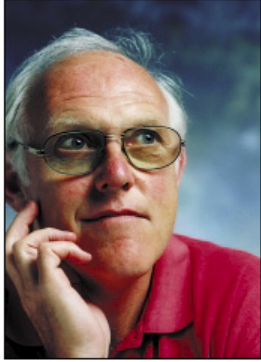


Sir Michael Brady. GCS and Mirada Ltd



American Lessons

With a Manchester B.Sc. and M.Sc. in mathematics, and a Ph D from Australia's National University, Mike Brady first worked at Essex University, then spent 1980 - 85 at MIT in Boston, an experience emphasising the importance of well-equipped labs. Somewhat resource-challenged in his Computer Vision lab at Essex, Mike was a 'kid in a candy store' at MIT.

At the prolifically-entrepreneurial MIT, Mike developed an aversion to start-up companies which splashed out lavish initial funding from venture capitalists on expensive offices and high salaries. Even if the founders achieved positive cash flow before the initial capital ran out, they often held virtually no equity.

Mike also explored the relationship between US industry and universities, MIT arranging regular meetings between him and business executives, to discuss common research issues. Unlike most UK academics, he became used to meeting business people, forging links and learning to communicate as entrepreneur, not academic.

Using those lessons

Moving to Oxford, Mike used MIT lessons. In Engineering, his ambitious project to build mobile robots, "just took off", while, "Every week, I drove to a company near Oxford, introduced myself, discovered their problems, looked for synergies and exchanged views." Warmly welcomed, Brady developed some half-dozen research projects, leading to continuing research links and funding. Research with a GEC subsidiary, led to two successful projects on robots. A third was forestalled: GEC sold the subsidiary.

Guidance Control Systems (GCS)

Brady had recognized an important niche in vision guidance systems and, with three GEC researchers, got GEC's permission to establish a company – Guidance Control Systems (GCS). Using MIT experience, Brady insisted GCS must remain small – initially with one contract - maintaining lorries that used GEC equipment. GCS now has about 40 employees, annual turnover around £7 million - about 75% from overseas - and in 2006 received a Queen's Award for export achievement. Now "growing rapidly", GCS's budgeted turnover for 2008 is £10 million.

Pattern Recognition for Cancer Diagnosis

Brady continues, "I became Oxford's Professor of Information Engineering in 1985; in 1993 BP endowed the chair, and we appended "BP". My mother-in-law had died from breast cancer in 1985 in 1989 with DPhil student Ralph Highnam. So I shifted my focus to computer-generated pattern recognition for mammography screening - one cancer researcher telling me he would give anything for a system that improved the diagnostic efficacy of imaging women's health."

Finding existing approaches 'scarcely serious science', in 1989 Brady persuaded DPhil student Ralph Highnam to model x-ray flows through the breast. Three years' effort, funded by a Research Council, produced a very high-quality image analysis framework that - 10 years later – provided a highly recognized way to analyze the complexity of mammographic images. Nevertheless, Brady says, "The first project was incomplete, and peer review found the approach 'not professional' and 'obviously wrong'. So we proposed totally different research, designed to leave half our time for mammography and, in 1999, we wrote the monograph Mammographic Image Analysis. We had carved out a niche and our new approach was 'kosher'".

"I had wanted to work on mammography myself from 1989, but unexpectedly became Head of Department until 1994, then turning down several offers to become Vice-Chancellor at a UK

university. So I dedicated myself to teaching, research and entrepreneurship. I also decided to quit robotics, which had rather stalled while I was Head of Department and to work 100% in mammography.

To exploit the new approach, they formed a company, OXIVA, with capital from "friends, fools and family" and fees from promised contract work. OXIVA was in business, but needed broader scope.

French Ventures and a Merger

Meanwhile, on earlier sabbatical leave in France, Brady had established another company – Oxford Medical Image Analysis, or OMIA – with a French scientist, Jacques Feldmar, later joined by two Ph.D students and a post-doc in Oxford. Working in fields like cardiac ultrasound, OMIA too needed to grow and the British venture capitalist Comvest spotted synergy, enabling OMIA and OXIVA to merge to form Mirada Solutions Ltd. Oxford University held 10% of its shares and company staff 60%.

Mirada

Ralph Highnam, Mirada's first CEO, was succeeded by 23 year-old Chris Behrenbruch - from the OMIA team. A Monash University graduate, Chris sought admission to Oxford to develop Mike's work on breast-cancer imaging. With immediate personal chemistry Mike, impressed by Chris's maturity and passion for healthcare, admitted him to work for a D Phil in medical image analysis. Many early innovations for Mirada came from Chris's doctoral work - or from Dr. Jerome Declerck, a postdoc in Mike's lab.

Fusion 7D – "Fusing" the Future

In December 2001, Mirada had a booth at the big annual conference of the RSNA (Radiological Society of North America) in Chicago, including demonstrations of "Fusion 7D", an image alignment and analysis software tool, which "took the place by storm". A single body image, especially of a breast, is rarely definitive: "You want to see the body actually working". Fusion 7D therefore did not simply superimpose several images, but presented different kinds of image in a single coherent framework (e.g. Magnetic Resonance Imaging- MRI, Computed Tomography – CT, and Positron Emission Tomography – PET).

Buoyed by this success, resource-constrained Mirada decided "to stop work on mammography.....pour almost all our efforts into Fusion" and focus on getting Fusion7D through the marketing clearance process of the US Food and Drug Administration (FDA). This is required of all medical devices and technologies where, to get approval, you must demonstrate that clinicians do no worse using the technology than without it.

In mid-2002, FDA clearance was granted and a contract soon came from Hitachi Medical (America) for licensing to augment existing business from GE, Varian and Elekta.

Strategic Alliances – and cash Problems

With 14 employees, mostly software engineers, Mirada had no redundancies but, in early 2002, cash flow was negative - about £50,000 a month. Despite presentations to financiers, no further finance was offered. So just before leaving for two-month's assignment in New Zealand, Mike's wife agitatedly persuaded a relative to lend Mirada enough for, perhaps, eight months. Comvest partly matched this.

With Mike back, in April 2002 Mirada's staff "worked like crazy" and, with both FDA software approval and a new contract with Hitachi due, began discussions with British and American pharmaceutical companies interested in imaging technologies. Ann Simon became finance director, bringing "a degree of professionalism" to Mirada's discussions with financiers, while sharing in urgent discussions among senior executives.

Pressed by Mike, the executives agreed to enter three strategic partnerships. 1) with R2 the Californian computer-aided diagnostic software company; 2) with at least one company like Hitachi; and 3) with the diagnostic pharmaceutical company – Amersham Health.

These moves looked promising but, in October 2002, Ann Simon revealed a new cash crisis “out of nowhere”. Mike acted rapidly, visiting the Woods, various people in Oxford University, his wife’s relative and the Mirada Executive Team, raising £750,000 in two days to extend Mirada’s life by about six months. The management team had to establish new partnerships quickly, to bolster revenues further, while also reconsidering Mirada’s overall strategy – including finding an exit strategy for investors.

CTI

Meeting in March 2003, Chris Behrenbruch, Mike Brady and R2 formally agreed a strategic relationship worth several million dollars. A strategic agreement was also reached with Amersham Health. But the big relationship was to be with CTI, later renamed CTI Molecular Imaging, in Knoxville, Tennessee..

CTI (then the largest US manufacturer of PET imaging systems) initially approached Mirada seeking a workstation for their clinical customers and for services related to their foothold in the US pharmaceutical industry. Following several meetings, rather than simply contract Mirada’s services CTI decided that Mirada’s business was very strategically relevant and made a bid to purchase Mirada.

Negotiations were remarkably relaxed. “They shook hands on a deal, stuck with it and Mirada was sold to CTI Molecular Imaging Corporation - for \$22 million,” says Mike, who saw CTI as “the perfect fit for Mirada: We do image analysis and they desperately needed workstations”. On software, pharmaceuticals etc “they needed our competence; we needed their muscle”. With 150 field sales people in the States, CTI soon bought 50 workstations from Mirada, worth \$1.5million.

Mike praises Oxford University. “From the Vice Chancellor and Registrar to the Finance Director, ISIS Innovation and the University’s Research Services, they have behaved impeccably. They have been absolutely terrific.”

The Future

Meanwhile, success having raised Mirada’s staff to around 90, it planned further increases. Mike predicted: “We have gone from being a small company to showing we can survive in a predominantly American market –even be bought. Within three years CTI will be bought too. Nature of the beast! ” And Mike was right. In 2005, Siemens Nuclear Medicine (part of Siemens Medical) acquired all of CTI for \$1 billion and Mirada became part of Siemens Molecular Imaging.

Meanwhile, in 2004, Mike received a knighthood for services to engineering, becoming Professor Sir Michael Brady. In 2005, Siemens/Mirada won the Best Innovation Award, sponsored by Oxford Instruments. And now Mike is involved with two more start-ups, Ixico and Dexela.