce Everiss, who worked at several other software houses after Imagine. 'The only thing that remained constant during the time was that they were on cassettes. Everything else changed.' The shift to selling most games through shops rather than mail order brought in distribution companies and major retailers as market gatekeepers. This not only made it harder for new entrants, but added more middlemen to take their cut too. 'We were getting 80 to 90 per cent of the cost of the games when we were producing them ourselves,' recalls Malcolm Evans. 'At the end we were lucky to get to keep 20 per cent. We were selling many more so our income was about the same, but only if the game was successful. If not...'

By the mid-1980s, the games market's low barriers to entry had slowly risen up against new entrants, and it was harder for smaller companies to compete. Placing a small ad in a magazine and awaiting the mail-order cheques was no longer going to cut it. It was becoming more difficult for smaller companies to compete too. 'Our first advert had cost us £50,' recalls Malcolm Evans. 'When we pulled out of the games market, a full-page colour advert in just one magazine would cost £1,000, and distributors were only interested in your advertising budget.' The bigger firms could spend more on advertising, and their established positions naturally drew more press attention. 'If it was from a big company you'd want to review it, because if it's good you want to tell people, and if it's bad you want to tell people as well,' remarks *CV&G* journalist Robert Schifreen. 'If it's from a relatively small company, if it's good you tell people. If it's bad, there's no point.'

The market shake-up happened just as quickly as everything else in this new industry. In 1984 there were about 530 software companies and magazines producing ZX Spectrum games. By 1985, there were around 330. The same year, industry trade journal *Microscope* reported that a third of the market was held by just three companies, and that only five of the top 50 selling games came from small firms.⁷ In any creative industry there will always be space for nimble newcomers with innovative products and, of course, new games developers emerged. However, the most successful new companies, such as Codemasters and Rare,^{*} were often founded by people who already had some experience of the industry. The mainstream future of the games industry, at least until the disruptions of mobile gaming and the Internet, belonged substantially to the established players and to the big companies. Firms like Ocean

^{*}Rare was founded in 1985 by Tim and Chris Stamper, formerly of Ultimate Play the Game. Codemasters, producer of the hit *Dizzy* series of adventure games, was founded in 1986 by brothers David and Richard Darling, both of whom had previously written games for budget publisher Mastertronic, and their father Jim.

successfully managed the messy creative processes to deliver a steady flow of titles, and had the contacts and the marketing nous to get them sold. By the early 1990s, the company was one of the world's biggest and most successful developers. 'When I started at Ocean, there were probably a dozen people in-house, a dozen developers,' recalls Ocean's Gary Bracey. 'By the time I left there were in the region of 120.' The extra people reflected a change in how games were developed. The hit-or-miss efforts of bedroom programmers were quickly overtaken by organised team efforts. A division of creative labour became common, between programmers, graphics artists and musicians, organised to keep the development pipeline flowing with the new titles the market needed. Not to mention people dealing with sales, marketing, licensing rights and all the other things required as gaming grew to become a mainstream part of the entertainment industry. 'It was rock and roll in those days, the Eighties and early Nineties,' reflects Bracey. 'Because it was creative we were innovating; we were inventing the industry as well as the games.'

The invention of this industry was one of longest lasting legacies of the computer boom, an illustrative fulfilment of the 1970s prophecies that microcomputers would create new high-tech industries. In 1986, retail sales for games were estimated at £120 million a year in Britain, a fraction of their value today, but a huge amount for something that was but a glint in a bedroom programmer's eye at the start of the decade.⁸ By the mid-1980s, gaming was a well-established industry. It would have to reinvent itself constantly over the following years for new technology and changing market conditions, but it was here to stay. The rise of this industry, and of the gaming culture that went with it, profoundly changed home computing, undermining the ideas of computer literacy and overshadowing the creative enthusiasts. Games eventually became the dominant use of cheap home computers, the machines that the British microcomputer industry had grown up on, but this changing emphasis would have a profound influence on the fortunes of the home computer industry.