A Tribute to the late Colin Tully 1936-2007[1]

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Colin Tully who played an important part in the success of the LEO III range died on December 27th 2007. His career in computing stretched from 1960 when he joined LEO Computers as a trainee programmer after graduating from Cambridge University in Economics, till the day he died. His was in many ways the model of a professional career in computing, embracing as it did systems and application programming, systems design, academic studies in computing in which he shone both in teaching and research, and consultancy. In all he demonstrated that it possible to achieve the highest standards by the meticulous application of his intelligence and at the same time be admired for his human touch and his realisation of the importance of the social dimension. His understanding of computers and their role in in business was honed in the 6 years he spend with LEO and that understanding was reflected in the contribution he he made to computing in his subsequent career. Colin repeatedly acknowledged the debt he owed to, and what he learned working as part of the LEO team.

Only a short time after completing his training and briefly working on business applications he was selected to join Adrian Rymell and Nigel Dolby early in 1961 to do the detailed design, coding, testing and implementation of the LEO III operating system, the Master Routine the original design of which had been outlined by John Gosden. Adrian Rymell who was the team leader remembers:

This operating system, providing for multilevel multiprogramming and associated facilities was essential to the LEO III concept of a business computer.

The system was demonstrated successfully to the UK Treasury Technical Support Unit in January 1962. The Unit was at that time charged with ensuring that computers purchased by Government Departments met their specified performance parameters. The Master Routine was fully implemented for live running on the LEO III bureau machine in September 1962.

The project was challenging in that it was truly pioneering and crucial to the success of the LEO III. In this situation Colin's calm, analytical and reasoning approach, together with his meticulous attention to detail provided a vital ingredient to the success of the team. This was further added to by his enthusiasm and intellectual excitement which was infectious. The bond created between the three of us is reflected in that up to the end of his life we arranged to meet for reunions at least every two years

Nigel Dolby adds:

My memory of working with him is of a probing and challenging intelligence. He was fairly intolerant of bad ideas or poor logic, and quite prepared to say so, but in a

[1] This tribute is based on an article "Land, F. (2008), Appreciation of Professor Colin Tully 1936-2007" to be published in the Computer Journal

genuinely friendly way. His code was elegant and beautifully structured, although he coded slowly and I ended up doing most of the testing. But I learned a great deal about code structure which has stood me in good stead since. He was much the same just before he died, sending me a list of URLs after the comment "Hmmm" when I claimed the name "Nigel Dolby" was unique.

The performance of that tiny team is truly one of the heroic pieces of development work in the history of computing. The Master Routine provided multiprogramming as early as anyone on a comparable machine, together with full input/output and operator facilities and much else – capabilities which substantially matched those of IBM's OS 360, but two years earlier and at a fraction of the number of man tears devoted by IBM to the project. The multiprogramming capabilities of the LEO III were essential in procuring an order from the Customs and Excise Department and true to what was becoming a part of the LEO tradition Colin was seconded to be team leader of the programming team which delivered a suite of programmes for the publication of national trade statistics.

LEO Computers lost their independence in 1963 when the Lyons subsidiary was absorbed into the English Electric Group and merged with the English Electric computer interests. The newly formed joint company established a City Office to be managed by Ralph Land from the LEO side of the merger. In the light of his record of success to date Colin was appointed Chief Programmer of the new Office. Ralph Land too has memories of the contribution Colin made to the venture..

Colin joined my team responsible for marketing ICL equipment to the City of London shortly after the merger of English Electric and LEO around 1963. At the time the team consisted of English Electric staff with a significant record in the city, having sold to two major Banks (Midland Bank and BOLSA) and one major Insurance company (Sun Life) whereas LEO staff had had little prior success in the city, although bureau work for stockbrokers had given them some insight into city practices. Merging the different approaches of the two teams posed a number of problems. Colin, as an intellectual with a superb understanding of the possibilities of data processing, quickly established the LEO approach of consultancy and professionalism seeking to understand the real requirements of the potential customers, earning the respect of all.

In 1966 he left what had become English Electric Leo Marconi to take up a number of positions in IT consultancy with first CEIR and then Touche-Ross gaining wide and varied experience in training and consultancy. This was followed by a one year appointment as Research Fellow in Management at the London School of Economics, funded by Rolls-Royce. That taste of academic life led him to seek a University job and he joined York University as a Lecturer in Computing in 1974.

Colin's overriding interests had been in software practice and in passing on his skills and knowledge as a trainer and consultant. University research gave him the opportunity to analyse more closely what he and others had been practicing. At that time the dominant notion in academic Computer Science was that improvements in software quality could only be achieved by more rigorous application of engineering principles rooted in mathematical formalisms. Colin shared these notions but recognised from his own experience that the formalisms whilst important were not sufficient.

Professor Ian Wand his colleague at York University has this to say:

I have known Colin since 1974 when he came to York to join Ian Pyle, the new Professor, Bill Freeman, John Willmott and myself as a lecturer in Computation as we called it in those early days. Unlike many academics we worked with, Colin had experience in the 'real world' and had been a computing pioneer (with Leo). He brought breadth, experience, enormous common sense, and above all, an infectious enthusiasm to our expanding group. And, unlike the rest of us who saw Computer Science as a subject like Physics or Mathematics where everything had a precise explanation, he saw the subject as having a crucial human and organisational component. I remember that we had endless arguments about it: most of us disagreed with Colin's view and spent time, perhaps too much time, trying to tell him that he was wrong. But, of course, time has proved him right. Now the 'hard' technology is comparatively easy, but the human aspects are more difficult and less tractable than ever. Colin deserves enormous credit for pursuing a then unpopular and unfashionable line. Time has proved him right.

Colin took a key part in designing the new single-subject course that we launched in 1978. Bill, Colin and I designed the curriculum in our lounge drinking bottles of Benedictine that I had brought back from the Brussels airport duty free shop! The course was launched on a 'wing and a prayer' with insufficient resources, but once started it blossomed. Colin must take much of the credit for its early success - in part this was due to his infectious optimism and confidence in what we could do and how we should do it.

The Department then grew at a very considerable pace and was almost unrecognisable as the Department he joined when Colin left to return to industry in the late 80s. His contribution to the department was outstanding: his vision shaped our courses, our methods, our style - everything we did and how we did it. In retrospect we missed him enormously after he left. We became more bureaucratic, more formal and it was less fun. Perhaps that was the result of expansion and success, but life was certainly less 'jolly'.

But there was far more to Colin than the successful and visionary colleague: in particular he was a good friend whom one could talk to when there were problems and difficulties. I found his advice as a new and 'green' Head of Department in 1983 enormously helpful. He always offered clear & precise, human and optimistic advice. Furthermore he brought a broad and extremely well-read and literate background to any discussion. He even played in the Departmental cricket team - and I can still remember his quite amazing bowling action!!!

As part of his work at York University, Colin became heavily involved in a number of collaborative Alvey projects concerned with the definition of software environments, including the conceptual basis for a software factory. After 12 years he left the University to return to first industry with Standard Telephone and Cables, and then to establish his own consultancy specialising in software process and software quality. In 1995 he helped to found the Journal of Software Process Improvement and Practice published by Wiley of which he became chair of the Editorial Board. By this time he had become attracted by the ideas behind the Carnegie Mellon development of the Software Capability Maturity Model and did much to spread that idea amongst practitioners as well as working on more collaborative projects under the European

Commission's ESPRIT and ESSIEN programmes. His work with European collaborators and his involvement with the World Congress on Software Quality enhanced his international reputation. Professors Taz Daughtery, James Madison University in Virginia, an executive director of the World Congress, and Patricia McQuaid of California Polytechnic State University, came to know him well and have written the following tributes.

Taz Daughterey writes:

Please include in any tribute to Colin that he was a key contributor to, and Associate Director of, the World Congress for Software Quality, whose next conference is to be held in September 2008, in the Washington, D.C. area. Specifically, Colin had the idea of soliciting "thought leaders" to agree on a statement of software quality principles, which discussions took place throughout mid-2007 and were offered in a panel session/workshop this past October at the International Conference for Software Quality in Denver. He also suggested we formulate "world challenges" that could form the basis for a concerted research and development effort between the 2008 and 2011 Congresses. Such ongoing work will surely be a tribute to Colin's insights.

To this Patricia McQuaid adds this more personal note:

Colin was above all, a true gentleman, a man with a keen sense of humour. He was a man you knew you could count on when he gave his word - on anything. I've known Colin for approximately 10 years, and travelled with him locally while at conferences in Europe. He was a joy to see at conferences, and I always looked forward to seeing him. He was always so funny, and constantly made me laugh. Even across the continents, with one or two words, he had me laughing while reading an otherwise boring email.

He has been a key colleague in many conferences over the years and was a large part of the next World Congress on Software Quality, that will be held in the Washington, DC area this coming September. We plan to honor him at that conference.

In 2001 Colin returned to academia as Professor of Software Practice at Middlesex University where he worked until his retirement and subsequent conferment of the title of Emeritus Professor. Always enthusiastic about his work he had postponed his retirement until he was 70 retiring in October 2006. His colleague Professor Darren Dalcher sums up his impression of Colin as follows:

Colin was one of the first computer scientists to appreciate the value of Capability Maturity Models and fully embraced the concept by dedicating a huge proportion of his time to their adoption in Europe and beyond. He quickly became the leading European fount of all knowledge related to capability, maturity and process improvement. In an effort to create an international process improvement community he launched the Wiley journal Software Process Improvement and Practice, which is still going strong after twelve years.

We joined Middlesex University together in early 2001 to establish a new research centre focusing on software forensics, a discipline dedicated to the studying and sharing of lessons from IT project failures. Our vision was that the identification of systemic failures and their root causes would facilitate improvement in software practice. Colin was thus able to link his interest in capability and maturity with the study of organisational and political impacts of projects. With his appointment as a Professor of Software Practice he continued to develop his unique empirical stance which focused on the real needs to practitioners.

In the autumn of 2001 Colin accepted the position of Director of Research for the School of Computing Science. He went about his new job with a typical burst of enthusiasm. Once he achieved his first self-imposed target of tripling the number of PhD students, he continued to grow the research community in the school. He worked tirelessly to develop a research ethos and to support the needs of researchers in the ever-demanding environment of the modern university.

Colin took pleasure in seeing researchers, colleagues and students grow and develop. He always had time for discussions and seemed to have reserves of boundless energy needed to support and motivate a large group of colleagues.

Colin Tully could often be spotted on the conference scene. A tall figure: He always looked forward to a controversial discussion and hence arrived early and occupied a front seat. His keen intelligence, quick grasp for detail, and ability to ask the most penetrating of questions meant that he would inevitably be party to any dialogue that emerged in the room. However, as soon as the formal discussion was over, he could be seen at the front of the room with the speakers offering support, encouragement and further ideas for enhancing their work. His circle of friends and colleagues was therefore always growing.

Never one to delimit his system by an artificial boundary, he was open to new ideas and influences. Colin was particularly keen on importing working concepts from other disciplines and sharing knowledge. His fascination with the empirical and his own vast experience in the professional realm meant that he kept a foot in both the academic and the practitioner worlds forever striving to integrate the two.

Colin continued to occupy a front seat in research discussions: Now they were all his students. He made sure he was intimately involved in every presentation supporting the speakers before, during and after. He would often volunteer to read and comment on drafts as he sought to make a real difference to students. Enquiries from students from other universities received similar treatment and care as Colin was truly interested in sharing knowledge.

In 2007 Colin retired from the University and took up an emeritus professorship position. The next day he was back in the office working with his PhD students. His dedication, commitment and passion would not allow him to be any other way.

Colin was the scientific father of countless students (and colleagues, including myself). He guided many through their first difficult steps and was delighted to see them walk without help. I am proud to have worked with him and to have learned so much in the process. Colin, we will all miss you!

Naturally Colin did not take his retirement as a signal to stop working. His interest in the nature of the software process and the problems of systems failure did not diminish. He took a particular interest in the UK's massive programme for the implementation of modern computer systems into the National Health Service – the National Programme for Information Technology (NPfIT). He was one of the 23 senior academics who wrote a letter warning about the risks posed by the way the programme had been designed and was being implemented and which asked for an urgent review of the programme. Professor Brian Randell writes:

In April 2006 Colin was one of the signatories to an open letter, from a group of twenty-three professors, to the Parliamentary Select Committee on Health expressing concerns regarding the NHS's plans for an England-wide IT system, the "National Programme for IT" (NPfIT), containing the statement: "As computer scientists, engineers and informaticians, we question the wisdom of continuing NPfIT without an independent assessment of its basic technical viability." This letter received a great deal of publicity, and led to an immediate invitation from the then Director of the Programme to a meeting to discuss these concerns. These discussions resulted in the Director going on record as agreeing that a constructive and pragmatic independent review of the programme could be valuable. Colin was one of the seven representatives of NHS23 who participated in this meeting, and from then on played a key role in the unfortunately still-continuing efforts of the group to persuade the Government to commission such an independent review. Drawing on his extensive experience and researches related to the development and acquisition of large software projects Colin took part in numerous technical meetings about NPfIT, and was one of the main contributors to NHS23's large online dossier of concerns about the Programme. It is a matter of great regret that the great amount of energy and time that he contributed to this effort has yet to have the desired beneficial effect on the NHS's plans.

As recently as the summer of 2007 he proposed a research project to be led by himself to examine, collate and summarise what had been discovered about systems and software failure by previous researchers and to attempt to apply that knowledge to NPfIT. He was ideally placed to lead such a project. His death intervened in what could have been an important project.

Allthough Colin left LEO as long ago as 1966 he always retained his affection and interest in LEO and its people. He was at his death a valued trustee of the LEO Foundation. He played an important part in the evolution of LEO in his role as a systems programmer, systems analyst and manager, but equally LEO had helped to shape his understanding of how computers fitted into organisations and most importantly what was needed for them to be effective – a lesson which still has to be more widely appreciated.

As the many tributes received demonstrate, whilst we mourn his passing, we celebrate Colin's contribution to the practice and study of computing, and information systems, and admire him as a friend and colleague.