

PACE MICRO TECHNOLOGY LTD.

**A Summary History Of The Digital
Revolution: Bradford, Salts Mill**



Author: Mike Farren May 2021

Introduction and Acknowledgements

The Saltaire Collection is not confined to Victorian history and the collection's historians and writers are recording the important stories of the twentieth and twenty first centuries. Amongst these, second only in importance to the history of Jonathan Silver, his family, and the rescue and transformation of Salts Mill, is the story of one of Jonathan's first tenants in the mill. The tenant company was PACE Micro Technology Ltd. PACE was founded by three individuals living and working in the Bradford District: David Hood, Rob Fleming, and Barry Rubery. David had the visionary ideas; Rob was the logistics expert; and Barry a skilled sales expert. They were joined later by Graham Mitchell whose engineering expertise was invaluable to the company's growth and product range. Others who became important members of the staff team and partners in business are noted.

From its foundation in 1982, whilst the first directors were operating from David Hood's bedroom in Scholemoor, PACE commenced business selling Apple II computer software in the UK, purchased at lower prices from Europe, then began the manufacture of data communication modems and later satellite TV receivers and Video Recorders, all products that were previously either unavailable or too costly for the UK market, rapidly establishing themselves at the forefront of the digital revolution. By the late 1990s and into the 21st century, PACE was collaborating with major, well-known tech giants such as BSkyB and Amstrad. This local business had become an international multi-million-pound enterprise and its founders mirror the important part played by Sir Titus Salt during the earlier industrial revolution.

Two of the three founders of PACE have enabled this significant history to be recorded through participating in interviews with Mike Farren and Maggie Smith, and by sharing their own archived documents, images, and promotional materials. Barry Rubery, who now resides in Monaco, is writing a book covering many details of the business and is generously sharing draft chapters to add further detail and his memories to this history. The impact of the company for Saltaire was not least in the provision of employment and at its manufacturing peak, PACE was employing 400 engineers, 450 staff in manufacturing and 70 in sales and accounts in Salts Mill.

The history of PACE is a story of significant local entrepreneurship, determination, and vision and, at the heart of its growth and importance, is both the courage and foresight of its local founders and its eventual location in Salts Mill.

Acknowledgements:

With grateful thanks to the founding directors of PACE, who shared memories and notes.

David Hood – PACE Joint Chief Executive

Barry Rubery – PACE Joint Chief Executive

Rob Fleming – PACE Operations Director.

Background

The company that was to become PACE Micro Technology Ltd, (Ultimately PACE plc) was founded in 1982 and began literally in David Hood's bedroom, Scholemoor, Bradford.

David Hood had started his working life at a place in Brighouse called Stereosound Productions, as an apprentice. It was an audio / hi-fi manufacturer and he moved to Baird in the development laboratory at the time colour television became available. Baird was later known as Thorn, a television manufacturer at Becks Road, Bradford.

Whilst David was working at Baird Television he was introduced to Barry (Rubery) through friends, several years prior to the foundation of PACE. Barry had a job as a salesman for Associated Container Transportation Ltd. (ACT) Their first meeting occurred when they went with a mutual friend to see The Canadian Hell Drivers at Odsal Stadium! Subsequently, they went caving and potholing together in the Yorkshire Dales and also often cycled together.

David was at Baird for a few years, then left to set up a company called Entasy Colourvision at Mountain Mills, above Queensbury, repairing and renting out TV sets and supplying 'slot' televisions. These were very helpful for some families, who were able to effectively rent a television by putting coins in a meter on the back of the TV in order to watch programmes. On a staged basis, the money was taken out of the apparatus and the families received a rebate.

While David was working for Baird, the company had stockpiled a lot of colour TVs that were unlikely to go back into service. David did a deal to buy some of this stockpile and, by incorporating an off the shelf tuner and reconditioning the cabinets, enabled them to be rented. Mountain Mills was run down but served its purpose for the business. It consisted of a ground floor area, which was a little damp, and a room above this, of identical size, where the work was done. The only way to access the upper room was via a conveyor belt running at an angle from the ground floor to the upper floor!

The Switch to Computers

The founders of Apple, Steve Jobs and Steve Wozniak initially worked out of Jobs' garage at his home in Los Altos, California. On April 1, 1976, they debuted the Apple I, a desktop computer that came as a single motherboard, pre-assembled, unlike other personal computers of that era. The Apple II, a superior model, was introduced in 1977. Jobs and Wozniak had great difficulty in gaining initial investment finance because the market had no belief in the notion of domestic computers.

Nevertheless, they became one of three companies who succeeded in producing personal computers and their Apple IIe range would become extensive, lasting for over 11 years. As his television business was progressing, David decided to purchase an Apple computer from Ram Computers on North Parade, Bradford, to help manage the television enterprise, dealing with the cash flow and the rental income. The cost was around £400.

When David turned on the computer he had purchased, it simply showed a 'C' prompt as no software had been installed. He discovered that finding the software and someone selling it who knew how the software worked was difficult, and he complained frequently about the lack of availability, service, and knowledge. Windfall Magazine (later renamed 'Apple User') carried advertising for third-party software, including software from Pete and Pam Computers (later P & P Computers) in Rossendale, Lancashire.

This was owned by two social workers – Peter Fisher and his American wife, Pam. David bought some software from them, which he collected in person from their warehouse, and discovered they had shelves of virtually everything developed for the Apple II range: David's Apple was the Apple IIe. Whilst they sold the products via retail, they were more interested in wholesale distribution.

PACE Software Supplies

David was quite taken with his Apple computer and mentioned to Barry that he thought there might be a business selling Apple software through mail order via Windfall. In discussing a name for this business, a friend of Barry suggested 'PACE'. The shipping consortium for whom Barry worked also owned a company called Pacific America Container Express, known as PACE. Their logo was the word 'PACE' in a square arrow. David liked the suggestion, so a UK software company named PACE was born. The company name was David Richard Hood, trading as PACE Software Supplies, and the logo was the same as that of the shipping company, but initially without the arrow. David researched products and trade prices. At that time (June 1982), there were only a handful of businesses advertising third-party products and, based on P & P Computers' trade prices versus what the competition were selling at, there was a reasonable margin to be made.

David contacted several local bank branches and the manager of the local Barclays branch, Gordon Ormondroyd, agreed to back the business. David then got in touch with John Snowden, Advertising Manager for Europress, publishers of Windfall magazine, who agreed that his team would create an advertisement. The business model was to take the P & P trade catalogue, look at the sales prices that other companies advertising in Windfall were selling them for and undercut them.

The straightforward idea was to place advertisements in Windfall, offering as many Apple Products as possible, take in orders by phone and mail, collect from P & P computers the products that had been ordered each day, then package them and get them in the post the same day. There was little need for stock and the business was immediately cash-positive, with the only overheads being advertising and petrol to and from Rossendale.

PACE Software Supplier's first advert appeared in 1982. This offered around 500 items and was an immediate success. David and his partner took the phone calls, while Barry dealt with the correspondence in the evenings, whilst still working for ACT where he remained until March

1983. The two men were thinking about new ideas for the business where computers with the right software would be of value. They developed a proposal about how computers might help Barry's company ACT. One suggestion was sending updates on ship arrivals and departures to selected shippers via modem. The second was a computerized salesmen's reporting system. The proposal involved PACE supplying the whole system for this transport company.

A different company, named PACE Computer Services was created to develop this proposal. The logo was not the PACE funnel logo but a dot matrix-printed 'PACE'. At the end of March 1982, David and Barry met Walter Marshall, Regional Sales Manager for ACT, and presented the proposition to him. David Marshall was in favour of pursuing the idea but his London-based manager, Roy Davis, was not interested.

For PACE Software Supplies, it was getting more difficult to service the orders as they increased. In addition, Apple were selling more and more of the Apple II computer range and people were asking questions which David was finding it increasingly difficult to answer. At this point Robin Hudson, a student at Bradford University enquired whether there were any vacancies during the university holiday. David decided to take him on to assist with answering the questions. Robin then introduced some university friends, Adrian Barratt, and Kevin Gibson.

David was living close to the friends in Scholemoor, Bradford. But another key person in the developing company was about to arrive. One afternoon in 1982, a telephone caller asked whether the company had some graphics software in stock and on being told that they did, wanted to call in to look at these, not being prepared to use mail order. David told the caller which bus would get him to his house and that, when he got off the bus, he would see a telephone box that David could see from his bedroom window and easily locate where David worked from.

The caller was Rob Fleming, who at the time was a Flight Lieutenant and Medical Officer in the Royal Air Force, based at Ely. He had bought an Apple IIe, seen the advert, and had come to browse the shelves, rather than buy via mail order. The reason was that, given his RAF service, Rob moved around a lot and mail order might have had to follow him around for a long time. Rob's parents lived nearby, and he had initially come to Bradford to see his brother, Ian, in Queensbury but, in the event when he arrived at David's house, he became so absorbed in what David was doing that he did not make the meeting with his brother that evening.

Rob was and is a self-confessed computer 'geek' and after talking at length with David he agreed to come back the following day, and also spent most of the rest of the week visiting and talking to David about computers and software. During one of these visits, the phone rang. The caller wanted to know about a product called Wordstar, which David did not have any knowledge about. He asked Rob whether he knew about this product and when said he did, David passed the phone to him. Rob became involved in the developing company from then onward.

Rob was detached by the RAF to serve in the Falklands between June and November 1982 but when able to return he continued to travel North to work with David, whilst still serving as an RAF Officer. David, Barry, and Rob were not always able to get together, but they would often all meet on Friday evenings at Cocina Restaurant, which was on Oak Lane, Bradford at the time. The business was successful, and the first year's accounts reflected that, with almost £300,000 turnover in the first year, ending 30th June 1983, with a net profit of £30,000.

The business expanded further, selling peripheral memory expansion cards. Initially, PACE bought these from London-based Pynwon Computers, who acted as agents for the main manufacturer, Zoffary, in Australia. However, at a certain point, Pynwon's owner, Dr Boshell, no longer wished to distribute them and put PACE in touch with the manufacturer with a view to taking up distribution in UK and Europe. Later Gynesh made contact from New York. They represented a number of US-based Apple software houses and asked PACE to take on their products as distributors. These products, included a four in one package – Word Processing, Accounting, Spreadsheet and Database – called 'The Incredible Jack'; another was a relational database called Savvy and a further product, from Quark, was a word processing package.

Rob took some leave from the RAF to travel to New York with Barry, to assess what Gynesh had and whether it would be saleable in the UK and Europe, and worth taking on. As Rob was generally satisfied, Barry returned to New York to complete the deal, meaning that PACE were launched in the distribution business, with software packages that would enhance the company's reputation as well as making money. Unfortunately, no one had really tested these programs, particularly 'The Incredible Jack'. It was reviewed positively in Windfall in March 1984 but next month, Windfall had to print a letter from the reviewer, pointing out that they had missed out of the review reference to the bugs he had found, which were numerous.

The component parts did not match up to more sophisticated (though more expensive) products available at the time. In any case, at this time, there little market for individual users, while businesses wanted established, market-leading products. Savvy, on the other hand, though expensive and complicated for its day, was ahead of its time, being a relational database that recognised regular words, phrases etc., perhaps a forerunner of current Internet search engines. Similarly, Quark was a powerful program and Quark are still a major player in digital technology today. Regardless of their individual success, these products gave PACE kudos and market awareness.

The retail business continued to prosper, with regular UK customers including universities, colleges, and government departments, such as the Atomic Weapons Research Establishment. PACE were also approached by a school in Amersham, who wanted them to sell communications software on their behalf. One customer, Steve Lister, ran an advertising agency called Centrepont and PACE employed his firm to create and develop advertisements for their products. Part of his initial remit was to develop full page, full colour ads for 'Quark', 'The Incredible Jack' and 'Savvy'. In February 1984, PACE had 5 full-colour, full-page ads in

Windfall, a clear signal to others that the company was becoming an important player in the digital 'revolution' of the mid to late 1980s.

At the same time, PACE started the process of becoming an Apple authorised dealer but found it hard work with the UK Apple team and never achieved full 'Dealer' status – achieving only 'Re-seller' status, which gave less margin than dealers. The business was strengthened in June 1984 with the introduction of the Apple Macintosh. The Apple software business created a cash surplus and also raised awareness of PACE as a company.

Acorn and the BBC Microcomputer

The two founding directors Hood and Rubery brought different skills to the PACE enterprise, David's experience was in engineering and a certain skill in understanding what users want from a product, Barry in marketing and sales. Rob brought experience in computers, planning, and organization. After having bought IT products and re-sold them on a margin, they had a growing desire to begin to market their own products. David hit upon the initial product focus and they began to manufacture modems, the first one being designed by Bradford Instruments, whilst PACE were still operating from David's bedroom for around 18 months. As business grew in software supplies and modem manufacture, they needed some larger premises and moved to West Bowling in Bradford and took on their own engineers to support and design a wider range of modems.

The first business premises were secured at *92 New Cross Street, West Bowling, Bradford*. The building they purchased had been a Kingdom Hall of Jehovah's Witnesses and prior to that a doctor's surgery. However, as success followed success, they were soon to outgrow these premises. They began to look at some of their customers' needs. Bradford's schools, alongside the majority of English schools, were using BBC micro/apple systems and PACE became their supplier of disc drives.

Acorn launched the BBC Microcomputer with the idea that every school in the country would have one. At the time of the launch, it was only possible to run a program from cassette, which was a slow process. Although the motherboard had the ability to add the eleven components required to run a disc drive, Acorn had not written the software to enable it. Also, they had developed the computer around an Intel disc controller chip [8271], which Intel had discontinued. Despite all this, because they were late in launching and under pressure, they launched without a disc drive.

The PACE team realised that there was a market for floppy disc drives and enlisted the help of Graham Mitchell, a former colleague of David from Baird. Graham developed a power supply, Barry sourced the disc drive mechanisms from Japan and PACE launched a disc drive, advertising it in BBC Micro User magazine, which Database Publications had just launched.

Sales were initially limited because of the shortage of software. However, out of the blue, someone from Dr Challoner's Grammar School, Amersham, contacted David and said that three

students had written disc interface software enabling disc drives to be used. David did a deal with the students and PACE adopted the software, which became known as the Amcom DFS. PACE also bought some computer games the students had developed, including one called Fortress, which went on to be a huge success.

In the wake of the success of this game, written by three 17-year-olds, it occurred to Barry that there must have been a lot of people writing games. Therefore, he devised the marketing brand 'Jasmine Software' and placed a simple advert with Database Publications' magazines, asking, "Are you a programmer? Do you program in Machine Code, have you written any games for the BBC Micro..." etc.

One result was the identification of a new development known as EPROM (erasable programmable read-only memory) This program allowed one computer to communicate with another. The directors eventually realised the significance of this technology and arranged to meet the developer, Andy Hood. PACE took on the program, which became Commstar, and employed Andy. Another programmer, probably sourced from the same recruitment process as Andy Hood, was Ewan Wannop, developed 'Data Highway' for the Apple II range.

A problem at that time was that modems were few and far between and communications were in their infancy, meaning that such modems as there were, were expensive. PACE started to produce modems. Their first hardware was the 'Nightingale' modem, designed for PACE by Bradford Instruments. Later PACE developed their own, known as the 'Linnet', which was designed by an engineer called Steve Wright, who had been recruited and whom Rob has described as, "Very calm, very quiet, very considered". David described the progression as going from

"the first fairly amateurish development of a modem, which was Nightingale, onto a much more commercial platform, which was Linnet – what we called the Linnet family, because there were a few successors based on that."

For Nightingale, there was no bespoke software. Initially, it was mostly supplied to people using teletext services that were either built in or you just went to a particular address.

PACE were on the way to becoming a company that others in the field began to notice. Assessing customer needs and recruiting the necessary technical expertise led to rapid growth. Whilst software and hardware were kept going in tandem for a while, to sustain cashflow, the mail order aspect providing a solid cashflow generation, Rob's abiding memory is that the rapid growth was 'great fun'.

Founding of PACE as a Limited Company

As previously noted, PACE was founded as a limited company in 1982 but with the move into production and a wider range of software in the mid 1980's the name became PACE Microtechnology. Barry had been helping while working for a shipping company – Pacific

America Container Transport. Rob left the RAF in May 1985. The three all had distinctive skills. David describes Barry as

“very much the sales and marketing guy and to be honest, he was the guy that really pushed us all along.”

In July 1985 they moved into larger premises at the side of Prospect Mills in Allerton, very near to the Seabrook Crisps manufacturer. The new space provided 6,000 square feet of floor space with a mezzanine adding a further 1,100 square feet of space. This soon also proved inadequate and within two years, two portacabins had been added to the site and the mezzanine extended, providing a further 4,000 square feet of space. The company was manufacturing modems and disc drives and using Bentham & Holroyd, who occupied Prospect Mill and were the landlord for PACE, to shape the metal and, among others, Peatey’s at Yeadon to powder coat it.

PACE advertised extensively, mainly with Database Publications, who were the publishers of dedicated magazines for the relevant products, ‘Windfall’ for Apple (which later became ‘Apple User’) ‘Micro User’ for BBC computer, and ‘Amstrad User’ for Amstrad computers.

Among PACE’s modem clients was Amstrad, and the company sold them 10,000 ‘Nightingale’ Amstrad-branded modems. It was an internal card modem that PACE designed and made. When asked about packaging whether he wanted the PACE name on the modem, Alan Sugar¹ apparently answered along the lines of,

*“Course I want your f***ing name on it. We don’t make modems! No one’s going to believe it’s a good modem if you haven’t made it!”*

So, it became the Amstrad modem by PACE. This was in 1985.

PACE was foremost in manufacturing these products and, inevitably, the company was once again ‘bursting at the seams’ in the space they were occupying despite now using third party subcontractors to manufacture their range of Modem products. Companies and the public could rent modems from British Telecom at the time at a relatively huge cost, whereas PACE, with a couple of engineers, were able to make in-house, subcontract and sell modems for significantly less than the annual rental cost from BT.

Satellite Technology

By the middle of 1986, the business dealing with modems, disc drives and other peripherals was doing reasonably well but the market for floppy disc drives was diminishing and the writing was on the wall for the future of external modems because modem chip manufacturers were

¹ Amstrad was a British electronics company founded in 1968 by Alan Sugar, at the age of 21. The name is a contraction of ‘Alan Michael Sugar Trading’. It was first listed on the London Stock Exchange in April 1980. During the late 1980s, Amstrad had a substantial share of the PC market in the UK.

making them smaller, and the tendency was to build them into the computers themselves. Rob recalls that he felt something new needed to happen at this point. David had heard the UK government were going to launch a satellite and transmit TV programs from space to the UK for the first time. He suggested that PACE should investigate getting into this field.

David had bought a 'Maspro' satellite TV receiver that incorporated a mechanism that allowed the dish to be moved. For the viewer, this meant the receiver could be set to point the dish at one satellite, and then in order to watch a channel on another satellite, the user tuned to that satellite, the dish automatically turning towards the different satellite. Manufacturers had begun to make satellite 'head end equipment', as it was called. The first products were expensive, professional, rack-mounted pieces of equipment meant for cable operators, who would have a data centre and a massive dish. They'd receive a television channel by satellite, and had an expensive, professional piece of equipment that received it, then it would be piped down 'co-ax' cable to subscribers. That's the equipment PACE got their hands on. But it was not designed for home use. These pieces of equipment were priced in the region of £2,000 or £3,000 apiece.

David didn't know why they needed to be so expensive, so the PACE team looked at the technology and re-designed it in a domestic form that it was possible to produce and sell for a few hundred pounds. David recalls that he was fascinated with the idea of '*bringing pictures out of the sky*'. There was an obvious business opportunity, but PACE didn't have the in-house capability to develop a satellite TV receiver, so David set about trying to find a firm who had that capability. In addition, Barry contacted the Department of Trade and industry (DTI) in Leeds and, after meeting the Regional Director Gordon Bennett, he obtained a substantial innovation grant for research and development (R&D) work.

However, in the market doubts were growing as to whether the British Satellite Broadcasting (BSB) television company, based in London, would actually launch their service. Whilst, at PACE, the modem business appeared to be improving, so PACE drifted away from the idea of satellite technology, until Gordon Bennett called to ask why the company *hadn't called down the DTI loan*.

Barry explained the situation and Bennett then said he had received a letter from a satellite TV engineer in Wales who said he had designed a satellite TV receiver and was asking whether he knew anyone who might be interested. Bennett passed on the details of the engineer, Andy Coe to the company and, after an exchange of letters PACE arranged to call him at a telephone box at a pre-arranged time and, through this conversation, a visit to Bradford was set up. When Andy arrived, he had long hair and a beard and was wearing Hell's Angel leathers and biker boots. He was carrying an old shoe box which contained his satellite TV receiver. During the interview with him, a call was received from the police.

It appeared that Coe had developed the receiver on the premises of Welsh firm, specifically for them – and the firm wanted it back! PACE were asked to hold him on the premises. When

confronted, Coe's version was that the Welsh company had simply let him use their premises and facilities free of charge, with no obligation regarding what he developed. However, what he had developed was of real interest to PACE. Fortunately, Coe had the (hand-drawn) circuit diagram, with the rest of the concept in his head. The equipment was de soldered and when the police arrived, they interviewed Coe and took away the cardboard box, while PACE agreed to get him a solicitor. After the solicitor wrote to the firm, they dropped the case against Andy Coe two days later. These were clearly very interesting times in the developing market for digital products.

When the PACE Directors offered him a job, Coe didn't seem terribly interested in a salary but what he did want was a company vehicle and the company vehicle had to be a Harley Davidson bike. He remained with PACE throughout its development as a company, handling software and middleware as well as hardware. His recruitment was the final element that that enabled PACE to begin to manufacture their first satellite receiver, which was first released in early 1987.

In those days, because companies such as Sky Television hadn't yet entered the market, it remained necessary to have a mechanism that moved the satellite dish to stationary satellites. The dish had to be steerable, and it had to be quite large – 2 or 3 metres in diameter – with arms that spanned it, left and right. When the viewer wanted a programme such as Cable News Network (CNN), the receiver had to know to move to this location at that angle and tune to that frequency and then tuning to another channel required another move.

The first satellite receiver was called the SR640 and had capacity to connect with 64 channels of information – but there weren't 64 channels that a user could actually access. PACE made their first satellite receiver, which was quite 'rough-and-ready' and then recruited a team of engineers, including Derek Oliver, who came from Thorn as a software engineer and became the software manager, with Graham Mitchell, who became the fourth company director for PACE. David already knew Graham and was aware that he would bring the professionalism into the engineering team that was needed at that point in time. Whilst manufacturing modems and supplying software products were the principal business for the company and Satellite technology was in its infancy, PACE were well placed to grow this market.

Marconi, Ferguson, and Alba / Bush

In the early days of satellite technology, PACE advertised in magazines such as 'What Satellite' and 'Satellite TV Europe', despite the fact that they had only ever made 2000 satellite TV receivers. Their marketing ensured that PACE received a lot of editorial coverage and Barry spent a lot of time wining and dining magazine editors and persuading them to do reviews. One magazine, Satellite T.V. Europe was published by Nick Snow, who became a good friend of Barry, with the two of them later creating awards for the satellite TV Channels being shown at that time. These were called the STEVIES (Satellite TV Europe) and gave PACE a high profile.

This promotional strategy paid off and was one of the trigger points in the evolution of PACE. One result was a telephone call to Barry from the Business Development Director of GPT-Plessey Telecommunications², whose firm were 'intrigued' by the emergence of TV broadcasting via satellite. The Director requested a visit to PACE, in order to gather information for a report he was writing for his board. GPT-Plessey were a huge company compared to PACE and Barry agreed to a meeting at the Allerton premises for the following week. During the visit, the director was open about the fact that it was unlikely PACE were going to be able to do business with GPT but after providing the information requested, Barry pressed him for ways that GPT could support PACE and was provided with contact details for Len Ogier, Assistant Managing Director of Marconi Electronics³.

Barry was not aware at this point that, Marconi were manufacturing low-noise block downconverters (LNBS) and supplying them to Amstrad as part of a deal with Rupert Murdoch to make satellite TV receivers for the emerging SKY TV service⁴. PACE also needed a source of LNBS to incorporate into their receivers as these were a crucial component. After discussion with David, Barry called Len Ogier to arrange a meeting at Marconi's North London base, just off the M1. On Arrival, David and Barry were escorted to the boardroom, where they met Len Ogier, his P.A., Jacqui Robbins and the Commercial Manager, Arthur Casciaro. However, when Barry asked what Marconi's purchase price for LNBS would be, Len Ogier commenced inquiring into the PACE satellite TV receiver, requesting that the meeting continue in his office.

Whilst there, Ogier and Casciaro wished to see the Costed Bill of Materials, the circuit diagram, and the code, and to be told who developed the software etc., which, understandably, concerned the PACE team as they were being asked to divulge their own product details. As a result, Barry led the team out of the meeting, afraid of being 'ripped off' and reasoning that there were other sources of LNBS. As the David and Barry drove back, (an early) mobile phone in their car rang. It was Len Ogier calling and he asked them to turn around and come back to speak with him. On arriving at his office, Ogier was alone.

Ogier said, " We have a problem because whilst we are supplying LNB's to Amstrad, we do not want to have just one customer and we have other, very significant customers who we know want to get into the satellite TV receiver business but do not have satellite TV receivers of their own and because of that, we cannot supply them LNB's". At this, Barry proposed that Marconi start to supply PACE with the LNB's. In response, Ogier proposed that the team extend their

² GEC Plessey Telecommunications (GPT) was a British manufacturer of telecommunications equipment, founded in 1988 as a joint venture between GEC and the British electronics, defence and telecommunications company Plessey. The GPT name ceased to be used in the mid-1990s, and in 1998 the company was amalgamated into Siemens Communications.

³ Marconi Electronic Systems (MES), or GEC-Marconi as it was until 1998, was the defence arm of The General Electric Company (GEC).

⁴ BSkyB was initially formed in 1990 by the equal merger of Sky Television and British Satellite Broadcasting. BSkyB became the UK's largest digital pay television company.

stay overnight and he went on to contact Kevin Smith at Ferguson⁵ in Enfield to arrange a meeting 40 minutes later, informing the team that Ferguson were interested in buying satellite TV receivers.

In the later meeting, the PACE team were introduced to Ferguson's representatives, Ian West, and Doug Topping. West was a management trainee with the remit of understanding and taking Ferguson into the emerging world of satellite TV, while Topping was the engineer. Ferguson were owned by the large French 'Thomson' organisation (also the owner of Baird / Thorn) who had been 'caught napping' over satellite TV and needed to get into the market early, meaning their only route was via someone like PACE, who could give them an Original Equipment Manufacturer (OEM) product. It soon emerged that Ferguson were talking about a potential 40,000 order. The discussions went on for about two hours. Ogier agreed that Marconi would supply the LNB's to Ferguson but drop out of the negotiations between PACE and Ferguson. Smith agreed a route forward with David and Barry, and to meet again the following week.

Ogier then asked David and Barry to stay overnight, as he had another potential customer who might be interested in buying receivers. This company was Alba / Bush⁶ in the East End of London. In the meeting the following morning, along with David, Barry and Ogier was John Harris, the company's founder, Melvyn Goodship, the Managing Director of Bush, in whose name the satellite receivers would be branded, and Harris's son Daniel. They wanted twenty-six thousand receivers. PACE were about to enter not just in a major UK market but an international one.

Salts Mill

Given these developments, in 1988, the time had come to search for more space for the company and Rob began hunting for suitable premises. He had heard about Jonathan Silver taking on the vast Salts Mill site and arrived there on a very rainy day, finding no security staff present and went in. Jonathan Silver was sitting in the 1853 gallery (the only gallery established at the time) with Alan South who was helping with the establishment of the gallery. Jonathan took out a huge bunch of keys and began to walk Rob around the premises. There were many spaces that were either too big or too difficult, but the Mill could provide the square footage needed by PACE. Rob got on very well with Jonathan but needed to discuss the possibility of leasing space there with David and Barry, so didn't confirm the use space in Salts Mill on that

⁵ Ferguson was originally an American-Canadian company making radio sets for the U.K. market based on American models. It expanded into TV and was taken over by Thorn Electrical Industries. The Ferguson name continued to be used by Thorn and its successor Thorn EMI. In 1987 it was sold to French electronics company, Thomson.

⁶ Alba began by manufacturing radio sets from 1922. In the late 1960s they became Alba Group. The company was floated on the London Stock Exchange in 1987 as Alba plc, buying Bush in 1988

first day. He had to convince both David and Barry to go and have a look. David recalls that in some areas “There was rain coming through the ceiling. It was a grim old spot!”

When Rob went back to Salts Mill for a thorough look at possibilities two days later, Jonathan threw him the keys and said, ‘help yourself’, leaving him to consider what could go where. Jonathan had his office then in the old Sir Titus Salt Company Board Room and used a desk piled in papers, books, and paraphernalia, with the golden letters from the Salts sign that had been on the side of the mill hanging on the wall and an easel and canvases he used for relaxation in painting. After looking around again and a brief discussion a deal was done for PACE to use part of circa 1500sq ft of the space that had been the ‘washhouse’ in the mill to store some materials for a time. Meanwhile PACE continued at prospect Mills with around 50 employees.

Several months later, the Directors decided that additional space required for their business did mean a move for the PACE company to Salts Mill. Over a period of time, they took the Canalside offices, at first half, and then the whole of the floor above the 1853 Gallery in the Spinning Block. More space was required for engineering and development and in 1993, in the midst of the mobile phone boom, coinciding with the launch of Digital Satellite TV.

PACE needed greater capacity for manufacturing and was struggling to find sub-contractors with capacity that was not consumed by mobile phones. The growth in manufacturing also required space to accommodate a service department and product testing area and needed to include space to handle the comings and goings of millions of parts and products a week, in and out of Salts Mill. PACE took over most of the built space at the back of the main mill along the canal and up to the loading areas along the railway.

Salts Mill’s weaving shed (circa 70,000 sq. ft) was converted in around 22 weeks to a modern electronics manufacturing facility named as PACE Manufacturing Facility (PMF), along with the ground floor of the spinning block beyond the 1853 Gallery, which became a cafeteria. The works were built as part of a handshake agreement on the lease. PACE improved the electrical installations and the fabric of these spaces within the Mill and added heating systems. The Canalside offices were soon extended into the north light behind the buildings facing Victoria Road.

The company ultimately leased around 350,000 square feet of the Mill premises. There weren’t many tenants in Salts Mill at the time Rob arrived He recalls that there was the 1853 Gallery; a textile supplier for furnishings, ‘Skopos Fabrics’ in the basement, an accountancy company in the front offices and a company that supplied vaccinations and equipment for travel – down the left-hand side, toward the canal. There were tenants in the old Salts boardroom very early on but when they left, PACE used it as a boardroom for a while. The space that is now the bookshop was where Jonathan Silver’s clothing business was situated at the time. There was a wall beyond this, and at the other end was the first office space that PACE utilised for their production team, many of whom had been prior colleagues of David’s at Bairds.

Employment with PACE initially rose to over 700 at Salts Mill (ultimately rising to over 900 staff) and the manufacturing of Satellite TV and set top boxes began there. During the nine years it operated production in the Mill, in addition to producing product in its own name, PACE was a respected product manufacturer making units in Saltaire for almost all the most well-known names in worldwide electronics.

As tenants of Jonathan Silver, who took on large amounts of space, PACE contributed significantly to Jonathan's success in the mill and helped bring young, professional people into the village, which completely changed its image. Zoe Silver, Jonathan's daughter, said that the Silver family can never underestimate the importance of PACE coming in. She sees it as the rock bed on which the rest of the Mill developed. Rob says the arrangement "worked well for both of us".

Expansion and Going Global

At board level, David and Barry were joint Managing Directors with Barry being the Sales Director and David the Engineering and Development Director, and Rob as Operations Director. Kurt Risdon was Materials Director, reporting to Rob. Graham Mitchell was Engineering Director, reporting to David. There were several Financial Directors at different times, who worked in Barry's directorate. As PACE broadened its range of products, manufacturing capacity was established in Wales and other sites for the United Kingdom's local markets.

Manufacturing was also established abroad leading to products being produced in Turkey, India, Mexico, Brazil, Romania, (briefly) The Czech Republic and later China. PACE had become a major international manufacturer. The company was never manufacturing more than around 24% of the products they sold in Salts Mill, Saltaire.

Their early use of resale for digital products continued to ensure a healthy cashflow. The international business had grown gradually with the company starting to sell in Europe in 1988. The first European office was opened in Stuttgart in 1991. In 1992-3, there were offices in Germany, Denmark, Norway, Hong Kong, and the directors have a recollection of a South African office. There was also an American office for quite a long time. The international sales drive was due to Barry's expertise and significant ability. There were regional directors for each 'division', each of these reporting to Barry, who headed a significant sales hierarchy, with quite a few deputies.

Whilst the early satellite receivers were 'just receivers', technology developed that enabled built in methods of control allowing use of a wide range of satellite sources. This was the beginning of encryption systems either through a card system or built into the hardware. The first models were the D2-MAC ones for Scandinavia. For a time, there were two satellite systems in operation in the UK as, prior to the merger of BSB and Sky in 1990 to form BskyB, BSB had broadcast to 'Squarial' receivers. This was technology in which BSB had invested heavily and when the market for these receivers collapsed the company suffered significant loss. Fortunately, PACE had not chosen that high-level investment route because they had

already invested in existing technology. The deciding factor for the direction of the technology was the marketing of Murdoch on behalf of the content provider, Sky.

One of the main reasons why PACE achieved its high market share was the formation of the joint venture with NTL – ‘Pace NTL Technology’ – arguably the most significant step PACE made, especially given that NTL had developed the Demux (demultiplexer) for digital TVs and had engagements with Irdeto, the primary developer of conditional access technology at that time. They were having discussions with emerging Digital TV broadcasters Shinawatra in Thailand and Galaxy in Australia, who were to become PACE’s first customers.

It wasn’t all plain sailing in the global markets. For example, Barry recall one tense time –

“Our first digital customer, Galaxy, in Australia began to experience problems. They had taken 25,000 digital satellite receivers but their backers were hesitating about continuing to invest in the product. A Pace employee in Australia, Mike Tucker called me to tell me that this order could be in jeopardy. I took the call whilst travelling with David, on the way to an important meeting with a major investor. When I heard from Mike, my heart sank because if Galaxy went under PACE was in trouble. I made an excuse when we reached the meeting, saying I was exhausted (which I was) and David took the meeting on his own. After a further conversation with Mike I got back on a plane to Australia to negotiate with Galaxy. I met them and during the meeting their investors agreed to continue funding their developments, the deal was rescued, and I flew back to do another week of roadshows.”

PACE also had a huge analogue satellite TV business, making analogue satellite TVs for Sony, Hitachi, Toshiba, SHARP, Philips and Thomson. David recalls that the move from a small team to a much larger group of staff and company size remained enjoyable and that he was still excited by ‘the job’. In spite of the rapid growth and occasional financial crises. There was a difficult time for the company when cable operators overstretched themselves. This resulted in many of the company’s customers owing significant sums of money. PACE were owed hundreds of thousands of pounds by companies at risk of going out of business. To mediate against this PACE sold the modem business, which had been relocated to the boiler room, close to Salts Mill Chimney (a location that is now occupied by the All-Terrain cycle shop) This element of the company was sold to employees and management.

Stock Market Flotation

The Directors of PACE had not spent much time considering whether or not to float their now internationally known company but thinking began to change as the ‘90s decade progressed. One thing that triggered the idea of flotation was that PACE had a subcontractor called Race Electronics, in Wales. The owner, Alf Gooding (who also owned a company called Catnic Lintels) came to visit in around 1994 and made an offer to buy PACE outright. It hadn’t previously occurred to the directors that they had a highly desirable company that could be sold. In addition, generally, the advent of the rapid development of increasingly sophisticated digital

products drew attention from further afield. Nevertheless, Rob wryly recalls that “Everybody was interested in buying us until you actually had a conversation with them”.

The company had conversations with Motorola in America and General Instruments (GI), based in San Diego, California, who were pioneering the development of digital satellite TV receivers for the United States and other International markets, with Barry developing a relationship with one of GI’s Sales Directors, Kris Kelkar. GI and PACE were both chasing business from News Corporation’s ‘Star TV’ in Hong Kong. PACE’s relationships with National Transcommunications Ltd (NTL, the privatised UK independent broadcasting authority acquired by Cable Tel in 1996) who had developed technology PACE were using, and News Digital Systems (NDS - owned by News Corporation), who were leaders in encryption technology put PACE at a significant advantage in the emerging digital satellite market. PACE were already working with NTL and another conditional access technology partner, IRDETO, whose technology was winning favour with non-US broadcasters due to IRDETO being politically neutral, rather than NDS, who were owned by Rupert Murdoch.⁷

GI had their own Conditional Access system called Videocypher which had some success in the US but wasn’t what the rest of the world wanted. As a result, GI were struggling to compete, and Barry’s contact Kelkar asked whether PACE would be interested in meeting their senior management in San Diego. David and Barry agreed to this and went to see them. At this first meeting no business agreement was reached but soon afterwards, Kelkar requested a meeting in Saltaire. During the meeting, GI made an offer to acquire PACE. However, GI wanted to pay for the company with only a proportion of cash up front, the remainder of the price being based on PACE’s future earnings.

The team rejected the deal. Then a neighbouring Saltaire company came forward with a proposal. David Rhodes, a majority shareholder of the neighbouring Filtronic⁸ business contacted Barry for a confidential meeting. Filtronic’s flotation had been a success and David Rhodes had heard that PACE had been talking to a US firm about a buyout. He had an idea that PACE could be integrated into Filtronic through a share exchange deal. PACE agreed to consider this, and David Rhodes gave a presentation to the PACE management team, considered the proposal but decided it wasn’t for them. When the directors informed Rhodes of their decision, he responded with a suggestion that PACE consider a flotation of their company and put the directors in touch with the brokers who initiated the Filtronic float. As a result, PACE met with

⁷ Keith Rupert Murdoch, Australian born American Media Mogul is the owner of hundreds of local, national, and international publishing outlets around the world, including in the UK (The Sun and The Times), in Australia (The Daily Telegraph, Herald Sun and The Australian), in the US (The Wall Street Journal and the New York Post). He is often considered to have too much influence on public opinion.

⁸ Filtronic is specialist Radio Frequency (RF) engineering business — designs, manufactures and supplies a high quality, innovative range of standard and custom filter, antenna and mmWave transceiver solutions that meet the needs of customers in market sectors ranging from mobile telecommunications network infrastructure to critical communications. The company was originally based in Saltaire, but the UK headquarters are now in Yeadon, Leeds

Pat O'Reilly who represented the brokers Panmure Gordon and decided to float PACE Microtechnology Ltd.

The outcome was that PACE was floated on the Stock Exchange in 1996. This year coincided with a planned launch of the UK change from analogue to digital technology for broadcasting. The reason for the government to make this change was that the analogue system wasn't an efficient use of airwaves and only had space for a limited number of channels, whereas digital used a multiplexing system to squeeze many TV channels into a single block.

Although PACE were manufacturing digital equipment, 1996 was the start of a difficult time because PACE customers – Sky in particular – had made major investment in analogue and, with others, decided to put digital off for at least 12 months. PACE had manufactured the TV set top boxes, tested them, had parts coming in and were ready to go, but their customers' decisions to delay caused problems. PACE had given their business projections based on the planned digital deals going ahead, so when these were not able to, PACE had to make a profit warning, and the share price dived.

A profit warning is an official statement to the stock exchange from a publicly listed company that says that it will report full-year profits materially below management or market expectations. By becoming a public company PACE had to abide by this rule. Rob clarified the 1996 situation further by explaining that for a public company, it is imperative to state what you are expecting 'to make' in the coming financial year, and if you make that, your share price stays about the same or it might go down. If you exceed it by a reasonable amount, the share price might go up, but the exchange will ask 'why didn't you know?'

In the case for PACE that year, not being able to make the profit publicly estimated, the company had to give 'profit warning' and inform shareholders what was going on. This, along with further profit warnings, put a great deal of pressure onto Barry. It affected him badly and he decided to leave PACE PLC in 1997. His talents had played a significant part in PACE Microtechnology Ltd.'s success. The change to a public limited company had its effect on the other founding directors also over the next few years. Rob Fleming summed up the nature of the change-

"If you're an ordinary limited company, you don't have to do any of this and I think one of the things that got to Barry was, we're a company trying to do things at the leading edge. You don't want to have to tell everybody what you're doing. But once you're a public company, you've got to say and if it's more than a certain amount of company money you're going to spend on a certain thing, you have to say you're doing it. It's counter-intuitive for a development business but once you become public, that's the sort of thing you have to do."

David stayed with PACE PLC, becoming a non-executive director for the next seven to eight years. Rob stayed as an executive director for just over six years and then took a non-executive director position for the remainder of his time with PACE PLC. David noted that after the flotation, the culture of the place changed, and the founding directors became a little uncomfortable, saying –

“As a non-exec, it’s OK for a bit but you’ve got no input into it. All you can do is listen to things. And the board meetings then got transferred to London, so you had to traipse down there, and it just lost its interest.”

However, even in the early days after flotation David recall that his days at PACE were still “just an exciting time”.

In 2016 PACE was taken over by the American company Arris, subsequently sold once more to CommScope who have also chosen to retain offices at Salts Mill and are apparently intrigued by the setting’s history.

Contribution to Saltaire Life

Throughout their time at Salts Mill, PACE directors developed very good relationships with Jonathan Silver and his brother, Robin Silver. Neither side had found it necessary to have formal written leases drawn up so when PACE was about to float the company on the stock market in 1996, lawyers had to get involved and draw up lease terms etc. Jonathan and PACE had been content with a handshake. PACE, Salts Estates, and the Silver family had developed a powerful symbiotic relationship.

The combination of Jonathan’s openness and enthusiasm, the local employment potential and reality of the worldwide awareness of PACE, its people and products and the opportunities provided to bring Salts once again to life, served to give weight to the direction desired by that combination and helped to deal with many of the frustrations created by the politics and sometimes very narrow outlook of officialdom.

PACE always described Pace Manufacturing (PMF) a ‘facility’ rather than a factory. This was partly because at the time, Rob was a member of a Government ‘White Paper’ committee, meeting at the Department of Trade and Industry in London and trying to convince the Government to adopt a different attitude to training and stop the attitude that “if you don’t do well you will finish up working in a factory”. PACE spent significant time, energy, and money on training at PMF and in association with Bradford College, who Rob convinced to run courses specifically for PACE staff.

With regard to access into Salts Mill, thankfully, Jonathan Silver negotiated some European funding to get the bridge improved, otherwise, it wouldn’t have been possible to site any significant manufacturing there. The Victoria Road end through the village is simply not accessible for modern articulated vehicles and both Salts and PACE were very keen to keep the

feel of Saltaire as a village. The objective was to make sure that all manufacturing activity was at the back of the Salts Mill complex and didn't damage Saltaire's aesthetic. Jonathan Silver was in the forefront of that approach.

Together, the contributions of the Silver family and the founding Directors of PACE Microtechnology Ltd. (later PLC) have made an enormous contribution to making Saltaire a desirable place to live, creating international interest in what is now a World Heritage site and in changing the local economy for the better.