Little Lessons From History
by Bruce Taylor

In this series I have tried, as best my memory serves me, to recall and correctly describe the events of my TPF world as I experienced them. My experience, my interpretation and my memory are all fallible. Since I wrote nothing down in anything resembling a diary, I have had to try to correlate dates and events from often circumstantial evidence. My interpretation of cause and effect is a personal view. I have no intention of disputing the claims of others with respect to what really happened, or why things are the way they are, or who did what and when. Fortunately, neither intelligence nor knowledge nor insight are the exclusive property of any one person.

In addition, I worked in and was absorbed by the airline world's usage of TPF and I still live with the illusion that the airlines and their progeny, the GDS's, always were and always will be the driving force governing and ensuring TPF's continued existence. If I do inadequate justice to the contribution of other industry sectors to the survival of TPF, then please accept my apologies, but do not ask me to change my opinion.

Finally, I am writing this series as a private individual, not in my capacity as Managing Director of Datalex Netherlands BV, and nothing said represents a position or statement or opinion of any part of Datalex.

CHAPTER 1: In the beginning

Once upon a time in the East (actually 1968 in London, to be precise) I started work as a trainee systems engineer in IBM UK. Fresh out of university, having completed an M.Sc. in Theoretical Physics at the University of NSW in Sydney, I found my way to London via a tramp steamer to Nakhodka and then Trans-Siberian Express (what a misnomer in those days) to Leningrad. I had found Europe and my roots, but after 4 months of criss-crossing it, I had run out of money. Hence, nothing else to do but work and why not computers? Computers were new and trendy and it looked like IBM was going to conquer the world with this new System/360 range.

After basic IBM training and indoctrination, I spent 6 years working as a Systems Engineer for IBM on Air Traffic Control (ATC) systems. It was great fun and I was in blissful ignorance of the existence of TPF (or ACP as it was then called). In 1968 I was not aware that a big team of people from Aer Lingus, Alitalia, BA, IBM, KLM and Swissair were slaving away at Heathrow building IPARS from the Eastern-based PARS, which had cutover in Miami earlier in that year. Eastern-based PARS was the first really successful Programmed Airline Reservations System and is the ancestor of the whole TPF Family, to whom we should pay homage. Its progeny survived and IBM prospered (until Bill Gates came along); Eastern Airlines did not.

However, the ATC world is populated by specialised real-time operating systems even more deviant, esoteric and with less users than the TPF world ever was or will be. I was involved with the two of them that ran on IBM System/360 hardware: RTSX (Real Time System eXecutive) and the 9020 Monitor. RTSX was built for Eurocontrol, the European counterpart of the US FAA, at IBM's laboratory in Hursley, UK, based on a prototype which had come from some NASA project with IBM in the US. It piggybacked on the standard IBM operating system of the time, MFT for those of you with long memories (became MVT, then MVS, then OS/390). To get RTSX in the air, one first started the machine with MFT and then, when everything was set up, started the RTSX job which promptly kicked MFT out of the system and took over. Only two of these systems were ever installed: one in Maastricht in the south of The Netherlands (how I came to acquire a Dutch wife and a Dutch connection, resulting in my now having lived longer in The Netherlands than anywhere else) and one in Karlsruhe in Germany. The 9020 system was what the FAA used for all enroute ATC in the US; 20 centres spread around the country ran it from the early 1970's. It was a really interesting machine and architecturally way ahead of its time: it was a tightly-coupled multi-processor consisting of a mix of System/360 models 65 and 50 all RPQ'd together. One

could have up to 4 model 65's as main applications processors and up to 3 model 50's as I/O processors; they were all linked together on a bus with one contiguous shared main memory (core!) up to an incredible size: 4MB. Multi-processing did not come to TPF till a decade later. The reason for the I/O processors was not the DASD, since all programs and data were held in 'core' and disks were only for IPL'ing, checkpointing and backup. The I/O processors were for handling the radar data. In those days aircraft did not have transponders, so processing the enormous streams of time-critical radar data to locate and identify individual aircraft was the biggest intellectual challenge in the software and in the operating system design. I spent a year on the 9020 Monitor in Atlantic City, New Jersey where all the software development took place, because the CAA (the UK version of the FAA) had decided to buy a copy of the system for installation in London. It was only after 10 years of working in TPF that my understanding of multi-processing issues became relevant to my work again.

Hence, I had a good schooling in how operating systems worked and how the IBM System/360 hardware functioned in conjunction with an operating system. Therefore, when the CAA 9020 system was installed and operational in London, IBM decided that ATC work was over for me and put me on a 3 week TPF Systems course. This was in early 1974 and I felt completely at home in TPF and revelled in the technical detail. IBM, in its wisdom (few questioned IBM's word in those days, especially not employees), had decided that I was to spearhead the IBM team being assembled to go in and 'rescue' BA after a disastrous cutover from ACP4 to ACP8. The BA system was working, but was suffering from severe instability and it was too late to fallback to the previous system. In those days TPF was free, so IBM thought you should not really complain about the quality of the system. Nevertheless, BA did and BA was government owned and had real clout in the UK, so IBM UK had to roll in the troops to save face. Eight of us were destined to go in: five had just completed the course, two had prior experience supporting BA and one did not have a clue, but we had to make up the numbers so he did the admin, poor fellow. There we were at the entrance to

TBC at Heathrow; 8 cocky young IBM'ers full of self-confidence come to show BA the way to the Promised Land. What a humiliating experience that was; the BA people ran rings around us. What we, and our equally cocky IBM bosses, thought would be done in 3 months actually took the best part of a year.

Nevertheless, this BA adventure launched me into the TPF world and I have never regretted it for a moment since. The only thing I do regret from the BA year was that in all the many times we played, I never succeeded in beating Di Smith at squash.

Bruce Taylor – MD
Datalex BV – Amsterdam, November 2000

COMING IN MARCH

<u>Little Lessons From History Chapter 2</u>

If you enjoyed the first installment of Bruce Taylor's techno-auto-biography, then you won't want to miss the next chapter "Once I Had a BMW".

You are cordially invited to join us in our March/April issue, as we see what happens when Bruce leaves IBM in 1975, and makes the move to KLM.