The Tony Kent
Strix
Award

2017

The Tony Kent Strix Award was inaugurated
in 1998
by
The Institute of Information Scientists

It is now presented by UKeiG -
the UK eInformation Group
in partnership with
the International Society for Knowledge
Organisation UK Chapter (ISKO UK), the
British Computer Society Information Retrieval
Specialist Group (BCS IRSG) and the Royal
Society of Chemistry Chemical Information and
Computer Applications Group (RSC CICAG)

The Award is given in recognition
of
Outstanding
Practical Innovation
or
Achievement in the Field
of
Information Retrieval

Foreword

Tony Kent was not only a rotund jovial man, but a man of many parts; a leader, an innovator, a teacher and someone highly active in the international information scene. He made a major contribution to the development of information science and to information services in the UK and internationally, particularly in the field of chemistry.

After his death in October 1997, a group of us met for lunch and each spoke of what he knew of Tony's life and work. From each speaker's recollections came new revelations to each of us of the breadth of his work and the influence he had exerted in the information field. Out of this new appreciation of the achievement of this modest man grew the idea of an Award to commemorate him and his work.

A proposal for the Strix Award was submitted to the Council of the Institute of Information Scientists (IIS) (of which Tony had been a Fellow) for the setting up of an annual Award in recognition of an outstanding practical innovation or achievement in the field of information retrieval. These achievements could take the form of an application or service, or an overall appreciation of past achievements from which significant advances had emanated. The Council approved this proposal, and agreed that the Award should be presented after the Institute's Annual General Meeting in September each year.

The initial luncheon group then became the Working Group to turn this into reality.

In addition to the tribute accorded by the IIS in the form of the Award, Doug Veal, as Chairman of The Royal Society of Chemistry's Chemical Information Group, organised on March 11th 1998 a special half-day seminar in memory of Dr Tony Kent. The meeting afforded an opportunity to step back from today's hectic pace of on-going developments in the

information field and look at earlier developments which paved the way for many of the information systems as we know them today.

Four speakers traced firstly the background environment in which Tony worked; then his contributions in his early days at the Chemical Society; his software development phase and finally the philosophy that guided him in his developments. It is these contributions that form the backbone of this booklet. As news of the proposed Award spread, additional tributes were received from as far afield as the United States and New Zealand. These additional tributes have been included.

The Working Group would like to thank the many that have either contributed with donations to the Award or have written in their appreciation. Particular thanks go to Val Metanomski of the American Chemical Society for his unstinting help in coordinating American contributions and especially for preparing a special tribute that dealt with Tony's impact on the American scene – much of which was not widely known in the UK.

In compiling this Tribute Booklet, the Working Group has been happy to act as recorders to the contributions that Dr Tony Kent accomplished in his lifetime.

Derek Barlow MIIS
Alan Gilchrist Hon FIIS
Doug Veal Hon FIIS
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A
Tribute
to
Tony Kent

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Early Days

Section 1 – Early days

The Chemical Society
by
Doug Veal

I am going to talk about various aspects of Tony's contributions to information science, and particularly to chemical information with the work he did for The Chemical Society.

As most of you know, he actually got into this area by accident. His chosen career was as a zoologist, specifically an ornithologist, and this was an interest that he maintained throughout his life. Having graduated in zoology, he got a lectureship at Nottingham University, lecturing in zoology and doing research on the nesting habits of birds, seemingly without a care in the world. But for recording the nesting habits of birds, he needed to use words as well as numbers and when he tried to analyse the results, he found it wasn't that easy. He thought "computers should be able to do this for me" but found they couldn't (because although they were good with numbers, text processing on computers was still very primitive). So, in typical Tony fashion, if there wasn't a way of doing it, he thought he would create one. So he taught himself a bit of programming, wrote a piece of software to do text processing on the computer, and thereby became an instant "expert" in this relatively new field.

Our story now needs to move across the Atlantic. The major secondary information source in chemistry has been for many years the Chemical Abstracts Service (CAS), based in Columbus, Ohio. This helps the chemist to cope with the flood of new papers published in chemistry – more than 10,000 a week – by publishing abstracts in *Chemical Abstracts*. This

meant publishing quite a thick book each week, and was a major undertaking. And so in the late 1950s/early 1960s CAS began to computerise their operation, just to help them keep up with the speed at which things were moving. One consequence of this was that the contents of *Chemical Abstracts* became available in machine readable form. People then realised that this could help them keep up with their interests. Instead of having to plough through all the hard copy abstracts, albeit organised in sections, they could get the computer to search. If they could specify their interest as a search profile, they could have each weekly tape searched and then receive just the abstracts of interest to them. This seemed a good idea, so CAS went ahead and began experimenting with so-called computerised SDI – Selective Dissemination of Information.

CAS is part of the American Chemical Society. There was a long history of collaboration between the American and British Chemical Societies, and The Chemical Society felt these new developments were interesting and they wanted to be part of the action. They decided the first thing they would do, would be to send someone over to Columbus for a year to see what was going on. At that time, 1966, there were three Assistant Editors working for The Chemical Society in London. It so happened that neither of the other two particularly wanted to go, so I was asked if I wanted to go and I said "Yes." So off I went to Columbus.

Meanwhile The Chemical Society was trying to find a home for the small research unit which it was setting up to experiment with SDI services. The Society wanted it to be at a University, and wanted one with an active Chemistry department to provide a ready-made user population, and one that had a computer with some free time on it so that we could use it for running the searches. At that time, the Vice-Chancellor of Nottingham University was the late Lord Dainton, himself a very eminent chemist. He said "Come to Nottingham and I will create a favourable climate." Well,

Vice-Chancellors are usually pretty good at creating favourable climates, so Nottingham was chosen. A small Advisory Group was set up to oversee the research unit, under the chairmanship of Malcolm Dyson. One or two other eminent chemists were appointed to the Group, and then Dainton said "Oh. We've got this chap Kent who knows about searching tapes and things. Let's have him on it." So Tony was invited to join the Group. Then they realised they needed someone to actually run the unit so very soon, to his surprise, Tony got another phone call from Dainton asking him if he would run it. With his growing affinity for computers, and his love of a challenge, he accepted, although I'm sure that he had no idea of what he was getting into.

Information on all these developments was relayed to me in Columbus so that I knew that when I came back, I would be part of this group based at Nottingham, working for someone called Tony Kent. Towards the end of my stay, the ACS had one of their big annual conventions in the Hilton Hotel in New York. I went, and Tony came over from England and so we actually first met in New York. I remember that for two reasons. First, that I met Tony. Somehow he managed to spot me in this huge convention and came over and said "Hello. I'm Tony Kent. I understand that you are going to come and work for me." Secondly, staying at the hotel at the same time were the Rolling Stones. So this huge hotel was swarming with this curious mixture of academic scientists and pop fans. If you happened to have an English accent you were liable to be mobbed. I remember one morning coming down in the lift with Tony and a couple of the Rolling Stones. When we got to the lobby, it was packed with screaming young girls and Tony and I instantly lost our English accents, otherwise we feared that we would have been deprived of our underwear!

So I came back to Nottingham. Meanwhile the unit had been set up, under the eminently forgettable title of The Chemical Society Research Unit in Information Dissemination and

Retrieval (CSRUIDR) to run searches on the CAS tapes. The intention was to collect user feedback and evaluate the results. We ran the searches on the University computer and sent out the results on punched cards with a tear-off tag on which the output could be marked "Highly relevant", "Some relevance" and so on. When I came back, Tony showed me to my office. He said that they had already started running the searches but it was now my job to take over the experiment. He opened the door of the office and there was the desk, the chair and the floor, all about two feet deep in the relevance tags. I wondered what on earth I had let myself in for.

Anyway we ran the experiment and it was successful – people seemed to like the output. This was the time when Tony began to show his visionary qualities. He was always thinking big, he was always thinking ahead and he was always thinking "What next ?" The Research Unit was funded by the British Library R&D Dept. (actually OSTI – the Office for Scientific and Technical Information at the time) and while the service was fine as far as it went, Tony was busy thinking about what could come after it. The thought was that, if the service was valuable, people should be prepared to pay for it. This meant beginning to behave more like a commercial organisation. Because none of the people then involved had any commercial experience, a Director from industry was appointed to bring some commercial know-how and acumen into the organisation. This was a man called Bill Batten from ICI (long before the Zeneca days).

So we began to plan our move towards a commercial operation, and there we hit a problem. The BL funded "research", but as soon as people began to pay for the service then it wasn't considered to be research any more. Bill Batten once said, a bit unfairly I thought, that the BL only funded things which were of no use – as soon as they showed signs of being actually useful to anybody, the money dried up.

However, another of Tony's characteristics was persuasiveness and somehow he managed to get together a package of funding which allowed us to move, first to a cost-recovery basis and then to a full commercial operation – the UK Chemical Information Service (UKCIS – which we never knew how to pronounce). Several important consequences flowed from this. Once we were a paying commercial operation, it was no longer thought appropriate for us to be part of the University. So we became, or in my case, returned to being a part of The Chemical Society. Equally, it was considered increasingly inappropriate for us to continue using the University computer. Again, Tony was one step ahead of the game and realised that we had to have our own computer. Once again by dint of Tony's persuasiveness and persistence, money somehow appeared and we bought an ICL System 4 computer.

Tony, with a bit of help from some very able colleagues, it has to be said, wrote a complete new inverted file search software for this, called INFIRS, to process the CAS tapes. That opened up enormous opportunities, which Tony seized with both hands. By now, The Chemical Society had merged with the Royal Institute of Chemistry to become the Royal Society of Chemistry – the RSC. We got much more involved in the operations of the RSC and began to help with its administration, warehousing and distribution at Letchworth, and began to work with the primary publishing activities – books and journals. We also began to search other databases – Medline, Biological Abstracts, the Zoological Record, and others. We began to write other software suites to carry out some of these activities. There were people already in the RSC involved in similar kinds of secondary information services – notably Analytical Abstracts – and they moved up and joined us in Nottingham. We began to gear up to provide some of the input to Chemical Abstracts through our own abstracting and

indexing team under Martin Robiette. It was very exciting and a period of huge expansion.

There was a lot of overseas contact, not only with the Americans but also with the French, the Germans and with various international bodies. Tony was in his element in all of this. He was a high-profile person, and when he spoke at international meetings, he spoke with enthusiasm, persuasion, vision and yet practicality. People recognised his qualities and he seemed naturally to step into the role of leader. He would say "Let's go this way," and people would follow. He set up EUSIDIC – a European body for scientific information which is still thriving – and did a tremendous amount for the profile and status of this country and of the RSC.

I suppose that every period of excitement and expansion has to come to an end and so it is not surprising that we began to run into one or two problems. We had grown to well over a 100 people, and Tony (who by now was himself a Director) had two Assistant Directors. I looked after the scientific and information activities and the other, Clive Williamson, looked after the computer and systems side. It also meant that we were by now one of the major cost centres in the RSC. So when the RSC ran into some financial hard times, we had to take a major share of the cuts. We went through a phase of retrenchment and cutting back which was difficult and painful. But we survived.

We got back onto a growth path. By then Mrs Thatcher was in power and privatisation was the name of the game. We took over the Mass Spectrometry Data Centre from the Department of Industry. One of the key developments at this stage was that we pursued our relations with the American Chemical Society and, in 1975, signed an agreement under which we became the marketing agents for CAS in the UK. We made a number of improvements, for example, shipping the hard copy air mail in bulk and then distributing it to subscribers, which was

significantly quicker than the previous surface mail. We built up the input to Chemical Abstracts and things were looking quite good again.

We had established ourselves very firmly as a major part of the RSC – the Secondary Services. The close ties between this, the Library and the primary publishing activities had been recognised by bringing them all together as the RSC Information Services and Tony had been appointed overall Director. This meant that he was now in charge of well over 300 people and carried a significant administrative responsibility. The somewhat cavalier attitude he had hitherto shown to such tasks as budgeting was definitely not *de rigeur*.

We had worked very closely with the CAS people, particularly the Associate Director, Fred Tate. The RSC and ACS Honorary Officers had also worked well together. But the people changed, Fred Tate died rather suddenly, the personal chemistry between some of the key players didn't seem to be quite so good, and so there was a bit of a downturn in the relationship. I had by now (1980) got to early middle age and, recognising the very real difficulties we faced in our relationship with our American colleagues, I decided to make a career move. I saw an opportunity in another organisation, Wellcome, which I took. Quite by coincidence, it turned out that Tony had also got a bit disillusioned with the way things were going, and didn't want to do what he was doing for the rest of his life. In particular, he didn't want to be a people manager. He was very good with individual people – encouraging, motivating, teaching – but the administrative burden of managing large numbers of people was definitely not his thing. So he decided to move at the same time.

And so it happened that, at about the same time, we both left and went our different ways. That brought to an end a period of 13 years, which I have summarised briefly. And what super exciting years they were. A little research unit of just 4 people

grew to become a major part of the RSC with over 300 people altogether. We set up a service that continues today providing not only income to the RSC but a beneficial service to the chemists of this country. We left a legacy of various international organisations that we helped to set up and to make progress. I wouldn't say that all of this was entirely due to Tony, because he had some very able people around him who helped, but I am absolutely sure that it would not have happened without him.

He was a man who saw the big picture; he didn't bother with details. I know that to my cost. He would draw a big picture and leave me to fill in the detail and very often I would find that the devil was in the detail. But you need the visionaries to see the way ahead, to drive things through and make them happen. He was a 'can do' man; if he hit a snag, he would find a way round. He was a tremendous enthusiast, he spoke to people, motivated them, encouraged them and got them to do what he wanted and so got the best out of them.

So that was the end of 13 years. I mentioned that we began with research funding from OSTI and the British Library and it was this research area and his love of hands-on programming that he went back to.

Section 1 - Early days

Tony's
United States
Contributions
by
Val Metanomski

*Abridged from a tribute appearing
in the Fall 1998 issue of the Chemical Information Bulletin* [1]

Tony's far-sighted vision and influence extended well beyond the UK. He frequently visited the US and had many friends and co-workers among the American chemical information scientists.

His Ph.D. (1960) was in zoology, and he continued in that field, becoming a lecturer in the Zoology Department at the University of Nottingham (1960-1966).

Behaviour of birds was on his research agenda, and it was his handling of data collected about birds by computerized information processing that first attracted wide attention. He was asked to join a small advisory committee to oversee the activities of a research unit of The Chemical Society, set up at the University of Nottingham, and in August 1966 became its Director. The unit, known then as the Chemical Society Research Unit in Information Dissemination and Retrieval, was to evaluate the potential of the mechanized services, to expose the UK chemists to a computer-based current awareness service based on CAS' Chemical Titles (CT) and

Chemical-Biological Activities (CBAC), and to make recommendations as to future developments in their use.

The formation of the Nottingham Unit, because of its pioneering work, has become a recognized milestone in the development of chemical information science. Suffice it to say that many basic methods and systems of information retrieval in use today have their origin in the work that Tony and his Unit did 30 years ago. The activities of the Research Unit had significant influence on the development of an international network of chemical information dissemination centers. Centers modelled on the Nottingham Unit included those at the University of Pittsburgh, the University of Georgia, and the Illinois Institute of Technology, and others in Sweden, Denmark, and the Netherlands.

Under Tony's enthusiastic leadership the Unit eventually evolved in 1969 into a commercial service known as UKCIS (United Kingdom Chemical Information Service), which became in turn integrated into the Royal Society of Chemistry (RSC) Information Services.

Tony was a strong proponent of international cooperation and of sharing technological advances. The cooperation between UKCIS and ACS was further strengthened by a marketing agreement in 1969 and a cooperation agreement in 1975. In Europe, Tony was instrumental in setting up EUSIDIC (European Society for Information Dissemination in Chemistry), which still exists today.

As a representative of the RSC and a member of the CAS Advisory Board, he attended ACS meetings and presented papers before the Division of Chemical Information. He described, for instance, his Unit's experience in the operation of a retrieval and dissemination service at the 156th ACS National Meeting in Atlantic City in September 1968, and reported on chemical information in the UK at the 164th ACS National New York Conference in August 1972. Another

milestone development was reported in a paper on UKCIS *Macroprofiles* at the 172nd ACS National Meeting in San Francisco in September 1976. The *Macroprofiles* became a model for printed current-awareness bulletins for broader subject areas, as contrasted with the individual SDI services.

Further confirmation of Tony's contribution to the American scene appears in the book, *How to find Chemical Information* by Robert E.Maizell [2]. The work of Tony Kent's organisation is mentioned in several places and although he is not mentioned by name, the Nottingham Unit of which he was in charge is clearly recognized for its pioneering activities.

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1   *Chemical Information Bulletin.* vol. 50, No. 2, Fall 1998, pp.3-4.
2. Maizell, Robert.E. *How to find Chemical Information* (3rd Edition) John Wiley & Sons, New York 1998.

Section 1 – Early Days

An Outsider's View
by
Mike Lynch

I first got to know Tony when he was creating the Chemical Society Research Unit at Nottingham University. At that time he was a zoologist with an intense interest in what British academic computer scientists, who were mostly numerical mathematicians, termed 'non-numerical applications of computers'. Tony had a consuming interest in just how best to involve computers in the communication process among scientists, and chemistry, the discipline which has traditionally put communication at the forefront of its societies' responsibilities, was among the first in the field with database creation as a by-product of modernised publication processes.

The Office for Scientific and Technical Information had just been created, and the combination of well-targeted funding from OSTI and Tony's enthusiasm, good humour, political astuteness and creativity, together with the splendid team which he built up at Nottingham, resulted in the most ambitious and practice-oriented research group in text information retrieval on either side of the Atlantic. Tony and his group not only set the agenda for several decades of study of the delivery of computer-based information services, aided by a network of industrial information officers who made and sustained the contacts with industrial chemists, but also formed the model for very lively cooperation between the American Chemical Society and national chemical societies around the world. They thus benefited chemists and greatly promoted the reliance which is now placed on IT applications

in chemical information science. From the outset, evaluation of the results of innovation was the key to progress.

I remember very clearly an introduction to the basics of framing a query in Boolean terms which Tony illustrated for the plenary session of a national meeting of the Chemical Society when the Research Unit was very new. The attendees seemed to consist largely of sceptics, yet Tony carried off the session with unforgettable aplomb in an impressive *tour de force*.

The circumstances which led to the absorption of the Research Unit within the Chemical Society regrettably spelt the end of Tony's more public contributions. The delivery of chemical information services would not be as mature today without his many contributions.

Section 2

Tony's International Roles

Section 2 – Tony's International Roles

International Council of Scientific and Technical Information

A Tribute to Dr. Anthony Kent

by

Dale B. Baker, B.Ch.E., M.S., Hon. Ph.D., Hon. F.R.S.C.
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"Trust men, and they will be true to you, treat them greatly and they will show themselves great."

Ralph Waldo Emerson

It is an honor and privilege to pay tribute to one of the great pioneers in the information science and industry field. Dr. Kent's genius in the development of software for use of electronic computers (mainly) and graphic media in the communication of scientific and technical information was recognized by his associates and peers for over three decades. His contributions not only stimulated a vastly improved era in the documentation and communication of scientific and technical information, but also fully helped usher in the New Information Age of the 1960s to 80s.

Kent -The Professional

The Chemical Society (CS) of London in 1963-4 sent its retiring editor, Dr. Robert S. Cahn, 'around. the world' to investigate and evaluate what was developing in the transition and use of modern (electronic) methods in publication and communication of chemical information, and to report back to

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the CS governance with recommendations on what CS could and should do to continue to be leaders in the field. CS Secretary General, John Ruck Keene, and Hon. Treasurer, Jack W. Barrett, followed up promptly in 1965 on Dr. Cahn's report and visited the American Chemical Society (ACS) and Chemical Abstracts Service (CAS) in Columbus, Ohio, USA, before establishing its Research Unit in Information Dissemination and Retrieval at the University of Nottingham with Dr. Tony Kent as its first Director.

Under Dr. Kent's progressive leadership and under collaborative agreements with ACS/CAS, Dr. Kent and his staff were to experiment with retrieval from newly developed computer tapes used in publication of *Chemical and Biological Activities (CBAC), Polymer Science and Technology (POST),* and *Chemical Titles (CT),* to provide information to hundreds of faculty personnel in the academic institutions in the UK, by producing *Macroprofiles* on a regularly scheduled basis. This cleverly designed and controlled experiment was successful in influencing chemical R&D in UK in many of the institutions.

Dr. Kent reported to CAS and its Advisory Board in 1967 (which he attended biannually), as to what areas of CAS databases needed to be enhanced for easier and more efficient user interaction in this first generation of off-line searching. Dr. Kent was similarly providing leadership to the American Society of Information Dissemination Centers (ASIDIC) at their biannual meetings, concerned with learning of CAS planned features to be added to its databases and helping to prioritize future developments. This constructive dialogue was very important in the rapidly changing electronic publication environment. Dr. Kent subsequently provided strong leadership to the European community of information users within the European Society of Information Dissemination Centers (EUSIDIC).

On January 16-17, 1968, the ACS offered to an Organization for Economic Cooperation and Development (OECD) panel, under the sponsorship of Alexander King, Peter J. Judge and H. Appleton, a proposal for an international chemical information system and an efficient international network of regional centers; later to become known as STN International.

The CS moved rapidly under Dr. Kent's leadership to form the UK Chemical Information Service (UKCIS) to operate under the CS charter to become the center or node in such a network. By 1972 Dr. Kent became the director of UKCIS and provided abstracts and index entries for some 6,000 papers per annum for input to CAS. At the same time UKClS distributed *Macroprofiles* under exclusive rights in UK and Ireland to printed, microform, and computer-readable publications from CAS. No other input and search and retrieval centers, including the French, German or Japanese, provided such singular expertise to initiate and adapt to the exciting new opportunities by creating direct relationships with customer users.

Kent -The Man

It was a pleasure and privilege to work closely over the decades of 1960s-80s with Dr. Kent under CS & ACS bilateral cooperative agreements. Also, it was an honor to work together as respective organizational representatives on the International Council of Scientific Unions – Abstracting Board (ICSU-AB) and later as the International Council of Scientific and Technical Information (ICSTI). I was always able to depend upon Tony Kent as a responsible and capable associate with integrity, ingenuity, and motivation. I admired also his personal qualities of broad-mindedness, helpfulness, cheerfulness, politeness, and courageousness. He was easy to work with in spite of occasional differences.

My grandfather told me when I was a young man that you can get to know another man after you drink, golf, play poker (or

bridge), and socialize with him. I did all with Tony and can fondly attest to his greatness as an associate and friend. He was the only person with whom I ever played golf in England and the USA where after games he would computerize each course and holes with his strokes and putts "to help improve his game". He also suggested that we could play golf as an exercise of the spirit and soul on one of the courses in heaven if and when we got there.

I recall one time while visiting Tony at the University of Nottingham that he took me to a lunch at his favorite old English Pub, said to go back in antiquity as far as the days of the Crusades, the name of which I believe was "Ye Olde Trippe to Jerusalem". I enjoyed many a pint and man sized, tasty sandwich in that environment.

I recall also one evening late in London walking down Piccadilly past the Burlington House when he pointed out to me a spartan room in the archway over the front gate where he stayed when in London. He confided to me that he did not want to become the new Secretary General of the RSC as it was more of a management role than he wanted as his expertise and love was in the development of software for computer-based retrieval of scientific information.

Tony Kent stood out in any group or activity in which he participated, but part of his greatness was that he sought no recognition or honor for his exceptionality. Indeed, Tony Kent aided the development of our nations' educational and industrial institutions and added to the material prosperity, intellectual challenges, as well as happiness of our people. Thank God for people like Tony Kent.

Section 2 – Tony's International Roles

EUSIDIC

by
Charles Citroen
(Netherlands)

Tony Kent was one of the main initiators and first secretary and treasurer of EUSIDIC, the European Association for Scientific Information Dissemination Centres, from its start in 1970 until February 1972.

Already in November 1968 Tony had presented a paper at a conference in the Netherlands on computer-based Chemical Information, about experiences in the operation of Chemical Abstracts tapes. At that conference there were also speakers from information centres in Denmark, Sweden, Germany, Belgium, Hungary, the USA and of course the host country Holland. One of the outcomes of that conference was the idea of more co-operation in the field of computer-based chemical information services in Europe.

EUSIDIC, still in existence as the European Association of Information Services, started off as an informal group of enthusiastic pioneers in the field of computerised chemical information called Cheops (Chemical Operators) in 1969. One of the convenors was Tony, who had obtained sponsorship from the Organisation for Economic Co-operation and Development (OECD) and the first meeting took place that summer in Nottingham. As I was an intern at Chemical Abstracts at that time, I could not attend. The second meeting of Cheops was held in Copenhagen, at the offices of Helge Skov in November of 1969. Most of the same pioneers that

were present the year before in Nottingham attended this meeting too.

The main subjects were how to organise a group that would enable us to exchange experiences and to benefit from discussing problem areas, and whether it would be possible to co-operate in such a way that operators would run only one tape, not only for their own customers, but also for the other countries, in that way creating a much better economy of scale at each site.

It was felt that in order to achieve those goals, a more formal organisation of legal bodies rather than individuals would be needed, so between them the British and the Dutch called a meeting in April 1970 in The Hague at which meeting EUSIDIC was formally and legally established. Tony was elected sole officer, secretary/treasurer and I was made editor of the newsletter *Newsidic*, a chairman being considered an unnecessary formality at the time. Founding members of EUSIDIC were UKCIS, BMDC (Sweden), KTHB (Sweden), DTB (Denmark), Institut de Petrole (France), NOCI (Netherlands), Shell and Unilever, both UK /Dutch companies.

The aim of EUSIDIC was for members to occupy themselves with all technical aspects of computer operations of databases, irrespective of the nature of the information present in these databases; while problems of a political nature would be regarded as lying within the province of OECD. Interestingly, members could be either for profit or non-profit organisations, but database producers could not become full members, only associates.

It was soon clear to us that Tony's main interest was not with running an association, but rather in organising discussions on such important matters as a uniform format for the exchange of data and standardisation of formats of databases. If agreed, such standards would make it possible for one European centre to reprocess tapes from several sources into one common

format so that all could skip the expensive process of reformatting on its own behalf. Although IS0 had proposed a standard for this purpose, EUSIDIC under the leadership of Tony proved that this standard was not sufficiently uniform. The battle on IS0 2609 (if I remember the number correctly) lasted for over 10 years!

As Barry Mahon mentions in his History [1], the second meeting of EUSIDIC took place in May 1971, hosted by IFP in Paris and remembered by most for the quantity (and the quality) of the champagne that was offered. Perhaps because of that there is no record of what took place, but the programme looked interesting enough.

I do recall a number of things about that meeting, the main issue being that Tony announced that he would rather step down as officer and be responsible for one or two of the working groups being set up. As a result, at the next meeting Alex Tomberg from Shell was appointed Chairman and I took over as secretary/treasurer. I also remember that the champagne was not actually offered, but later charged to the EUSIDIC conference budget. These costs, added to those of the UKCIS secretary travelling to Paris to assist the organising committee, were of such magnitude that Tony could not possibly have these costs paid from the small EUSIDIC treasury and put most of it up from his own funds, apparently being ashamed of the unexpected overdrawing.

Tony remained active in EUSIDIC for several years to come, mostly in the working groups on tape processing, and urging cooperation among members spinning the same tapes; he was not so much involved in the upcoming area of online processing.

In 1978 Professor Cyril Cleverdon became Executive Secretary of EUSIDIC, coordinating the various activities that small groups of members had previously undertaken in comparative isolation. One of the areas where EUSIDIC was

vehement was the establishment by the European Commission of a pan-European Euronet in order to counter the US hegemony of networks.

Cyril and Alex judged that this was a lost battle and that subsidies should be used to strengthen European hosts and educate operators, if any subsidy was to be given at all. The battle, as reported in *Newsidic*, was fierce and the Commission furious with EUSIDIC, but Tony remarked that "There can be no possible objection to the publication of forthright comments in *Newsidic*, nor to the publication of criticism of the activities of members provided that these criticisms or comments are made with a serious intention to inform and are based on correct information."

Tony's activities in EUSIDIC ceased when he stepped down as Director of the UK service in 1979 only to be mentioned again in 1985, when Kent-Barlow Associates launched a series of courses in information handling in which EUSIDIC members were invited to participate.

Tony was invited to the 25th anniversary party of EUSIDIC in 1995, where many of the old friends met again after many years, but some were also sadly missed. Representatives of all founder members were there and were presented with a memorial award. Of course, Tony received the award for UKCIS, and was named as the "real founder" of EUSIDIC by the Chairman at that time, Robert Kimberley of ISI.

1. Barry Mahon. "EUSIDIC, 25 years, The history 1970-1995"

Section 3

Tony as a Teacher

Section 3 – Tony as a teacher

by

Alan Robson

(New Zealand)

When I lived in England I worked for a man called Anthony Kelsoe Kent. He was a jovial, rotund man, and was much amused when it was pointed out that his name was an anagram of Hanks's Ten Ton Yokel. But the nickname didn't stick: he remained just Tony.

Tony Kent and I worked for the Chemical Society (later the Royal Society, but what's in a name?). By the time I joined, Tony and his team had done a lot of pioneering work on computerised information retrieval from large text databases. Specifically, the abstracts and indexes of *Chemical Abstracts,* a publication that contains references to all published chemical research. As you can imagine, this was not a trivial problem to approach from scratch. Not least of the difficulties was the fact that the data collections exhibited little or no long range order, being essentially a conglomerate mass of text.

Well, there are ways; and Tony found them, and he and his team made quite a nice living providing the results of computerised searches of the databases to chemists around the world. Given that this was in the days of steam when dinosaurs roamed the earth and the mainframe computer that we used had less processing power than the chip that currently drives my watch, this was most impressive. Those who surf the Net, stopping off at places like Alta Vista and Yahoo are reaping the benefits of this research. The databases of links that they maintain are essentially large free-text databases.

You search them using techniques Tony (and similar people) pioneered in the late 1960s.

Tony taught me to program. Every lunch time we would spend an hour or two together and he initiated me into the mysteries of printers and tapes and disks, sequential and indexed files; punched cards and how to spell "Identification Division". In later years this got me into trouble since one day I inadvertently mis-spelled it "Identfication Division" and the compiler went into a loop and used three boxes of lineflow paper printing out the same error message over and over and over again before the operator got bored and killed it.

My research job at the time was the investigation of the rather odd idea of Tony's that perhaps the computer could formulate its database questions as well as generate the answers. This isn't as mad as it sounds – when you sit at the search prompt of a web search engine, just what should you type in? It's very hard to decide. So why not let the computer generate the search terms from a frequency analysis of the words in known relevant documents? That was the basis of it, and if you care about the results, go and search through the dusty back issues of the *Journal of the American Society of Information Science (JASIS)* for the paper I published.

Programming proved to be fascinating. The more I learned from Tony, the more neat tricks I could apply in my own research – this was much more fun than relevance judgements and frequency analyses. Programming took up more and more of my time and information science research less and less.

One of the things that Tony was particularly good at was standing in front of a room of people and talking to them. No matter what the subject, he spoke authoritatively, persuasively and amusingly. He always spoke off the cuff, there were never any notes or prepared bits. Tony always maintained that if he prepared beforehand, giving the talk would be boring since he

would be going over the ideas a second time. And if he was bored, the audience would be bored, and that would never do.

One of his more persuasive talking sessions convinced the United Nations that environmentally harmful chemicals were a pressing problem (and likely to become more so) and that one of the ways that the UN could help would be to maintain a database of such chemicals, noting their effects and any alleviating treatments that might be applied. This database would be contributed to by all member states and would be available to all member states in the event of an emergency. (The idea later proved its worth when a big dioxin leak from a factory in Italy caused major environmental damage and much suffering. Information from the database was used in the clean-up campaign.)

And so in the mid-1970s I found myself in Geneva working on the design and implementation of this database. Those lunch time programming sessions were being put to very good use. I have lived in New Zealand for nearly seventeen years. For much of that time I worked as a programmer. For the last few years I have been teaching my skills to other people. I have had to be a good programmer and I have had to be a good and persuasive speaker. All these things I learnt from Tony, both directly from the horse's mouth and indirectly by watching and mimicking what I saw. A day seldom passes without something that Tony taught me proving useful.

Tony Kent died on October 11 1997. He was my friend and I miss him.

Section 3 – Tony as a Teacher

by
Daniel U. Wilde
(United States)

Tony was one of those rare individuals who took me as a young, innocent, naive, new information business entry and worked with me over the years. Tony was most patient with this dumb American boy.

Time and time again, I looked to Tony for explanations on how the information business really worked. Over time, Tony also became a personal friend and both families spent time in each other's homes. Needless to say, both my wife and I were shocked when the news of his death finally reached us. We are happy that his memory and his work will live on.

Dan Wilde
President
Nerac Technology Transfer Company
Tolland, USA

Section 4

Programming Days

Section 4 – Tony's Programming days

The 1980s and the
British Library SIR Project

by

John Burchall

In this talk, I want, in part, to look back some thirty years of information research but mainly to focus on quite a short period of time and on one particular project. This is the story of one project – the SIR project – the Schools Information Retrieval project. It may surprise many people that Tony was involved with a schools project, but he made a unique and important contribution as I will try to explain. By one of those strange co-incidences, a few days ago I caught a glimpse of one of the other major players in that project – Jean Beck, who at that time (1980-81) was a school librarian of a boys' comprehensive school in West London.

It was her drive and enthusiasm that brought that school as one of the founders within the SIR project. At that time most schools had no computers at all but she was one of a number of people who had seen that they were going be an educational trend of great significance and so she brought a great pioneering spirit into that project. In fact, Jean went on to play a much wider role in bringing in new technology into school libraries and educational material generally, and is currently one of the senior staff on the National Council of Educational Technology. But first I want to put the SIR project in context.

British Library funded research

Modern information and library research goes back some 30 years, if you consider that it began with any seriousness in the work that was done at Cranfield under Cyril Cleverdon. His pioneering work involved the experiments that produced ideas about indexing, relevance and recall, and provided tools for assessing the performance of information retrieval systems. It was certainly that work that alerted a wider audience to the distinct role that research has to play in understanding information, understanding information retrieval and improving information services.

Government funding for such research was then through the Department of Education and Science's Office of Scientific and Technical Information (OSTI), which in 1973 became the British Library Research and Development Department. There were several strands to this research over the years.

One of these strands was research into information retrieval techniques, the kind of work that Tony and others were undertaking on chemical information into developing techniques that would improve information systems. Such work still continues at Sheffield and City Universities among others, to improve the efficiency and the usability of information retrieval systems, seeking to apply the latest developments in technology to information retrieval. Chemical information services have always been at the leading edge of new developments so Tony's work at Nottingham made a great contribution to the development and understanding of information retrieval services.

The second strand sponsored by the British Library was concerned with the human side of information compared with the more machine-based information production and retrieval. During the 1970s there were many studies of information needs, information provision and how people used information in various disciplines. There were, for example, studies in

chemistry, in physics, life sciences, medicine and the humanities. Some of these were large studies, reviewing in broad terms the supply of information in a particular topic or area. In addition there were a number of small studies on how people, whether practitioners or end users, sought and used information. At that time the Centre for Research in User Studies was formed at Sheffield University and became a focus for this aspect of research. The Centre undertook many studies and collected information on how people actually responded to the systems they were provided with, and how they went about hunting for information.

The third strand of research was on the education side. It is one thing to have wonderful systems but people need to know how to use them effectively and that's true both for end users and for information professionals themselves. During the 1970s, university librarians in particular were grappling with the problems of how to teach people to use the information resources that were available, both the traditional printed sources and the incoming on-line services. They felt with the introduction of on-line services there was a greater need to teach students and lecturers how to use the services to obtain the best advantage. Intermediaries are one approach but they cannot always be on hand and anyway some people like to do their own information gathering. So libraries devised various ways of teaching the use of information resources and services. Alongside this, there was concern on how the professional in the information and library world could develop expertise in using information retrieval services. During the 70s there were a lot of projects, in the main small projects, done in various library schools dotted around the country exploring different ways of producing teaching materials and packages to enable students to get to grips with computerised information retrieval. All had some support from the British Library and a wide variety of such packages,

simulations and other means of teaching information retrieval were developed.

They were crude by today's standards and I recall that about the time when I went into the Research and Development Department in 1978, we had invested in a Hewlett Packard machine, a precursor of the PC, which used a tape as the main storage device. I have a feeling that it cost around £2,000 and did very little compared with what one can get for that price today.

Information skills in schools

By the mid 70s we in the British Library felt that the ability to find and use information was not something just for the academics, researcher or industrialists but it was something for everyone. So alongside the efforts to educate university scientists and information professionals, there was a view that everyone needed some ability in information handling, to be developed at an early age. So we began a programme of projects on teaching information skills in schools. This began with some exploratory studies, to see what was happening about teaching library and information skills in schools. For example, was anyone teaching these skills on how to use libraries and how to find information from books and encyclopaedias? We found that generally there was a huge gap plus a reluctance of teachers to enter an area that they understood little about. It was in that context that the SIR project was developed.

The SIR project

It began one afternoon at the end of the 1979 Cranfield Information Retrieval Conference when a small group of conference attendees plus some teachers met to chat over the future on what was starting to happen with the use of computers in schools. Some schools were beginning to get into computers and starting to realise that the computer had a role

outside the school computer department. There was also the beginning of computer based educational approaches. That afternoon led on to a longer two day seminar at the Library and Information Department at Loughborough University. The idea of that was to bring together a much larger number of teachers to show them the sorts of things that were happening in library schools in teaching information retrieval; and at the same time to mix them with some people from the information profession and to demonstrate some of the large-scale bibliographic and IR systems. Tony Kent was one of those who came, not with his Chemical Society hat on but more as a member of the ICSU-AB (International Council of Scientific Unions-Abstracting Board), which was a forum of the large database providers. ICSU-AB had already shown interest in undertaking some educational work in schools, and Tony, for ever looking for something new, saw it as another way forward. And in his inimitable way he enthused over computer teaching tools. The meeting enthusiastically adopted the idea of developing software in order to teach information handling techniques. Tony, never surely one to hold back, offered to write the program for the experiment.

So he became a member of a Working Group set up to specify the software for the SIR project and to test it out within schools. The Working Group started in late 1979. As these things do, it took a bit longer than hoped as all the problems had not been appreciated. I suspect that Tony got rather impatient with the delays. One feels that in his mind he already knew exactly what he wanted to do and wanted to get on and do it, whereas the other members of the Working Group were aware of the difficulties of selecting schools, encouraging teachers to participate and selecting the most appropriate computers to use in the project. On one occasion, discussing the timetable and worrying about bringing the tools in to the schools for them to act as guinea pigs, someone asked what would happen if the software doesn't work properly.

Tony said (if I recall correctly, with a smile) 'My programs always work'. He was right, his programs always did work properly, right from the start.

By the autumn of 1980 we had developed the software plus a trial database and a set of material so that the trial schools could get going. The idea was simply to create an information retrieval package which would look like the large commercial on-line systems and would also offer similar experience in information retrieval. It was quite a tall order given the state of computers available for schools at the time. The most popular machine was the Research Machines RML380Z together with the Commodore PET, the BBC machine was also just beginning to emerge. Many schools had no computers; those that did had machines often without disk drives, instead being fitted with tape drives for storage. Capacity was severely limited, 32K sticks in my memory as the minimum requirement in which SIR would operate. Tony wrote the software in a very short space of time, I suspect he had already thought it completely through in his mind.

SIR was a means of illustrating in a practical way the essential principles of information retrieval and dissemination of bibliographical information, and also provided the means of creating files of such information. SIR was not a toy, it was not a game, it was a genuine small information retrieval system which searched databases using standard command language and Boolean logic, provided retrieval via inverted files along with an editing and database creation set of programs. It was a remarkable achievement given the state of the technology at that time. It was miniaturisation on a grand scale, brought down to the bare essentials and yet it worked and gave a feel of what you would do if you were going to go to a major online system.

It was enthusiastically received in the six schools used as a first set of guinea pigs to try out SIR. They wholeheartedly

liked it in spite of the program being quite demanding. In order to understand and execute a single term search the user had to assimilate some 26 concepts, and commands, things that children and teachers had never come across before, things like database structures, record fields, commands like FIND, SHOW, PRINT, OR, AND. It was a great teaching aid for all these concepts. Nevertheless it appealed to all ages. Initially we thought that it would appeal mainly to 6th formers, but in many schools the 6th formers were the least enthusiastic. It was often students lower down in the age range who latched on to the program and showed considerable ability in grasping these concepts and using them. In spite of often only having one machine in the whole school that did not give them much chance of hands-on experience, many did begin to understand what the system could offer and to use it effectively.

The impact of SIR

SIR was a great success and went on to be marketed by Research Machines Ltd and was rewritten for the BBC micro. At that time schools were desperate for good software to use on the computers they were beginning to acquire. SIR offered something that was immediately useable, that people could latch onto and to which children responded. It achieved what it set out to achieve. So much was owed to the fact that Tony could design programs, write them and they worked. There was considerable interest from other countries. It was even financially successful as the British Library received a royalty from the sales of the program and recouped a fair amount of the development money.

SIR helped to get good information practice into schools and the school curriculum; it helped school librarians and school resource managers redefine their role and indicated that they had a central part to play in the IT area. It led on to the use of other techniques such as CD-ROMs, specially designed networks for schools and latterly onto Internet use in schools.

The fact that the SIR project had gone into schools and was in the educational mainstream meant that people were beginning to be alerted to the importance of information and the value of retrieval by computer. I would like also to think that it helped in the democratisation of information and knowledge so that it becomes available to everyone. And that everyone will have the necessary skills to find and use information effectively. There is still a long way to go, but I believe that SIR and Tony's key contribution to that project has helped in achieving that goal.

Section 4 – Tony's Programming days
Kent-Barlow Information Associates
&
Microbel activities

by

Derek Barlow

To view Tony's work in perspective one must imagine what things in the eighties were like. Earlier chapters describe Tony's work at the Chemical Society and the supportive role that the British Library was undertaking at that time to advance the role of information science and application.

But just what were the conditions like in those far-off days?

First the general environment. At the end of the seventies and at the start of the eighties, dramatic events were occurring in the world. For example, the Iranian hostage crisis; the end of the Vietnam War; and in a different vein the death of Elvis Presley rounded off the seventies. In the eighties the mood changed with the fall of the Berlin wall, and a whole new scenario came with the start of a period of economic growth.

The start of an information society

This all heralded the start of today's information society. But in those days only experimental on-line systems existed, and the main thrust of computerised information system development lay with the learned societies. For example, in the US typical services were run by the American Chemical Society with their Chemical Abstracts service, Engineering

Index, and Biosis covering the biological field. The UK counterparts at that time included the Commonwealth Agricultural Bureaux covering the agricultural area, and the IEE's Inspec system responsible for electronic engineering, computers and physics information. In addition there were UK databases from the Food Research Association while in the private sector Derwent Publications Ltd was the pioneer of computerised chemical patent information.

These were the pioneers of this period – it was a golden age of information retrieval development as these organisations experimented with the new-found tools of computerised information, starting with computer typesetting and production of their existing journals and then dipping their toes into the uncharted waters of on-line retrieval, and selective dissemination services (now to give its 1998 name of push technology).

But what tools were available?

It is hard now to believe that the PC pioneers were designing retrieval software on machines whose chips ran at 8 MHz, had only possibly 32K of RAM, and megabytes were unheard of. Remember too that the first IBM PCs had revamped audio tape drives as their main storage. It was a golden age for the individual computer designers. There were those exotically named machines now lost in the mists of time such as Superbrain, Sirius, Rair, Altos, Apple II, Radio Shack TRS80, Commodore Pet, Acorn, BBC machines, Amstrad and others. One hailed as the first portable was the Osborne which, the size of a suitcase, won the laughable accolade as a luggable computer.

It was the era of the 8-bit machine and 8-inch floppy disk holding about 80 K of data. From these beginnings things moved rapidly to 5-inch floppy disks, and clock rates of tens of megahertz or more. The appearance of Winchester hard disks spawned from main-frame machines provided PC hard

storage initially of around 10Mb and then increasing to 40Mb. Those were the design conditions under which Tony worked.

Operating systems

The situation here was much the same; the battle of the operating systems was already under way. At that time CP/M was the starting point which even then had a multi-user version Mp/M, plus other flavours such as CP/M86 and CP.net. UNIX too was in the field while the then fledgling Microsoft had just launched MSDOS, plus a special IBM version PCDOS.

Where were the information retrieval systems?

At that time all were running on main-frame machines. Systems like Assassin, Status, BRS, and Basis dominated the scene. Of these, the first two were UK systems developed not by software organisations but by ICI for chemical documentation and by the UK Atomic Energy Authority for the retrieval of legal documents. Of US origin were BRS and Basis, plus IBM's Stairs program. The field for PC-based retrieval system was thus wide open and it was this field in which Tony made his niche.

Kent-Barlow Information Associates

At the time when Tony and I first discussed the idea of partnership, we were both in complementary positions, he as the head of the Chemical Society. Information Services, and I as head of the IEE's Inspec operation.

To the outsider each of us must have looked secure and in what might have seemed a comfortable career position. But Tony and I were alike in that we liked to accept challenges and never to admit that things were impossible to achieve. So after 10 years or more in the Learned Society environment we were both feeling it was time for change.

We often used to meet at the International Council of Scientific Union Abstracting Board (ICSU-AB, now ICSTI)

meetings at which all international societies engaged in the abstracting and publishing of secondary information services sat to review and co-ordinate progress for the scientific community.

Here again, Tony was a leading light advancing ideas for improved systems, one of which was the idea of providing an ICSU-AB database suitable for operation on PCs primarily for training to show people how to use scientific literature. It was from these discussions that the ideas of a PC-based information retrieval package grew alongside the formation of our partnership, which we set up together as Kent-Barlow Information Associates in April 1980. An earlier chapter describes the development by Tony of the SIR, a true first in PC retrieval systems. From that work between us with Tony providing the programming skills, we evolved a range of increasingly sophisticated IR systems.

What we did in KBIA

One thing for certain, we had an exciting time. Firstly from a room loaned to us by Derwent Publications Ltd and then later a small office near the Post Office tower, our first projects were the SIR system and in parallel with that we did consultancy work.

But it was in the information retrieval system field that we concentrated. Following the successful trial of the SIR system, a licence was obtained to improve this and market it firstly as the Eagle system and then an improved version as Aquila.

What Aquila did

The early version of Eagle, as did later versions of Aquila, provided most of the features that today's systems take for granted.

It used inverted file generation, it provided possibilities for selective dissemination using saved search techniques. It allowed 100 fields within any record, of which 50 could be

user defined, especially useful for non-bibliographic applications.

In the Eagle system the number of characters per record was minute, reflecting the limitations imposed by the machines for which it was designed. Aquila opened this up to allow 2,250 characters per record.

On-screen amendment was also made simple in that the system allowed the user to call-up via the field tag just those fields that required amendment in each record, with the opportunity to skip directly to the next record. Fields were also definable by individual words, by a text string or as non searchable. Again great innovations for those days, as were the provision of adjustable stop word lists.

Search facilities included:

> Full Boolean operators
>
> Right hand truncation
>
> Commands based on the European Common Command Language (now lapsed) covering
>> FIND, SHOW, FINDSAVE,
>>
>> SHOWSEARCH, PRINT, AND, OR
>>
>> DISKSAVE

Displaying results

A feature of Tony's work was the ease with which the user could see what was happening as the result of his searches. The search command resulted in a display of the number of terms found and their location, whether in the title, author or any other user-defined field. These were displayed as a set with an indication of the number in that set. In addition a term frequency listing was provided showing the frequency of occurrence and the field type in which they occurred.

Unique then and still not often incorporated in systems at the time of writing was the ability to use each search set as an item on which further search refinements could be performed. These refinements could either combine different search sets and search on the combination or apply new search definitions to the current set.

While all these features may appear commonplace today, imagine trying to design these to run in 64k of memory and to perform within that space adequate and fast file analysis and term inversion. These were the areas in which Tony revelled and excelled.

Extending the range

Aquila was the basic unit from which the rest of the KBIA aviary software developed. Because of Tony's great passion for ornithology, all new products were designated bird names such as Cormorant. This was developed under a grant from the DHSS initially for the Cambridge Health Authority and later extended to other Health services. The system was based on Aquila for its main facilities but could access seven databases.

- o It had direct word processor field input with input modules providing automatic posting of tags to the fields concerned from the raw data

- o Authority files operating on a split screen display (this before the advent of Windows) were added to permit selection and direct posting of items such as titles or thesaurus terms to the data fields. Using the field tag, the system could call up the different authority files for differing fields from which the operator could select the term he required. In addition, temporary aid files could be set up to help in the inputting of semi-repetitive data (such as issue numbers, or journal dates) when doing a multiple item entry from a single issue.

- Additional output options provided for the generation of sub-databases from the results of a search.

External links

As on-line retrieval gradually started to take off, the next stage of development was the Swift/Magpie combination for on-line data capture. Based on a development by Howard Petrie from the University of Strathclyde, the Swift system allowed the selected PC to act as a normal terminal for logging on to remote hosts, for transmission of pre-stored files to the host, for bulk data transfer and for storage of on-line dialogue including downloading from the host.

Local word processing set up password and data files for out going transmission while for incoming data the software set up a collector file.

This development from Strathclyde was one of the early attempts to provide auto log on and control for on-line use – remember in the early 1980s modems were slow, line connections were poor and much anguish and frustration was felt when one was trying to download from some of the early systems such as Dialog or the ESA ESRO systems.

One great problem too was that any data downloaded from differing sources came with differing formats and tags attached to them. This was especially confusing if one happened to be accessing a number of different data sources.

The Magpie system, the next development, was a combination of the Swift downloader with an Aquila database but with a variable converter unit to modify the incoming data.

The Aquila database would be set up to the required field structure to match the incoming data structure and a coding structure was set in the translator to filter out extraneous commands. As a result on-line bibliographic searches were added directly to the Aquila database.

Strix and more sophistication

With these developments now turned into software products, and Tony's approaches being proven in the field, his focus turned to larger and more comprehensive systems. Work under the aegis of Microbel resulted in the first versions of a 'tawny owl' software package entitled Strix.

Written in C and operating on UNIX platforms, the initial version was capable of handling 32,000 records, each with a capacity of 32,000 characters (subject of course to hardware constraints).

Other features that made it vastly superior and unique were:

- o Each record could possess up to 50 fields, each of which was available for search and display or display only

- o The fields could be single or multiple occurrence enabling large blocks of text to be handled

- o Fields were password controlled

- o Those fields defined for searching could be further defined as free text or whole field. In the free field, visible phrase ties allowed phrases to be simultaneously indexed by words within the phrase or the phrase itself

- o As in the Cormorant package, authority files were available that could be linked to any of the fields and were displayed on entry to that field. In the case of the thesaurus, lead terms were shown and these used to call narrower, related or broader terms with cursor selection and posting into the record field

- o Key field tags could be used providing immediate retrieval without the need for file inversion

- o Facility for a range of user defined print output formats allowing field selection, indentations and

variable spacing, emboldening and underlining at will, which could be used during the search procedure as well as for printed output.

Applications

Armed with this range of tools, both the Kent-Barlow partnership and Microbel entered a phase of system consultancy and application work.

Typical of the applications conceived and developed under the Kent-Barlow partnership using these tools was the Foreign Office Articulated Subject Indexing system for all Central Registry files. This system, installed in 1986, used as its search engine the Strix software and ran on a Cifer machine (no longer around) with 128k RAM, and 43 Mb hard disk. A unique feature of the machine was that it ran a dual operating system of UNM and CPM on a mixture of 5-inch and 8-inch disks. The system handled approximately 35,000 records a year generating an articulated annual index of 2,500-2,800 pages per year.

From entry sheets the input data generated index entries from the file titles using an articulated index algorithm developed by Lynch and Petrie. Additional features were added in the software to ensure that heavily posted subject index headings were automatically subdivided by country names.

The design philosophy

Tony's philosophy was simple, and it is equally applicable today.

> *To design software that was simple to use, had some unique features that allowed the user to perform exactly what tasks he needed and was robust. His view was that the techniques of storage and retrieval of information must be such that true knowledge could be found from this information whatever the form, e.g. a film*

> *archive, museum records or abstracts of*
> *Japanese literature.*

In today's parlance Tony could well have been laying down the definitions for Knowledge Management Systems.

Whereas earlier systems such as bibliographic records followed pre-set defined classification patterns (such as author, title, issue number etc.), today's problem is that an enterprise's incoming material may not have this formal structure. The need is to classify information on the fly from automatic examination of the document content.

This is an area of high activity with systems involving the use of metadata tags (SGML or the new XML codes), automatic indexing, vector analysis, and clustering, all featuring in the literature today and offering hope for the future. These new challenges would have been ones that I could see Tony tackling with relish.

To me, Tony has been a wonderful inspiration and to have worked with him for some ten years is unforgettable and something I cherish.

Section 5

Tony the philosopher

Section 5 – Tony the Philosopher
The Pioneer of Practicality and Good Sense

by
Jan Wyllie
Director, Microbel Ltd.

Tony Kent was a totally unassuming man who profoundly affected – transformed indeed – the lives of the people who were privileged to be touched by him. I am one of those people.

It was in about 1984 that I found out that microcomputer software could be used to classify and retrieve microfilm, exciting news for a content analyst for whom multidimensional classification is at the core of intellectual life. I saw an advert in the *Financial Times* for a system from a company called Imtec. I went up to Stanmore and tried to explain what I wanted to a bemused salesman who ended up giving me Tony's number in order simply to be rid of me. I remember the sausage and salad lunch we had in Chimes, Pimlico's then brand new English Cider bar, while I tried to explain content analysis, business intelligence and trend reporting in less than half an hour. Unlike the Imtec salesman, though, his eyes did not glaze over, but he tugged his beard in astonished perplexity, while asking difficult questions about specifying what I wanted. We agreed to meet again at his home and office, Stud Farm, in a couple of weeks.

It was a hot day in early August. I was uncharacteristically in tie and jacket, Tony and Jenny, his wife, were far more comfortably dressed. Tony had been planting oak trees, while

Jenny was dead-heading roses and tending to the barbecue. It was then we first started talking about the only thing for which Tony showed any reverence: the living world of nature, especially birds. He always said that if it had been his choice, he would have lived the life of an eighteenth century cleric with a passion for botany. On any other subject, Tony's attitude was one of profound and slightly mischievous irreverence, especially on the subject of the computer industry. So, even before seeing STRIX, I knew I had found a soul brother.

After lunch Tony showed me STRIX on his early Imtec micro. It did not take very long for me to see the power of this technology to change the way people work and even think. Remember, I was looking at free text retrieval from the point of view of someone with a lot of experience in developing and executing multifaceted classification with large collections of newspaper, magazine and journal articles. I saw that if easy multivariate classification were to be combined with the total safety net of every single word being indexed, knowledge could be managed in a vastly cheaper, faster, more convenient way than most people in those days could even conceive. I knew right then and there that Tony could be on the way to making it big time, if only people could be made to understand how to use it. And combining this technology with content analysis, we could together make a significant impact in the hypermedia of the future (which was finally born to the world misshapen and organisationally handicapped, as the World Wide Web).

We decided to work together to find funding for the development of text retrieval and content analysis as tools for future media. I somehow arranged a meeting with some very senior Philips executive in Eindhoven to discuss including us in the development of its Megadoc optical disk document management system. Although we did not succeed in our objective, I recall us deciding to cement our relationship by

trading shares in our companies over a beer or three on the return ferry. That is how I became a Director of Microbel and Tony became a Director of Trend Monitor. Every week, he would come to London to work on a client site. I would meet him at Warren Street station at 9:30 a.m. where he would hand me the not even luggable Imtec which he had lugged all the way from Newark, so I could use it for the day to gain enough experience with Strix to write my specification.

The two great things about Microbel as a company were Tony's total dedication to the continuous improvement of the product and his deep caring for all its stakeholders, including its Directors, its employees and its customers. Customer care could mean staying up all night, driving 400 miles in a day or just ever-so-patiently and cheerfully sorting out their often self-inflicted difficulties over the phone. Product development took the form of late night conversations between us over whisky and late night programming sessions with cigarettes and coffee.

The company's greatest drawback came from one of Tony's greatest charms: his fundamental disinterest in money and what it could buy (with the notable exception of Safaris in Kenya). Many times Tony and I were lectured by his wife and fellow-director, Jenny, on how "pathetic" we were when it came to sales and marketing. Sometimes during the many financial crises, her criticism would develop an edge of desperation, but she knew he would never change. And she loved him for it, too. Microbel survived thanks to its exclusive UK agent, John Crowther of Business File and its Dutch agent Fred van Bremen of Informatica Avies, which is why Strix became a major player in the UK Executive Recruitment market and the Dutch Library and Government markets. Derek Barlow also made valuable contributions, saving the day on more than one occasion.

As for Strix itself, for a lone programmer, it is a near superhuman accomplishment. Tony knew exactly what was needed from a full function text retrieval package and then he did it, himself. He was obsessed with retrieval speed and efficient memory usage. He also designed the most easily usable search procedure for non-information specialists that I know. To my knowledge, its set-by-set logic is still unique. But Tony was decidedly not interested in what he called the "bells and whistles" of software design. This attitude was Microbel's second greatest drawback since in the Windows environment it turned out that software sales and marketing depended much more on the Window dressing than on core functionality and usability. Although he knew this sorry truth – I told him enough times – he would not be diverted from what he considered to be his more important (and more fun) programming priorities.

As a co-director of two companies with Tony, I was in a privileged position to induce him to write about those priorities in prose. In his opinion, writing prose was just another irritating impediment preventing him from doing what he liked to do best which was to write code. One of my greatest successes was a letter he wrote to an Aslib magazine I edited in 1991 called the *Intelligent Enterprise* in response to a dialogue I had started on a "new dawn" of practice, rather than theory centred information management. The week before, the already legendary Cyril Cleverdon, former Chair of Information Transfer at Cranfield, congratulated me for "desecrating" the concept of information science and celebrating the end of mentalism in the field which theorises that minds have innate organisational structures which it is the job of information science to discover.

Here are some excerpts from Tony's letter:

Dear Jan.

It is of course a great thing to be optimistic; if I were not an optimist I would have given up banging my head against the notion of "information science" twenty years ago. But it is also important to be a realist; and the reality is that it is more ego-enhancing to invent theorems for even a non-existent subject like information science than it is to get on with the job of providing folk with systems that find the information that they want.

If there is a central truth that can be identified in this field it is that there is not, and never will be, one best way of achieving the goal. Neither free text retrieval, nor classification, nor statistical analysis, nor weighted search, nor any of the 101 other ways doing things necessarily suffice on their own.

I will no doubt be accused of elitism if I expressed my long-held view that the processes of information management and retrieval can never be simplified to a point where they may be conducted by half-wits (which is why incidentally it is a waste of time and effort to sweat blood building pretty user interfaces and the like). Finding useful information is an intelligent process requiring intelligent people because at the end of the day only the intelligent can recognise what is useful.

Let us apply the procedures of science to the evaluation of information art and practice and stop kidding ourselves that there is, or ever will be a science of information.

In our own Trend Monitor Reports (December 1991), he wrote:

> *Though speed and versatility are desirable goals for full-text retrieval products, they should not hide the need for information analysis and organisation. Until systems developers recognise this need, we will continue to be bombarded with new systems that retrieve information as badly as now, but faster. [Meanwhile] the trend towards the release of more word finder utilities and few true text database systems continues.*
>
> *The future for most of these needle-in-haystack products is gloomy, however, because searching essentially unorganised text is liable to produce essentially unorganised and relatively useless results. Text databases, on the other hand, combine an organising structure, along with the convenience of being able to find every word or code.*

This needle-in-a-haystack mentality is exactly why nowadays the World Wide Web is so often a waste of time and a source of confusion and why metadata is seen to be the next great hope. In our July 1991 edition, he wrote: *"I refuse to believe that knowledge can be inferred from any conceivable software system"*. This opinion reflects what Tony wrote five years earlier in his generous introduction to Trend Monitor's first intelligence report published by Aslib in 1986, called *Computers & Communications: A Panoramic Synthesis.*

> *"As the power of the nuts and bolts of information technology has grown at a rate that is spectacular, and even awesome, there has been a growing belief that all problems may be solved if only enough power is thrown at them. In my particular area of interest, we have seen the burgeoning of systems for providing access to huge volumes of scientific, technical and business*

information. These systems operate and continue to multiply in the belief that if you make the haystack big enough and provide a large enough Magnet, you will be able to find the needles you want. You will certainly find needles. But what of those items of information that cannot be attracted to the magnet (made no doubt from clay or straw) which may be the most sharply pointed for your problem, as well as all those needles the magnet attracts having nothing to do with your problem."

He went on to recommend the report on the basis that

"*it illustrates the benefit that comes when thought rather than brute force, is applied to the problem of converting raw information into knowledge"*

And here is a final quote from Trend Monitor Reports (December 1989) illustrating his humble, anti-hype view of the true capabilities of the software he enjoyed so much inventing and writing:

"Making life easier for text-retrievers is a great objective. The fact this perceived need exists, begs the question as to why it should be difficult in the first place. What is really required is a recognition that real literacy (as opposed to computer literacy) is a necessary prerequisite for the effective use of information, and that computer technology can only, at best, provide gadgets that reduce drudgery."

In conversation he constantly warned that many of these "gadgets", such as automated relevance ranking and sophisticated thesauri, may be of use to information experts who understand exactly what they are doing and can treat results with the necessary scepticism. He emphasised that they can be positively dangerous for non-experts who believe the vendor hype that a "software solution" will solve their information needs. In these terms, the current pack of World

Wide Web search engines would be the epitome of danger. Tony insisted on starting the software development process from an understanding of users whom he treated as authorities in their own domain and "idiots" when it came to understanding the software domain.

This unrelenting focus on user needs was what made him insist, from the very first day we met, again and again that I come up with the dreaded specification when I used to gush about the enormous potential of text retrieval software to manage multimedia content in a networked future. It was only about two years ago when I met Simon Eaton, a self-made expert in mind mapping and thought illustration, that I began to think again seriously about the specification. We decided that Tony would concentrate on writing a Windows DLL for a search engine and we would specify its user interface. And it was only last August that Simon came up with a comprehensive new metaphor for managing the computer environment which would form the core of the long awaited interface specification. We arranged to meet Tony on October 17 to show him the first draft outline of the specification. He died two days before. But he had left behind an uncharacteristically well documented DLL, called WINEng, which performed all of Strix's core search functions in a Windows environment. I am pleased to report John Crowther has seen our specification and we are negotiating a deal to roll out our new user designed interface to the computer environment powered by WINEng by next autumn!

Years ago, when I lived in Pimlico with Gay McManus, Tony used to stay the night once a week. After supper, it was usually Scotch and ideas innovation time, well into the night. Gay used to tease us that we were always just about to make it, but we never quite did. However, as the ancient Chinese Book of Changes perseveres in saying over and over: "Perseverance furthers". If we do finally succeed in the mission we started nearly 15 years ago, in one sense, Tony will not have made it.

In another sense, he will have literally made it. He will have made it for us. The beauty of Tony was that he did not really want to make it in the first sense. Only the second sense – making it for others – mattered. Lucky others; lucky us.

Jan Wyllie
Managing Director
Trend Monitor International Ltd.

Appendices

Recipients of the Strix Award

1998: Professor Stephen Robertson, City University, UK

1999: Dr Donna Harman, TREC, USA

2000: Dr Martin Porter, Muscat, UK

2001: Professor Peter Willett, University of Sheffield, UK

2002: Malcolm Jones, Independent Consultant, UK

2003: Dr Herbert van Sompel, Los Alamos National Laboratory, USA

2004: Professor Cornelis Joost (Keith) van Rijsbergen, Glasgow University, UK

2005: Jack Mills, Bliss Classification Association, UK

2006: Stella Dextre Clarke, Independent Consultant, UK

2007: Professor Mats Lindquist, National Library of Sweden

2008: Professor Kalervo Järvelin, University of Tampere, Finland

2009: Dr Carol Ann Peters, Istituto di Scienza e Tecnologia dell'Informazione "A. Faedo", Italy

2010: Professor Michael Lynch, Emeritus Professor, University of Sheffield, UK

2011: Professor Alan Smeaton, School of Computing, Dublin City University, UK

2012: Doug Cutting, Cloudera Inc., USA

2012: Professor David Hawking, Funnelback & Australian National University, Australia

2013: Professor W Bruce Croft, Department of Computer Science, University of Massachusetts, Amherst, USA

2014: Dr Susan T Dumais, Distinguished Scientist and Deputy Managing Director, Microsoft Research, Redmond, USA

2015: Peter Ingwersen, Professor Emeritus at The Royal School of Library and Information Science, University of Copenhagen

2016: Professor Maristella Agosti, Professor in Computer Science, Department of Information Engineering, University of Padua, Italy

2017: Maarten de Rijke, Professor of Computer Science, University of Amsterdam, Amsterdam, The Netherlands

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future patrons*

Obituary
Address

Obituary
Dr A. K. Kent

Tony Kent, who made a substantial contribution to chemical information services in the UK, has died at the age of 64.

Tony was born in Singapore in 1933. He was the elder of two children and the son of a man who worked as chief engineer in electricity generation. Tony lived in Singapore until he was about nine years old, when the family went on leave to Australia. After the war, they moved to England. Tony and his brother went to Claysmore School near Blandford in Dorset, where they completed their education.

The time spent at Claysmore was a formative period in Tony's life. His interest in birds was stimulated and encouraged by the biology master. When aged about fourteen – during Latin lessons – Tony watched a goldfinch build a nest and care for the young. He made notes and wrote a paper on the breeding habits of the goldfinch which was published in the *Dorset Naturalist*. This was the first of a string of papers that Tony published throughout his life.

On leaving school, Tony went to Aberystwyth University in 1951 to read agriculture. After one year he made the switch to zoology and got the best first class honours degree that the university had ever given in the subject. Tony then went on to tackle a Ph.D. He began his research at Aberystwyth but moved with his supervisor to Bedford College, London, where he eventually completed his doctorate in 1960.

He then landed a post as a lecturer in the Zoology Department at Nottingham University. As well as doing his own research on bird behaviour, Tony had Ph.D. students working under his guidance. He had a keen eye for potential. He was strongly motivated by a talent that could be developed, and would do

all he could to ensure that the talent and the potential were realised. It gave him great satisfaction when those he inspired went on to greater and greater things. He was good at motivating others and would never take any credit for it – for Tony it was sufficient just to see others doing well.

And yet there was great potential in Tony's own life. He designed and wrote one of the first text retrieval programmes so that computers could analyse data collected about birds. This made him an instant expert in computerised information processing. He became more active in this area and published a paper on the software he had developed. He went to work with the Law Department at the university on the international statutes that then utilised this new software. So, when The Chemical Society (as it then was) decided to set up a research unit at Nottingham, it was natural that the Vice-Chancellor, the late Lord Dainton, should ask Tony to join a small advisory committee to oversee this activity. One of the first decisions was that a full-time person was needed to head the group and, to Tony's surprise, he was asked to take this on. Perhaps even more to his surprise, he accepted.

Over the next few years, the unit carried out research into chemical information services, funded by the British Library. This was trail-blazing work which led to Tony becoming one of the most informed and able people in this field throughout the world. Today research students use methods and systems which are based on the work that Tony and the unit did over thirty years ago.

Under Tony's enthusiastic leadership, the original research unit evolved into a commercial service and so UKCIS – the UK Chemical Information Service – was born. This was eventually integrated into the RSC's Secondary Information Services. Tony's obvious abilities led to his appointment as Director of Information Services for the Society – a post he held from 1979 until his departure.

It was in 1980 that Tony left the RSC and began work as an independent consultant. He and Derek Barlow formed Kent Barlow Information Associates and, under Tony's development, this partnership produced a range of new-look information retrieval software packages designed for PCs – all with ornithological names such as Eagle, Aquila, Cormorant, Magpie and Puffin. These were among the first specifically designed for PCs within the then current limitations of 64K of RAM and often operating without hard disks but using only two 360k 8-inch floppy disks.

Later, he moved to Microbel, and here his talent expanded and resulted in the development of the Strix multi-platform system which, with over 600 installations, found wide acceptance, including Government departments, TV film libraries and museums, to cite just a few.

Tony was a member of the Institute of Information Scientists and most unusually entered directly as a Fellow, granted in recognition of his pioneer work at the Chemical Society.

Tony was a far-sighted, energetic and gifted visionary whose influence extended well beyond the UK. He fostered good relations with the ACS and other sister societies, and was instrumental in setting up EUSIDIC – the European Society for Information Dissemination in Chemistry, which still thrives today. He was also a leading light in the band of co-founders attempting to set up, in the late 1970s, Infoline – a UK on-line service covering the scientific information field. He was an active member of ICSU-AB, the international committee co-ordinating scientific abstracting operations.

When not working – but is it really fair to call it work if you get paid for something you love doing, Tony's passion was birds. He loved them and everything to do with them. He worked with birds and studied them all his life. He was a founder member of the Nottinghamshire Wildlife Trust. The Trust was a very important part of his life. He was responsible

for fighting for the nature reserve at Attenborough – and he did a lot of the development and management work at Besthorpe which led to the area becoming a reserve for the Trust. He was also appointed as Reserve Manager by the Trust.

Tony was a keen golfer – a hobby which began at university. He also captained the county hockey team but his principal sport was golf. He was a member of Chilwell Manor Golf Club and his only regret in life was that he could not get his handicap down to single figures! He took his children and their friends out to play golf – teaching them and helping them – again, trying to nurture talent.

Tony was a liberal socialist. He had his own strict moral code. It was his own code and he never imposed it on others. Once he stood as a Labour candidate in a local election against a Conservative by the name of Mrs. Bottomley but not the Mrs Bottomley that you are probably thinking of! He stood for election but did so in the hope that he would not get elected – and he didn't!

Tony had personal rules about truth and honesty. He sought perfection in all he did and he was humble – so much so that even his children were unaware of all he achieved.

Tony enjoyed good health until about five years ago when his asthma became an increasing problem. It was always manageable but for the last twelve months or so it interfered with Tony's quality of life. Asthma was something he always had – and ignored – and yet it slowly developed and contributed greatly to his death.

He will be sorely missed by his family and his many friends and colleagues in both the information science and bird-watching worlds.
Doug Veal
Derek Barlow

The UK eInformation Group (UKeiG) is a Special Interest Group of CILIP –
the library and information association. UKeiG is a long-established forum
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