Scanning through the Ages
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OnTrack must be running out of articles (a hint to you readers out there !), because Raymond has asked me to put together a few words about Autoscan Systems Pty. Ltd. Well, here goes :

The whole thing started in about 1979, and is almost entirely Prof. Andrew J. Gleadow's fault. He had the bright idea that there must be a better way for Fission Trackers than to sit in dimly lit rooms for weeks or months on end, counting tracks manually to the accompaniment of the music of those little hand-clickers, writing down the numbers on bits of paper that get picked up by other people and scribbled on, and going cross-eyed looking for mica-side tracks that aren't there because the detector lost contact with the grain mount. Can't imagine why anyone would not enjoy that to the max !

The first people to become involved were Dr. Peter Leigh-Jones and Dr. Leigh Fiddes, then working in the Department of Communication and Electronic Engineering at RMIT in Melbourne, Australia. These two bright lads had just given two papers at the IREECON (17th International Electronics Convention and Exhibition) in Sydney in 1979. These were called "A Microprocessor Controlled Precision Scanning System for Step and Repeat Exposure" and "A Computer Based Optical and Electron Beam Lithographic Facility". The equipment described, which was a scanning stage able to be driven over an area of 50 mm by 50 mm in steps of 0.5 micron, was designed around an M6800 microprocessor (hands up those who can remember those little beauties !) Peter and Leigh were certainly well qualified to put Andy's ideas into practice.

The initial systems built for fission track dating (both of which were installed at the University of Melbourne, one in 1981 and one in 1982) were designed around a modified stage of ample proportions supplied by Zeiss. Focus was achieved by means reminiscent of a screw-top jar, edge-driven by a stepper motor, and the electronics were a sight to behold. By the time of the third system (which went to South Korea in 1984), the stage was a custom-made model, and the electronics were wire-wrapped (the technology of promise at the time – whatever happened ?).

By the time system 6 was installed (again at the University of Melbourne, in 1984), Dr. Michael J. Smith had taken over the company, and had incorporated it officially as Autoscan Systems Pty. Ltd. This system was based on the first of the "only a mother could love it" AS1000 stages that were to be with us until 1993. Mike is a mechanical engineer, and designed and manufactured the first truly compact stage with integrated 3-axis motion, with the focus being independent of the microscope focus mechanism. That stage used dc motors for X and Y movement, but a stepper motor for focus. Any fission tracker who worked with that stage is able to give a good rendition of the slow, laboured grind of the focus stepper motor, but it did the job, and it did it well. Mike Smith was the first to represent Autoscan at a conference : the 4th International Fission Track Dating Workshop in Troy, NY, USA in 1984.

My first involvement with Autoscan was in 1986, when I represented Mike Smith at ICOG6 in Cambridge, UK. That was a memorable conference, and I have pleasant memories of passing under Newton's Bridge while punting on the Cam, and of the madrigals on the riverbank. I then spent a year working in the US, but acquired Autoscan Systems from Mike Smith when I returned in March 1988. By that time, Mike had sold nearly a dozen systems, and Autoscan was beginning to be a well-known name among fission trackers.

1988 was also the year of the 5th International Fission Track Dating Workshop in Besançon, France. Again, this was a most memorable meeting and those who attended will no doubt have pleasant memories of the visit to the saltworks and the hot-air balloon rides.

By the time of ICOG7 in Canberra, Australia in 1990, we already had 20 systems installed. We were lucky to be there at the time of the Floriade – another great experience. The 7th International Fission Track Dating Workshop was held in in Philadelphia, PA, USA in 1992. Again, more excitement - we got to see the actual porch (with Coke machine) that was the location of filming for "Witness", a film about the Amish starring Harrison Ford and Kelley McGuire. And now we know where Philly cheese comes from.

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In 1990, we successfully applied for a Federal Government R&D grant which allowed us to develop a new generation of stages, as well as software which incorporated image processing. These systems, which are able to detect, characterise and re-locate the tracks left by alpha particles in CR39, were in demand by the radiation protection community and other disciplines. As a result of this new market opening for us, we became involved in some serious trading which resulted in installations in 14 countries by 1997. These activities prevented us from attending ICOG8 in Berkeley in 1994, the 8th International Fission Track Dating Workshop in Ghent in 1996, or ICOG9 in Beijing, China in 1998. But we did make the effort to come back to the fold in February of 2000, when Fission Track 2000 (the 9th International Conference on Fission Track Dating and Thermochronology) took place in Lorne, Victoria, Australia. It was a wonderful experience to be able to catch up with familiar faces from long ago (although some were sadly missed). It also brought home to us again how lucky we are here in Australia, when it comes to our environment and places of natural beauty – it was with great pride that we joined the well-conducted conference tour along the Great Ocean Road and to the Twelve Apostles.

Over the years, we have had the odd bit of acknowledgment or two, such as receiving (among others) the coveted Qantas/Austrade Award for Export Excellence, being featured in major articles in various Australian Federal and State government publications, and getting our name in articles in overseas publications.

Well, where to from here ? Our systems have seen several total design overhauls and enhancements (stage and joystick hardware, software and electronics), and will no doubt see more. At of 2001, Autoscan has a consolidated presence in 20 countries across a broad range of scientific disciplines. The indications are that the technique of Fission Track Dating is not only well established, but on a growth curve and being recognised as a standard technique. After years of world-wide economic stagnation which have left their bitter mark on most areas of science (except the glamour areas of the International Space Station and the Human Genome Project), governments around the globe seem to be beginning to come to the realisation that without science and education, there is no future. In a world of instant gratification, the realities are beginning to dawn. Let us hope that this is the start of a new and lasting awareness, not a brief flicker of alertness followed by a relapse into deep sleep.

Our approach to our clients has been to encourage both positive and negative feedback, and to make appropriate changes to our product where necessary. From the feedback received, we know that the FTD community holds our company in high regard for the quality of its product and its after-sales service. The pricing of the product is the one element of our business which is sometimes questioned (as is the case with any product at any price). The reality is that whoever said : “You get what you pay for” was quite right. We attempt to provide the best possible solution to the challenges faced by our clients at the best possible end price. But a commercial organisation cannot endure by selling its products at a loss. Doing this means doing a disservice not only to itself, but to the market : better products can only be generated by viable companies. Our history of 22 years of service to the fission track dating community attests to the fact that we are in this for the long haul.

In closing, I would like to thank Dr. Raymond Jonkheere for the opportunity to tell our story, and to our team at Autoscan, which includes Ian Larsen (our General Manager), Garey Laken (Technical Director), and our large and dedicated team of staff, contractors, external consultants and suppliers too numerous to mention, for getting us to where we are and keeping us there. Without a skilled, experienced, and harmoniously operating crew a ship is just so much flotsam in the water. And finally but most importantly, special thanks go to you, the users of our systems, for supporting us over the years. Without the scientific guidance we have had from all quarters of the fission track community to date, we would not be where we are today.

Happy tracking, and best regards from

Mike Krochmal
Managing Director / CEO
and the crew at Autoscan Systems Pty. Ltd.