

Audrey, Lady Wood (Oxford Instruments, The Oxford Trust, Oxford Innovation)

Entrepreneurship

Audrey Wood says that she is an entrepreneur - but with Martin - in partnership. "We are complementary. I am better at the management/ financial side and he is good at the ideas side – looking ahead and so on. You must have ideas people who go off at tangents and Martin is one of them, but I have kept his feet on the ground. He is very good at motivating and enthusing people. I have seen him turn peoples' ideas round 180 degrees, just by argument."

When I question whether Martin really is an entrepreneur, having remained in academia for a decade after Oxford Instruments (OI) was set up in 1959, Audrey insists that he is, pointing out that the company had no full time employee until 1963. Although Martin continued in his university job, "in the company he was still doing the design and all the scientific work, talking to people – to potential customers – and going to conferences where company and university sides overlapped completely. If you work a 70 or 80 hour week, you can do a lot of things."

Early days

Audrey had never imagined, at school or university, that she would be an entrepreneur; most likely she would be a schoolteacher. Audrey married her first husband, Andrew Buxton, straight after Cambridge University. He was a biologist and they went to Uganda, where he was working with a Virus Research Institute. She had two children there, "and no time to do much else". Sadly, Andrew died of polio two and a half years later and Audrey came back to England.

Martin and the Clarendon

Unknown to Audrey, Martin had links with her family, and she knew his two brothers, out in Kenya, before she knew him. Audrey met Martin through her sister-in-law in Cambridge and later, in 1955, they married, and went to Oxford. Even before they set up Oxford Instruments in 1959, Audrey used to go to the Clarendon Lab to help Martin by taking readings for his experiments. "My education was two-thirds science and one-third English Literature. So I was interested in science, and read my 'homework' on magnets from the Clarendon." As for business, she feels that her education did help, "for its training in logical thought as much as anything – and for years I did much of the writing for the company".

Audrey continues: "Oxford Instruments really did spin off from the university work and, when it was set up, the university never specified how much of his time Martin could give to the company, just that he must continue in his tenured post. Of course, they overlapped. The university helped the company a lot in the early days. Later, the company helped the university. The Clarendon was anxious to monitor advances in superconductivity. It could not afford to pursue them deeply, but allowed Martin to test his inventions in the Lab, developing expertise for both parties."

So, following a seminal conference at MIT, where superconductors 'arrived' as a practical proposition, Martin designed his first magnet from the new materials. "It is still about and he loves it dearly," says Audrey. He tested it at the Clarendon and it really was "almost the new mousetrap". The cost of research in high magnetic fields had previously been exorbitant. "Martin's copper magnets had needed a minor power station and a minor water works to run them, whereas these things could be run on a car battery, though you needed liquid helium and that was the most difficult thing."

Audrey's role in Oxford Instruments

From 1959, Audrey was in effect company secretary, but her duties were light until 1961. They used the name Oxford Instruments to trade, but the company could not be incorporated until 1961 because an earlier company had used the same name. Indeed, until 1961, "the business was almost a hobby. Martin knew all the people who wanted our magnets, and a retired technician was willing to produce them, when needed." Audrey adds, "I looked after the books. Once

superconductors came along, the New Scientist published a piece about our first new magnet, people beat a path to our door and the job became much bigger."

Martin believes that Audrey "had finance, law and company administration in her blood", but the role included a lot of secretarial work, marketing and publicity - and logistics - as well. Audrey recalls that, "after we started selling superconducting magnets others in the university electronics department used to wire up power supplies at home for us. I used to order the pieces, sort out the kits and hand them out. It sounds slow going, but in those days business *was* slow going. In general, though, we were ahead of the world. Some big American companies dabbled in our field, through big research labs – firms like Westinghouse. It was a kind of holy grail for them, but they did not do much with it. It is a difficult technology."

It was also difficult commercially. "There was, even before we entered, a small American company which had taken a room near that 1961 MIT conference to display a magnet which they had been rushing to make before the conference began. They had an impressive list of all their prices for a range of superconducting magnets. Then one of their people came up, announced to those within earshot that the list was not correct – and put 'times two' beside the whole lot! Technologically and commercially no-one quite understood what was happening."

"The first formal management training activity in Oxford Instruments was an ICFC (now 3i) one-day course in 1967, though there were masses of books on management and, by that stage, there were about 20 of us. In the 1960s a lot of companies were set up without formal management training. Nowadays, at least the venture capital companies insist that they get someone to provide it."

Development and tensions in Oxford Instruments

Inside the small team, there were tensions. The third director, Frank Thornton, "who had come in as design and production manager, and became MD in 1965, went with Martin and me to the ICFC course." The Woods did not bother about distinctions. "That was a bit anomalous and Frank probably did not much like it, because Martin did quite a lot of the marketing and sales. I did publicity and various things like that as well as following, from a distance, what was happening with the finance. I think I am quite good at applying management by exception, and seeing if things are going wrong."

The growth of OI became rapid in the middle 1960s, with 25 staff soon squashed into the Middle Way stables and slaughterhouse. "Then, in 1965, we moved into Osney Mead and there the overheads certainly overtook us. Frank Thornton was not very strong on finance, and did not take to it much. I had to monitor all the figures, and he did not like me doing that, so I backed off quite a bit. But the company was too expansionist for its finances. Money ran out, and we eventually got 3i in as investors in 1967, - but their policy at that time was to stand back and let their investee companies get on with it"

"With that approach from 3i, by 1970 it had become absolute chaos, but if you look back at the sixties, a lot of small business was. For example, small companies did not file accounts on time. I used to go to Companies House about once a month to look for information about our competitors, and there was never a file up to date. The whole system was chaotic."

Martin and I went on a prolonged trip in 1969, which others may have felt we should not have done, but in retrospect this was probably good, because things came to a head and the abscess burst! While we were away 3i were supposed to be keeping an eye on the company and there were also two other outside directors, so we thought all would be fine. Then, there was a big bust-up in 1970, when Frank Thornton went off to form his own company. After a difficult six months when Martin and I went back in to run the company day to day, Barrie came in and cleared the decks really well. However traumatic it was at the time, Frank Thornton could not manage the rapidly-growing company adequately and it was just as well that he left."

Entrepreneurship and risk

Audrey insists that, "risk is an essential bit of entrepreneurship, as is confidence. And we were confident. After the MIT conference we certainly took a risk, but had we know how things would work out we would also have gone ahead. Copper laboratory magnets were what we were doing, though superconductors would be bigger. High magnetic fields were our market, and it was the obvious way the research market was going to go."

With Barrie Marson in control and things going very well the Woods were not so central. Then, in 1983, OI was floated and with more time, and with money raised from the floatation, they were able to develop a wider interest, as is explained in the case on Oxford Trust.

Taking advantage of this greater freedom Audrey has become the historian of the company. Her book **Magnetic Venture**, Audrey Wood, Oxford University Press, 2001, ISBN 0-19-924108-2 is a very detailed study of the company's growth.

Douglas Hague, November 2003.