VIDEO INTERVIEW TRANSCRIPT

Will, Eric: transcript of a video interview (04-Nov-2016)

Interviewer: Tilli Tansey
Transcriber: Debra Gee
Editor: Tilli Tansey
Date of publication: 26-May-2017
Date and place of interview: 04-Nov-2016; Queen Mary University of London
Publisher: Queen Mary University of London
Collection: History of Modern Biomedicine Interviews (Digital Collection)
Reference: e2017252
Number of pages: 8
DOI: 10.17636/01023407

Acknowledgments: The project management of Mr Adam Wilkinson and the technical support (filming and production) of Mr Alan Yabsley are gratefully acknowledged. The History of Modern Biomedicine Research Group is funded by the Wellcome Trust, which is a registered charity (no. 210183). The current interview has been funded by the Wellcome Trust Strategic Award entitled “Makers of modern biomedicine: testimonies and legacy” (2012-2017; awarded to Professor Tilli Tansey).


Related resources: items 2017253 - 2017262, History of Modern Biomedicine Interviews (Digital Collection)

Note: Video interviews are conducted following standard oral history methodology, and have received ethical approval (reference QMREC 0642). Video interview transcripts are edited only for clarity and factual accuracy. Related material has been deposited in the Wellcome Library.

© The Trustee of the Wellcome Trust, London, 2017
Will, Eric: transcript of a video interview (04-Nov-2016)*

Biography: Dr Eric (Es) John Will BM BCh, MA, FRCP, FBRS went from Grammar School to read Physiology on a Bosanquet Open Scholarship at New College, Oxford 1963-1966. He qualified medically in 1969 from clinical training at Guy’s Hospital, London, with House appointments that included renal transplantation. He passed MRCP in 1972 and took up a Medical Registrar and then Lecturer post in Nottingham. He spent two years (1975-1977) in Leiden, The Netherlands, in day-to-day clinical and laboratory research, especially exploring crystallisation relevant to renal stone disease. Subsequently, he became Senior Registrar in the Renal Unit in Nottingham City Hospital and then in 1980 Consultant Nephrologist at the regional renal unit at St James’s University Hospital, Leeds. His main activities became the creation of haemodialysis satellite units and the development of clinical renal computing. He later chaired the Hospital Staff Committee until the amalgamation of the two Leeds trusts. Nationally, he chaired the British Renal Computing Group (1982-1988) and was Secretary to the UK Renal Registry (UKRR), 1997-2007. He was co-opted to represent the Renal Association in several peri-informatics roles, including coding in the Clinical Terms Project and HRG Casemix development. An Honorary Fellowship of the British Renal Society acknowledged a career-long concern for the development of multidisciplinary working and psychosocial issues. In the research tradition of nephrologists, he developed a research programme of clinical investigation with a computerised (expert) advisory system for the departmental management of renal anaemia, including theoretical papers and several large RCTs. In the UKRR he focussed on clinical audit and data presentation, justifying, in particular, the mechanisms of applied research and collaborative audit. He retired in 2007.

[I]. BECOMING A DOCTOR

The doctoring implies there’s some caring element, I suppose, and I can’t say that was an early motive, and I effectively was directed during schooling towards biological topics, particularly zoology. And subsequently formulated the idea that I might do forensics work as a way of being interested intellectually and also using biological elements. But that required a medical degree, essentially. So I followed that through and did physiology, a physiology degree at Oxford, and then subsequent clinical work. Things have changed since then but the physiology degree was trying to me, I think I should say; there was a lot of emphasis on the squid giant axon at the time and I even got to the point of becoming phobic of the graphical components, which is in retrospect a rather weird paradox since I subsequently became particularly interested in time series and graphics. But that was a time that I found difficult and it was also in an educational setting in Oxford that I had a lot of difficulty dealing with at the time. And in retrospect that influenced what formal qualification I got out of it. But I found the clinical work at Guy’s much more to my liking and enjoyed that very much and in particular got into the habit of very early turning the theory into a practical way of being and functioning, which gave me I think something of an advantage when it came to later qualification.

And so part of it I think, the medical part of it, turned out to be a satisfying experience intellectually and I could sense the opportunities in it, but it also gave me outlets for any of the empathic and other parts of life, which complemented that.

* Interview conducted by Professor Tilli Tansey, for the History of Modern Biomedicine Research Group, 04 November 2016, in the School of History, Queen Mary University of London. Transcribed by Mrs Debra Gee, and edited by Professor Tilli Tansey.
Well, when I was at college, I vividly remember that many of the undergraduates were already very established in their view of a business or professional career, and the medical people, few in number, were seen as almost missionaries. There was a kind of mild pity for those who were going to sacrifice themselves on this particular altar. And it turns out to have been almost completely the opposite. So while coming out of the humanities and making a portfolio career is seriously challenging, running into medicine has given me and others enormous capacity for variety and in contribution and ultimately satisfaction. And it is difficult to isolate particularly what has been most satisfying about it because of the number of areas that I was able to work in, and I suppose if anything is typical it is that I try to, and usually manage to, take opportunities that have offered themselves, whether it was in patient care or whether it was in what were known as the psychosocial aspects in my specialty, or ultimately in the information technology areas and the practical areas. So that would be a sort of, that would be a general comment.

I took the MRCP (Membership of the Royal College of Physicians) probably fairly early because I had I think managed to convert the theory into practice fairly quickly after medical school. And I did a membership course. But I got into trouble in the clinical examination because, for reasons I can’t remember the detail right now, but I came to believe that the patient probably had some form of porphyria. And I struggled with the notion that this really quite rare condition with features that were not absolutely classic, but I just couldn’t fit it to anything else that I knew and so it was with considerable trepidation and feeling that I’d probably completely destroyed my chance of passing, that I offered it to the examiners. And whether it was that I explained it well enough and logically enough to pass, or whether it was actually true, I never discovered. But it was one of those moments that one relives only uncomfortably.

[2]. CLINICAL PRACTICE & SHAPING PATIENT OUTCOMES

If there’s any measure of “achievement” it might be whether any insights or activities bothered one, and the thing that bothered me most was, as I saw it, falling upon or exploring the principle of intention and aspiration to achieve, in this case, certain outcomes or results in patients.

While, in retrospect, what I found I suppose most satisfactory was being able to take opportunities that offered themselves as they came along in the various fields. And so it’s difficult to say that there was any permanent achievement, particularly in the, (while) working hard in the clinical environment, that we were able to do basic clinical research along the lines of the consensus of randomised clinical trials and the proof of principle of an expert system of managing renal anaemia, for example. If there’s a measure of achievement in what disturbed one most it was in that area, because having come upon or explored the principle behind that, I felt a kind of existential anxiety at being the only person (almost certainly not, but actually feeling the only person) who’d actually uncovered this particular gem, and I really wanted rid of it as fast as I possibly could through publication, so that I shared it promptly with the rest of the world. And that turned out not to be entirely easy because people didn’t fully understand at the beginning that you could shape the outcomes of patients, or certainly the biochemical results of patients, deliberately. And I got down to the point of being told that the papers were like a geometrical proof because they were so spare. But it just shows you that if one has no peg to hang an idea on, how very, very difficult it is to understand development and how difficult it is for the person struggling to explain where to actually put it. And I think in retrospect that would be the defence I would offer them, if you like, even though it caused me a good deal of frustration.

[3]. CLINICAL DATABASES & INFORMATION TECHNOLOGY IN NEPHROLOGY: “THE FILING CABINET COMPONENT” VS “COMPUTATION”

As it happened, as my training developed in nephrology, I came across and was able to develop clinical databases and in retrospect that fed into interests I’d had in mathematical solutions and pattern recognition in my earlier research in Holland, for example. And there was a lot of excitement in the early 1980s about how this might be applied when mini-computers were developing. Initially, interestingly, the computational potential, the mathematical potential, the calculation potential, was seen as equal to or more important than, what you might call, the filing cabinet potential, and it’s the latter of course which has developed so hugely...
in recent years, and the computational element has become much less important. But both of them were attractive: the computational element because it allowed the calculation of dialysis dose, which to that time had not been possible on a routine basis, that was $Kt/V$ ($K$ is the dialyzer clearance of urea; $t$ is the dialysis time; $V$ is the volume of distribution of urea, approximately equal to patient’s total body water). And the filing cabinet potential because it allowed one to express the whole range of things that one was dealing with, and to some extent, pre-emptively control them.

So expressing the filing cabinet component of the information technology at that time was very difficult. There were relatively few journals and the journals that there were wanted to have some kind of study or experimental results about it; they weren’t designed to take general comment. But in retrospect, we did express it, but not at all forcefully enough, confidently enough, that if you could calibrate your populations well enough you actually ended up in a culture of settled, no surprises, things didn’t happen unexpectedly and the climate of practice was significantly changed. There’s no one word for that but it was similar to, for example, the change of climate around renal transplantation when cyclosporine replaced azathioprine as immunosuppressive. So it turned an incoherent, unpredictable scenario into something that was much more stable, and I think this is still relevant because for most clinicians within the National Health Service, for example, they still don’t have comprehensive information technology to allow that kind of comprehensive description of what they’re doing. And I think a way into it is to express this lack of surprise. This is notwithstanding the fact that some people’s practice is entirely about surprises and that they love dealing with the uncertainty of clinical practice. And also the fact that it’s not particularly helpful for teaching, where students enjoy change and drama, for example. There are disadvantages to having a controlled culture. But in terms of results and outcomes for patients, for economy and planning and so on, there’s no doubt that a comprehensively described clinical scenario is to be preferred.

I’d observe looking back that actually I’ve always had so, rather similar series of quite discrete preoccupations, when I look back at letters and publications with a kind of pattern recognition / mathematical element somewhere; some kind of synthetic rather than analytic preference.

[4]. INFORMATION TECHNOLOGY IN NEPHROLOGY & HEALTH SERVICES RESEARCH

So my stay in Holland was in a metabolic unit, whose meat and drink was obviously to do with pattern recognition, measurement, numerical data, on the one hand, that was in a clinical environment. And secondly, to do with research into crystal growth, which also needed to be described in mathematical terms, actually in Michaelis-Menten enzyme type kinetic mathematics, and, which plagued me for years in terms of trying to find explanations for how the material grew. And in retrospect this was obviously feeding an intuition of mine, an intellectual intuition of mine, that the information technology also allowed some outlet.

Well, in practice, this also turned into an intuition to try to explain the role and the place of measurement and digitisation in the clinical and other spheres. So I ruminated for years about how to explain this and of course this was helped by the development in the 90s of the audit culture and evidence based medicine up to a point. But many colleagues seem to sort of take this for granted as being sort of obviously how this should be, and things like health services research were not at that point properly labelled, as it were. So this was a kind of early approach to the role of measurement in IT in clinical affairs. And I found myself in the UK Renal Registry Reports writing about the methodological implications of the data gathering and registration, and I was always keen to add value to the collected material on the basis that it would only be complete and accurate if people actually got something out of it. The health services research thing I think was important because what was seen as basic science held all the interest for a lot of people from the point of view of reputation, and the reputation of technologies was pretty low, and I did try to explore the fact that audit itself was a scientific activity in that one typically posited a system, explored it, proved it or not, and then went around the loop again. And this seemed to me to be absolutely scientific and to be respected just as much as any basic mechanisms. Of course it tends to be a little parochial, and it tends to be transient in time, but that doesn’t mean to say the intellectual challenge is any less or any less respectable, and I think that’s come to be seen to be the case in time.
I think if there was a touchstone for this sort of thing it might be Bayes’ theorem because that was part of the development of clinical epidemiology as conveyed by David Sackett. Actually, Harry Hall had discussed it in the mid-1960s even and it became increasingly useful to everybody but it was really projected mostly through clinical epidemiology and subsequently the evidence based medicine movement. But these are very long timescales when you think about it. I mean we’re talking now well over 50 years for the insights to be fully explored and fully appreciated. And so if there was any kind of technical issue lurking in the whole cultural development you could argue that it was the Bayesian.

[5]. **NEPHROLOGY & MEDICAL INFORMATICS: PITFALLS?**

I suppose that the IT or what is now increasingly Informatics has always reflected the fashions and consensus about medical practice that take place not only within the health service but also elsewhere. One particular example in our search for a kind of Holy Grail in indications and risk factors in the speciality (was) where a paper was published in the early-1990s showing a relationship between Serum Albumin and relative risk. And it was a linear relationship in patients. And thereafter we chased that, often perhaps unconsciously, examining very carefully the laboratory attributes of patients, and we did that certainly for the decade after 1995 and we didn’t really come up with anything else that was anywhere near as good. But I think in retrospect it suggests to me that one can have unconscious drives that can potentially be very wasteful. And I think it occurred because the data from laboratories was so plentiful and available. And of course we always seem to follow the easiest thing to do, which is not wrong, but the problem is obviously that can be, that’s a little bit like a drunk looking for his keys under the streetlight, you know? That hasn’t proven to be so very useful. And although we did what other registries have done, which is to document the improvement for example, in dialysis dose, the improvement in renal anaemia and that kind of thing at unit level, there were no other necessary revelations in that. And many of the conundra about laboratory variables remain.

It’s also the informatics in particular served the huge development in audit and evidence based medicine of course, although that, to recent times, has descended into a certain amount of argument. But then some new things would not be possible without it. Particularly in the States, but increasingly here, the idea of tying investment, health investment, to outcomes and the values of diagnosis and treatment simply aren’t feasible without that digitisation. And it remains to be seen what balance will be found in that in future.

Yes, in clinical computing in the US, as I understand, and in particular the funding authorities, whether they be insurance companies or Medicare or equivalent, have had a very big influence on the digitisation of clinical consultation and so that modern currents of risk aversion, interests in safety, interests in protocol, interests in clinical pathways, have inserted themselves thoroughly into the way that practice is seen to be recorded. So this is in complete contrast to the early efforts that we explored with the clinical computing, where the database was there for interrogation by the clinician within consultation but it was all instituted from the clinical side and from the point of view of the need of the consultation at that moment. There was no external, there were no external drivers. The screens could not be blocked, items did not have to be entered and so on. Clearly there’s a balance to be struck in that, as there is in the use of the computing in consultation generally. Is it an exemplar, is the screen to be shared with and shown to the patient, or is it actually a secret mechanism for the clinician. And of course there’s a huge variety of styles in that. But as far as nephrology went, certainly early on, it was a boon within consultation. We might now ask whether it has any place there at all, and I gather in the US that clinicians are having to use lay staff to make their entries because the appetite for data has become so gargantuan.

[6]. **INFORMATION TECHNOLOGY IN NEPHROLOGY: THE EARLY & LATE CONTEXT**

It seems that in clinical, and every other circumstance, there are always opportunities for development, but there was a time in the early- and mid-1980s when the computerisation of medical activities was particularly interesting because the applications had not been fully explored and no one was perfectly sure how they might be.
One feature of this was the extent to which (UK) regional nephrologists ran with the ball as far as early clinical informatics was concerned. Many of them were single or dual handed and, at the time, with kidney failure populations increasing at six to eight per cent a year, there was a kind of austerity of senior staff, if you like, and means had to be found to safely manage large numbers of patients. So there were one or two really big drivers in that scenario for people to develop and they did develop it, I think, successfully, but also there were a lot of other applications. Planning services, for example, was taken on board and a whole range of computational and other developments, so it was a very open field. And this was reflected nationally in the development of the British Journal of Healthcare Computing, for example, and the awarding of prizes and so on and so forth. The problem being, however, that the applications were so diverse that it was not easy to keep them together and (in) the health service, even being an integrated structure, there were many parochialisms, and colleagues developed those, and so you developed a diversity of systems and methods and aspirations, which made it difficult to hold together. And it wasn’t until the mid-1990s and the development of the renal registry with the formal approval of the Department of Health and Renal Association that all of those strands came back together again.

So there was a sense in which the 1980s was a grand rehearsal for some of the later developments, not least in familiarising clinicians with the possibilities and showing the way in which those possibilities could be developed.

7. FRUSTRATIONS & PUZZLEMENT: NEPHROLITHIASIS & CALCIUM OXALATE CRYSTAL GROWTH

Yes, well, I think one of the penalties for thinking slightly ahead of the game is a certain kind of frustrated incoherence, and I think it’s probably part and parcel of actually doing that. I’ve never been actually on the crest of a wave of either fashion or interest, always slightly missed it, but that doesn’t mean to say that the background isn’t, those investments, aren’t really important. And I’ve had two major frustrations: one was again when it came to a formal qualification, a research degree, I got embroiled in a physical chemistry problem, which had its own interest. It turned out that if you try to grow, in this case, calcium oxalate crystals, that they never actually achieve the growth that they should do; they always underachieve. So they’re like a Howitzer shell that never actually reaches its full trajectory, or a bow and arrow where the arrow falls short. And we could never really understand this and I struggled with this for a long, long time and really never came out of it. And that, with one or two issues, meant that I couldn’t really produce a coherent MD basically. And so had to rather give that up. There are many other pressures when you are doing a clinical job, having a family and so on and so forth, and particularly when you can’t reproduce the results in another laboratory. But they were so consistent in Holland that I believe that that was, they were real findings. And the story was solved by the fact that the crystals grow on certain sites, some of which can be masked by their sticking together. And essentially the solution never comes to equilibrium because the crystal sites seem to be obscured under ordinary circumstances. It took a physical chemist to work that out.

So there was some way in which I missed some of the formal academic possibilities in qualifications but I hope that through, I hoped that through the development of the expert system for renal anaemia, that some of that could be made productive. And in fact we did undertake a number of randomised clinical trials of some size and demonstrated the relevance of designing outcomes or results in advance.

So in a way I suppose that I wrote a number of theses, more through publication than anything else, in a number of topics and the missionary element of medicine didn’t feature. But I, taking a lot of opportunities, one can only be grateful for the potential that one was able to bring to bear.

8. FRUSTRATIONS & PUZZLEMENT: INTENTION & ASPIRATION

And then the other thing that puzzled me for a long, long time was the issue of the importance of intention and aspiration to particular patient results. And it turns out, having thought it through a great deal, confused a lot of people as well as myself, and failed to write it up particularly clearly at the time, that when we think of an objective, an intention, a particular outcome, the fall of shot, as it were, around that outcome is not
random because there's effort required to achieve any particular result and effort means that overachievement is always going to be less common than underachievement. And so if you want to actually achieve a particular value in any different context, what you have to do is build in a margin, which actually will allow results to fall into the range that you want. But the importance of this is that declared targets or objectives are actually systematically mischievous, that you will actually systematically underachieve in these sorts of circumstances if you don’t understand this principle. But it turns out I mean however many colleagues now believe that or recognise it, I don’t know, but the use of a targeting analogy, a military analogy, particularly in America, it's been enormously important. As far as I can see most of it is nonsense because of this underachievement. When you're a salesman you understand the difference between what you hope to sell and what it is really thought that you will sell. And the same is true in many of these medical situations.

[9]. END OF LIFE MANAGEMENT

In nephrology one inevitably deals not infrequently with the end of life and I suppose that made me think about that rather more than some. What impressed me I think mostly about working within the unit in a properly consenting, multi-disciplinary environment was that most of those problems were solved through a group perspective.

So in practice what impressed me was a way of managing this through a group perspective because while it's entirely possible that groups of multi-disciplinary staff can come to the wrong decision about things, they very often seem to come to sensible decisions. So I think part of it was that there was usually no hurry about decisions relating to end of life mechanisms, whether it be treatment or different sorts of management. The urgency of many of these decisions seems to me to be particularly to serve the Press and so on. But actually in practice, decisions generally don't need to be taken quickly and one can allow a settlement of feeling on both sides of the divide, as it were, patient and staff and family, to allow some settlement towards a combined solution. And while I know sometimes that’s not possible, it very frequently is. And that sort of discussion was part of the way I tried to integrate the different staff in the unit.

[10]. HOPES & FEARS FOR THE FUTURE

Well, things are changing so quickly that one wonders whether any prediction is possible. It’s salutary that it's more than 50 years now since the insights of the need for an evidence base to medicine and so the penetration of these kinds of high level attitudes is likely to be very different to the speed of penetration of mechanisms, IT mechanisms and others. So it is obviously difficult to know where that will go. I never found any conflict between holistic approaches in consultation and the informatics and I don't see any fundamental reason that there should be, but there are other things which can come into that. For example, Iona Heath's teasing out of the difference between clinicians and managerial solutions, the difference between skill and discrimination in diagnosis versus an emphasis on system management and the routine.

So there is yet a lot of space, a need for reconciling professional, economic, managerial issues, and I would generally buy into Iona Heath's separation of the professional as a discriminator and interested in detail in particular and managerial tasking to do with system approaches, routine approaches and so on. So it seems generally speaking that these are yet to be reconciled and one hopes for some reconciliation of that, and that is true not just in medicine but throughout all the professions. And the extremes of application of the IT and clinical terms is a version of that kind of conflict. But clearly the informatics is going to be hugely important in genetic and other developments. I suppose people need to be cautious about their optimism about this. There is talk of informational utopias you know and the solution of all problems by digitisation, which seems somewhat unlikely. And while one expects enormous advances in characterising the individual through the genetics, exactly what that’s going to relate to in terms of management and outcome remains to be seen.

[END OF TRANSCRIPT]
Further related resources:


