

The Back Pages

viewpoint

Helping those in primary care to publish in academic journals

GETTING an article published in a peer review journal is a prized activity. It marks the endpoint of a piece of research. It allows us to establish ownership of pieces of knowledge, and through this make sensible decisions about which individuals to promote and which research institutions to invest in. It distinguishes learned professions from vulgar trades. Above all, it adds to that relentless onward march of knowledge, which informs our practices and improves our delivery of health care.

That's the prevailing ideology, and the current fashion is that GPs and others in primary care should hasten to join in. But, while it does not seem too difficult to persuade them to enter into the early stages, translating this initial enthusiasm into published papers seems another matter altogether. They soon come up against a range of attitudes and practices that gradually burn away their enthusiasm, leaving them with papers that have been written and worked upon, but not published and (in some cases) not even submitted.

The main difficulty is that getting a scientific paper published involves two activities: doing science and writing it up. The first is critical, the second creative. The first is valued and the second ignored. Authors are under constant pressure to write their papers, and usually start too early, before reaching an understanding with their co-authors over what they are writing and for which journal. When finally they have finished their first draft, they send it out for comments. Some weeks later the first drafts are returned, peppered with what are usually called corrections (but are actually no more than proposed changes), and the luckless author has to embark on difficult negotiations with those who have wielded the red pens. Once past this stage, the author may be allowed to present at a meeting, where similar conventions apply: he or she who criticises most is deemed the cleverest. Then they may have to submit this or another type of report to the grant-giving authority, to reassure them that the money has not been wasted.

The rationale is that this process enables writers to achieve quality; the reality is that it slows down what is going to be a difficult task anyway. There is little consensus on quality, in fact definitions seem to increase in direct proportion to the number of people involved. Status and position appear to count for much: not so long ago I was told by someone from NICE that they did not need to publish criteria for their poster competition because it was being judged by senior people who obviously knew what to look for.

All this clearly deters those new to the game from joining in. Over the past 10 years, I have run several hundred courses on writing for journals, and about a third admit to bottom drawer papers – articles that they have started but, for reasons unconnected with the calibre of the science, they have abandoned. Apart from the waste of time and effort, think of the effect on morale as many are led to feel that they are somehow failing in their personal and professional lives. In 10 years only one doctor decided – in a blinding flash at the end of a two-day course – that he had no longer any need or desire to publish, and was going to take his son fishing instead.

So what can we do about encouraging those in primary care to get published? First, we need to introduce a culture where creativity and productivity is valued as much as critical appraisal. We need to set up environments where writers are coached rather than criticised, and the act of having published valued more than the process of getting it ready to be published: as the American humorist James Thurber famously said: Don't get it right, get it written. We need to recognise that this requires a whole range of other skills, such as realistic goal-setting, project management, negotiation, market research, organising information and upward management.

We also need to introduce a healthy note of scepticism. Those who publish most are not the cleverest, nor the best clinicians, nor even the best writers (or if they are I haven't yet seen any evidence beyond the anecdotal to support it). They are simply those who have put getting published at the top of their personal agendas, and have allocated their time accordingly.

Tim Albert



“...researchers and thinkers from fields as diverse as computing, philosophy, mathematics, management, evolutionary biology and medicine have been converging on a range of ideas loosely grouped together as complexity.”

Chris Burton, on Complexity, page 866

“...what to do should you accidentally drop a small baby when no one is looking...”

Answers in *Doing Right: A practical guide to ethics for medical trainees and physicians*, reviewed by Rob Daniels, page 869

“Literature moves the soul; medical writing moves the bowels...”

Goodman, as per usual, page 871

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If it was that easy, said the philosopher Derrida, *word would have gotten round*. The conference on complexity held recently in Exeter was the first event to bring together practitioners, researchers and managers to debate the potential applications of the complexity sciences to health care. Organised by David Kernick of the St Thomas Medical Group and Frances Griffiths of the University of Warwick, the conference is one of the fruits of the workings of the Complexity in Primary Care Group, a group of practitioners and researchers interested in developing the ideas of complexity for health. But why complexity? Isn't life complex enough?

Those behind the conference have come together for two reasons: a growing concern about the way science was being used and presented in clinical practice; and an awareness that the metaphors, analyses and maths of chaos and complexity were increasingly being applied in the biological and more recently the medical sciences. During the conference these two views were presented and debated.

The conference began with a taster introductory session on the first evening, where delegates were informally introduced to the pretty strange vocabulary and notions of complexity...

What is a complex adaptive system anyway? In short, one that has a large number of components which interact richly and diversely with each other in a non-linear way, is open to and interacts with its environment, is influenced by its own history and is capable of self organising when far from equilibrium.

Sorry, non-linear? Linear reactions are central the ideas of normal science, for example conventional physics or engineering, where one can predict the nature of an output from the input - large inputs produce proportionately substantial outcomes. Increasingly, scientists have realised that nature is resolutely non-linear, causal associations can have both positive and negative feedback (think about health care provision, the more is available, the more is demanded) and small inputs can have large effects and vice versa. Examples in medicine abound. Following Christopher Reeves horse riding accident in which he suffered a fractured neck (a small input), there was a huge increase in spending on research into spinal injuries (disproportionate output). For an example of the opposite, one need look no further than the relatively modest impact of the hugely elaborate *Health of the Nation* project mounted by the Department of Health.¹

And self-organisation? This describes the ability of a complex system, when pushed

far from equilibrium not to disintegrate, but to develop new structures which adapt more productively to the new environmental stimuli. This ability has long been noted in large commercial organisations as they respond to new more threatening market forces. Oticom, a large Scandinavian company completely restructured its workforce's organisation by creating maximum flexibility for the employees to group themselves in whatever way they thought would best respond to the new pressures. Staff forsook their desks in favour of file carts and mobile phones to make themselves more flexibly available to others.² The behaviour of such systems is referred to as emergent, constructed by the interaction of the components of the system.

The morning of the second day consisted of a series of short presentations, during which the chair ensured that the delegates were able to intervene when they felt confused - as almost everyone does, when introduced to the new ideas from complexity. Vivian Rambihar, a cardiologist from Toronto proposed a mathematical theory of medicine based on chaos and complexity. He explained how non-linear dynamics had been widely explored in health and disease, for example in coronary artery disease where there is a complex dynamic interaction between genes and the environment which produces unpredictable events, or immunology, with cycle variations in neutrophil count and immune response. Non-linear dynamics he argued, forces us to rethink our ideas on causation, risk assessment and intervention. Sarah Fraser and Peter Dick from the Department of Health discussed how ideas from complexity were being applied to organisations like the NHS, and Durham based social scientist David Byrne talked about the potential research agenda created by exploring fresh applications of complexity.

And if this was all becoming a bit too theoretical, the afternoon session on day two was set aside for short practical presentations on getting complexity into practice.

In order to allow the conference to behave like an adaptive system itself, the final session, on the morning of day 3 was left open, convened by Julian Pratt of the London School of Economics, to allow delegates and presenters together to work on any areas of confusion, and to begin to set an agenda for both practical applications and research into how complexity can be used to improve the organisation and delivery of care in the NHS.

In an unpredictable world, one thing seemed more certain after the conference: complexity isn't a passing fad.

Keiran Sweeney

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2. Wheatley M. Leadership and the New Science. San Francisco:Berrett-Keohler 1999.

The Complexity in Primary Care Group can be contacted at

Old Dog, New Tricks: the past, present and future of family medicine

THIS meeting, organised jointly by the Department of General Practice and the West of Scotland faculty of the RCGP as part of the British Association Festival of Science, was hosted by the University of Glasgow. The aim was to review research evidence concerning the past, present and future of family doctors as they confront new challenges.

Professor Graham Watt (Department of General Practice, University of Glasgow) opened the morning session by asking what is valuable about family medicine that needs to be conserved as we look to the future. Professor John J Frey (Department of Family Medicine, University of Wisconsin) then discussed his work researching family doctors that serve the same community for their entire careers. Dealing with boundaries was one of his main themes, which he explored by illustrating the many roles family doctors have in small communities. He then discussed the reasons these doctors remain in the same community for their entire careers. He suggested autonomy, opportunity, family, responsibility, and a feeling of being valued by the community.

Dr Graham Smith (Oral Historian, Department of General Practice, University of Glasgow) discussed the GPs attitudes technology, based on his study *An oral history of general practice in Paisley*. One of his interviews was of a GP recalling a problem he had experienced with technology. The GP was examining a pregnant woman with a doppler machine when it picked up a voice which seemed to be coming from the unborn baby. The GP recalled the mother's alarm until she realised it was picking up a nearby taxi's radio signals! Dr Smith pointed out that technology can get in the way of the doctor patient relationship unless there is an appreciation of its impact.

The final speaker of the morning session was Professor Sir Denis Pereira Gray OBE giving his perspective based on 40 years experience in practice and as a senior academic general practitioner. Sir Denis took us on a whirlwind journey exploring where we have come from as a profession and reminding us of the many achievements of primary care over the last 50 years.

Looking to the future, Sir Denis expects to see family medicine becoming more important in light of the Human Genome Project. He predicted that teaching hospitals will decline in importance as medical education decentralises into the community. He expects an explosion in primary care research and a shift to longer GP training. He acknowledged that change would also bring losses for example continuity of care. Sir Denis concluded by reminding us that change is continuous and when it seems daunting it is reassuring to look at what has already been achieved.

The afternoon session, *Working Differently*, was chaired by the Newsnight presenter, Kirsty Wark. Opening the session was Professor Martin Roland (Director of the National Primary Care Research and Development Centre, University of Manchester).

Professor Roland discussed his recent research, which found that free internet access, providing health information to patients in a deprived community, wasn't being used. He commented that the IT revolution is leading to the middle classes becoming increasingly able to make decisions about their health care. In contrast, patients in deprived areas perceive that they have little control over their lives therefore continue to be passive receivers of information from their doctor. He was followed by Professor Sibbald, NPCRDC Deputy Director, who discussed the worldwide trend towards multi-professional teamwork in primary care. Evidence so far seems to show that although other professionals can provide the same quality of care as GPs, it is no more cost effective.

Professor Frank Sullivan (Tayside Centre for General Practice, University of Dundee) titled his presentation *From Housecalls to Mousecalls*. He explained how the information revolution was changing how we practice now and will practice in the future. He foresaw patients using new technology to access health information and self-treat, only using doctors for more complex problems.

The final speaker of the day was Dr Scott Murray (Department of General Practice, University of Edinburgh). He introduced the concept of rapid appraisal, a technique to diagnose major socio-environmental issues affecting health in a community. Dr Murray told of his experience facilitating the *Dumbiedykes* (an Edinburgh housing estate) Health Forum. This forum allows local people to meet the local councillor, housing officer, community policeman, education worker, etc. It has seen some marked successes, notably changing a bus route, getting play areas built and upgrading residents central heating. He suggests that such a community-orientated approach is more likely to improve patients health than writing yet another letter to the housing.

The day ended with a final plenary discussion chaired by Kirsty Wark with wit, authority, and penetrating questions. It was an excellent day of discussion and provided an opportunity to share ideas and experiences. After the final meeting, Professor Martin Roland was invited to join the Astronomer Royal and the Government's Chief Scientific Adviser for a radio debate. Does this mean that general practice has arrived as a scientific discipline?

Joan Scott

Computer

Seventy years ago, economists first described Kondratieff Cycles—50-year periods when critical technological innovation is introduced with significant effect on social and economic development. Information technology drives the latest cycle; society accelerates on the dynamic of technological change.

Innovation invokes alarm among social commentators. The printing press would put revolution in the hands of the masses; electronic calculators were going to create a generation of mathematical illiterates; television would destroy discourse; the microwave would end traditional family life. Lamentations of the passing of the old ways; tradition—the obstacle to the forces of renewal.

But whereas other enabling developments in medicine, such as X-rays and antibiotics, led to rapid progress, the computer initially presented health care with a powerful solution in search of a problem. Apart from the evidence-based medicine movement, seduced by the rapid storage and data retrieval facilities that only the microchip could offer, the NHS electronic revolution has always been just around the corner. A piecemeal history of delay and doubt that a recent House of Commons public accounts select committee documented as a spectacular waste of public money.

Never the less, e-health is to revolutionise the way we deliver healthcare—the electronic future for the health service is officially here. The NHS document, *Information for Health*,¹ outlines an ambitious strategy for using computer technology with the aim of giving the people of the country the best system of healthcare in the world. The vision—a seamless IT network where routine tasks disappear in an era of telemedicine, blue technology and distance-free network learning. On-line appointments, consultations, results, prescriptions, purchasing and contracting. The list is endless as the health service metamorphoses to an Information Transfer Agency. From NHS to ITA.

Admittedly, a mere detail in the over-arching perspective of the grand plan, the ITA seems unresponsive to the call for an evidence-based health service. To date, demands for a substantive allocation of resources to develop the new NHS net have been on the basis of qualitative arguments and theoretical considerations,² ignoring the limited evidence base that has surfaced against the current of negative publication bias which counsels caution.³ Fortunately, reassurance is at hand. Spectacular savings in public money are guaranteed from the IT jamboree. The Department of Health believes that e-pharmacy services alone will cut administration and fraud, saving a 100 million pounds.⁴ Overlooking the fact that from this same department emerged the prediction that millions of pounds of efficiency savings would be released by the introduction of the

purchaser-provider split but, on revision, now predict savings of one billion pounds from its demise⁵—there are, however, more fundamental concerns.

The phenomenon of interest in primary care is the interaction between people that affects the meaning of their lives and their health; a complex learning process of multiple interactions and perspectives. Evolving through narrative and the use of metaphor we are provoked and challenged to define our thoughts more clearly and develop new insights, in a world where human communication is not digital, algorithmic, processed or disembodied, but arranged as narrative and propositional themes that organise the response of those individuals in their being and doing.⁶ Here, clinicians act intuitively as interpreters, making sense of the problem confronting them within its particular context and contingencies.

Seventy years ago, TS Elliot asked 'Where is the wisdom we have lost in knowledge, where is the knowledge we have lost in information? Doctors act as they do for good reason—the uncertainty and complex nature of medical care is their directive towards decision making, based on experience and wisdom rather than probability.

Knowledge is not wisdom but the insight that derives from the synthesis of information: data that has a directed use. Wisdom is the insight that emerges from the quality of conversational life and the experience of relating a phenomenon that can never be reduced to the binary information on a silicon chip.

In this interacting flux of events that unfolds through time in a socially constructed reality: can the computer help us recognise the complex and subtle structures amid the wealth of detail and cross-currents of primary care? An impression of absolute organisation, we come to believe that we must aspire to the directives of the machine that demands that we imitate it. Directing a world where rational solutions are always to be found, procedurally rigorous, and value free, wisdom is diminished to an extension of the hardware and compressed into a set of binary digits.

The computer is dead—long live the computer. In my large group practice I'm leading the initiative to update our computer system with the latest technology. I've just signed the cheque. Our aim, for a paperless health care system integrated into the NHSnet with endless data at our fingertips

A new practice vision for the information age or an abject submission to the directives of technological change? There must be no disappointment in the search for certainty. Are we all destined to succumb?

Do not underestimate the power of the Kondratieff cycle.

David Kernick

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4. Hoeksma J. Electronic Future for the NHS. *British Journal of Healthcare Management* 2000; **6**: 472-474.
5. The NHS Plan; a Plan for Investment and Reform. Department of Health, 2000.
6. Stacey R. Strategic Management and Organisational Dynamics. The Challenge of Complexity. London: Prentice Hall, 2000.

Teaching communication skills ... on 11th September 2001

A normal day - one of the busiest of the year, for me anyway. I had to give a lecture on the importance of communication skills to the new students. They had just returned from the long summer vacation, the last long one for many of them - and their clinical years loomed ahead. The morning went off without a hitch, short lecture, even shorter video, the patient point of view (as if there can only be one - and the same one every year!) and small groups.

The afternoon was the real start, seeing patients - for some this was the beginning of their clinical careers. What's it like? Who do we see, what do we do, what should we say, how do we introduce ourselves - these are some of the questions students had though a lot of them did not articulate it.

I decided that they should see the pre-chosen patients and report back. When I returned to the department for a five-minute breather the TV monitor was on and pictures were live from New York. A plane had crashed into one of the twin towers and lots of people had been killed. Wow. I sat down, stunned, immobile, surely this can't be right, an accident, definitely an accident and although the first tower was burning badly it was still standing. The students returned from their first patient experiences.

It was difficult to concentrate. One or two of the students had begun to hear, they were looking worried and a bit anxious and I heard that it 'could have been terrorists' - surely not. We decided to keep the feedback short and simple, how can you learn communication skills by just talking? The students felt fairly relieved to be let off early - was it my imagination that they weren't concentrating? I suspect not.

By the time the TV went on again, both towers had 'collapsed' - a funny adjective since I thought 'purposefully destroyed' seemed more accurate and nearer the truth. The twin towers, with all those people inside, had gone forever in a mere few minutes. No more will the WTC be on the tourist trail, or perhaps the location will be - for other, more grisly reasons. The rest, as the saying goes, is history.

Two days on, a countless number of pictures, a seemingly endless series of reports, analysis, discussions and superlatives have issued forth. 'The world will never be the same again' is a favourite, but I wonder whether for those students, returning to medical school and attempting to see real live patients, these memories will be forever etched in their minds.

For those thousands who perished, RIP.

kevork hopayian

The many faces of racism

After just two paces on Israeli soil, I was brought to a halt by airport security. I watched the line of other tourists disappear into the passport control hut, my family (oblivious to my situation) bringing up their rear. Though this scene had been projected in my mind for weeks, like a film trailer, it still came as a shock to see the soldiers barring my progress for real. I explained that I was there to attend a medical conference. After I had repeated twice, without contradiction the details of times and venues, I was allowed to join my wife and daughters, who had by then realised they had left me behind.

I am used to mistaken racial identity. At times it can be amusing - flattering even, like the time I was mistaken for a Colombian at a Salsa dance. I had a premonition that the Israelis would mistake me for an Arab and stop me for questioning. Ironic, because in the East End of London I have often been subjected to anti-Jewish abuse. In North London, I have been one of those Greeks taking over. In France, I have been mistreated as an Algerian. I suppose the reason for my multi-fit face lies in the mixing of races in the Caucasus, where my grandparents originated. In Armenia, Semites, Aryans, Mongols, and Turks mixed over many generations, giving us Armenians the equivalent in physiognomy of blood group O.

One memory I still carry is of the time I was a junior doctor in paediatrics at Bedford General Hospital. The landlord of the pub favoured by the junior doctors' mess refused to serve me. No Jews were allowed in his pub. Sometime later, two medical students from my old medical school were attached to our unit. At the end of their stay, they invited me to join them at the same pub. I explained what had happened and why I would never return there. But Kev, they said, you must come - we'll explain that you aren't really Jewish.

Some years back, the scandal of racism in medical schools was revealed when a South London Medical school computerised the triaging of applications. One independent variable, discovered through analysis of behaviour of past selection committees and thus entered into the computer program, was race. Asian applicants were awarded fewer points.

Racism has many faces. Open hostility, like the fascist landlord's, is frowned upon by the middle class: bad manners, you know. Professionals have more discreet ways of making their feelings known, such as the junior doctors at another mess who referred to blacks as 'chaps with a high melanocrit'. The middle classes admire witty circumlocution, secure in the delusion that it separates them from the barbaric working class. How far away is that from accepting racism as harmless when it doesn't affect you or those around you, as those medical students did? And how could I tell that when my back was turned, they were not using witty circumlocutions about me? Because you know, there are times you find out what people call you behind your back (in my case - Makarios, Rasputin, Shylock).

I cannot blame the Israeli soldiers for taking precautions - sure, I could just as well be an Arab terrorist as a Colombian dancer. But the irony brought back that incident in Bedford. It set me contemplating the many incidents of open abuse (some physical, but mostly emotional) I endured while growing up in London and which I left behind on joining the middle classes by qualifying in medicine. It set me musing over what became of those medical students. Are they by any chance on the selection committee of a famous London medical school?

This is the twentieth article in our continuing series, Postcards from the 21st Century, commissioned and edited by Alec Logan, Deputy Editor, BJGP, London, and Paul Hodgkin, Primary Care Futures.

Postcards from the 21st Century Complexity

As GPs we know that that illness, patients, and organisations do not behave in a straightforward way. We introduce changes, such as drugs, advice or strategic plans and nothing happens. On other occasions we do what seems like the same thing and everything works the way it should. Unpredictable responses are not confined to empirical try a bit of this approaches. On the contrary, they occur after we have employed the best evidence and the most rational thinking to plan our approach. Of course this could be plain random chance, but perhaps there are other explanations. And if there are explanations, perhaps there are ways of making the good outcomes happen more often. With questions like this in mind (along with how did life evolve?, can computers think?, and other trivia) researchers and thinkers from fields as diverse as computing, philosophy, mathematics, management, evolutionary biology and medicine have been converging on a range of ideas loosely grouped together as complexity.

Most ideas behind modern medicine and organisational management are grounded in the paradigm of linear external control do X to the system and Y will happen (or at least will happen more than if you didn't do X). Complex systems thinking, on the other hand, suggests firstly that order and adaptation arise within the system, and secondly that adaptation depends more on the interactions of the parts of the system than the actual parts themselves. These interactions are non-linear, such that large causes can have small effects or vice versa. Some properties of the system, instead of being present as parts of the system, emerge from its interaction such that the whole system is greater than the sum of its parts. It means that trying to understand the system by reducing it to its constituent parts will always fail.

While this is hardly news to people living in the real world, the fact that scientific ideas about non-linearity and self-organisation are steadily gaining validity gives the notion of complexity strength to challenge the prevailing models of linear external cause and effect.

The idea that these principles may have a place in understanding the practice or organisation of primary care is not difficult to grasp. Consider, for instance a group of practitioners working together in a PCG or similar group. The way things work is often more dependent on how members interact with each other than the positions that they take in the organisation. Regardless of the intended chain of command, people tend to link with those they know or want to work with, and for each grouping there is a different dynamic. Despite adopting superficially similar structures to a successful group, nothing much happens in

terms of improving services.

Alternatively consider an illness: the stressed teacher with irritable bowel syndrome also gets indigestion and fibromyalgia. These symptoms didn't happen when he wasn't stressed at all, but now they come and go almost independently of other stresses. Despite these things he carries on putting extra demands on himself and, with a bit of help from his doctor, he copes.

Conventional models of management and disease don't handle scenarios like these terribly well. They get written off as the twin evils "resistance to change" and "heartsink" despite the fact that the subjects in both may adapt and survive as well as the text-book organisation. Indeed they may be doing everything "right", but as the myth of transferability of success in turning round failing schools shows, what works marvellously in one place may fail completely elsewhere.

In order to see what complexity offers primary care, I suggest three strategies: looking for attractors, watching what emerges and expecting the unexpected.

Looking for attractors

In dealing with complicated ideas (such as huge sets of numbers which, despite having a superficial appearance of randomness actually have a hidden structure) mathematicians have come up with some neat ideas which have been borrowed by complexity theorists. One such idea is that of attractors in phase space. Whilst sounding like a cue for choruses of "beam me up Scotty", such ideas are worth some thought. Phase spaces are a way of thinking about all possible values of a category as if on a map. For instance, a study of why some practices changed and others didn't developed the concept of practice goal space. Such a space might include areas like "make more money", "have a quiet life", "give priority to patients with heart disease" or even "only be nice to patients whose first name begins with P".. All are possible values for the practice but in reality some will occur more often or be regarded as more important by the members of the practice: these are termed attractors.

Complex interactions in irritable bowel syndrome

Far from being a simple association between a single causal factor (stress, diet or gut dysfunction), research into IBS is revealing complex local interactions between gut flora, host defences, neuroendocrine state, and possibly dietary balance. Linear analytical techniques have shown weak associations between these and the distress caused by symptoms; complex models may allow broader perspectives in which multiple elements can interact within the individual.

Further Reading

Cilliers P, **Complexity and postmodernism** London: Routledge 1998

Despite the scary title this is a remarkably clear book which introduces complexity to the general reader.

Gleick J, **Chaos**. London: Minerva, 1997 The original lay reader's guide to chaos theory, readable on a train as the author captures the excitement in the early discoveries of non-linearity

Stacey R. **Strategic Management and Organisational Dynamics - the challenge of complexity**.

London: Pearson Education, 2000 One of the best introductions to complexity in organisations and management

Online Resources

Plexus Institute

an independent and increasingly influential group of healthcare advisers and complexity thinkers based in the USA. Their online and paper publications include *Edgware* an excellent guide to complexity particularly with reference to healthcare organisations.

<http://www.plexusinstitute.com/edgware/archive/index.html>

Complexity in Primary Care Group

An informal UK group of clinicians, managers and others promoting thinking about complexity in primary healthcare practice and research.

<http://www.complexityprimarycare.org>

To think further about how attractors work, imagine now that the map has been changed into a landscape in three-dimensions – the Lake District, for instance. The attractors become valleys and in between them lies higher ground. Walking through that landscape you find that once in a valley, you tend to stay awhile; for to move to another valley would require lots of effort. Shallow, smaller, valleys are easier to get out of than large deep ones, while from a ridge between valleys it takes very little energy to head down into one or the other.

Imagine now the effect of trying to get several people, each from a different point in the landscape, to converge on the same place. The instructions will be different from each point. For some places miles apart they may be almost identical; for others close together they may be very different. Now imagine each person or group in their own different landscapes. Is there any hope for generic instructions, other than leave the area completely and start again? Similar findings emerged from the study of practices: an intervention to promote one aspect of practice had powerful effects on one team of doctors, but none at all on another group who, although in many ways similar, had different attractors in their goal space.

See what emerges

A key concept in complexity is that of emergence – the occurrence of phenomena that depend on the interactions of the parts, rather than anything within the parts themselves. A classic example which demonstrates that simple rules of interaction can generate complex emergent behaviour, is a computer programme called *boids*, which simulates the flocking behaviour of birds by using three simple (and superficially contradictory) rules. To an observer, the behaviour of the simulated birds looks immensely complex, despite the fact that they are driven by simple, though hidden, rules.

An example from management is an organisation's morale. Each member of the organisation will have views on how they feel as an individual about their situation. As these individuals interact there emerges a larger, more generalised morale, which can change, either slowly or, at times, suddenly. Anyone watching British primary care, from the inside or the outside, will be aware of the way an emergent phenomenon such as morale – which is easily recognised but difficult to define in a reductionist way – can change. Complexity thinking suggests that it is not grand national gestures that will change morale; instead, it is improvement in the daily interactions of individuals which is much more likely to change things.

Expect the unexpected

Both the idea of attractors and the notion of emergent properties should shatter any

persisting belief that we live, and work, in a straightforward predictable world. We have now traded certainties, such as the hand of God or of fate, for statistical probabilities. Unfortunately we tend to imbue these probabilities with unjustified certainty. Somehow it seems counter-intuitive in a probabilistic world for rare events to happen at all. It shouldn't have happened – applies equally to our bewilderment that an apparently healthy young person has become ill, as to people's anger when things which can go wrong, do.

Because of its basis in non-linear interactions, complexity thinking accepts that sometimes unexpected reactions will happen. We know from the study of medical and other accidents that often a series of relatively minor changes coincide, amplifying the consequences. When incidents happen like this again, from extraordinary interactions of ordinary parts of the system – external linear control cannot cope. Many of the things which seemingly caused the problem were simply normal parts of the process. Complexity thinking suggests that safety monitoring may need to switch from regulating the parts of the system ever more tightly to watching for signs of emerging catastrophe and tackling these responsively.

Conclusions

By introducing the ideas of looking for attractors, seeking what emerges, and expecting the unexpected, the language of complexity introduces new metaphors, and possibly hints at research methods for understanding complex systems, such as illnesses and organisations. Even if the new ideas don't let us see how to do things well, we may at least have a clearer idea of why we so often fail. By highlighting the importance of interactions within all the parts of a system, rather than the performance of a few, we may be witnessing the development of a new science to underpin our long tradition of holism.

Chris Burton

Practices as complex adaptive systems

A study of an incentive payment for practices to help patients stop smoking failed to produce the expected effects. While a few practices changed the way they provided advice or recorded data, most considered the implications of change and opted not to carry them out. All displayed a degree of adaptation to the simple initiative but these adaptations reflected emergent properties of the practices, such as ethos, more than structure or organisation. Adaptation to one minor change was not seen as an isolated event but one with repercussions across the way each practice team worked.

Operating openly

How do you get very complex systems to run better? More control? More guidelines? More planning? These answers run their writ every day in the NHS but some impressively complex systems have been created with almost no top-down hierarchy or planning. The Internet is one example, the Linux operating system another. These are examples of 'open source' working where success is delivered by a small number of highly motivated professionals, working for free in a fluid, almost chaotic way.



All well and good for geeks but what about medicine? Interestingly the Cochrane Collaboration also bears the hallmarks of an open source system: massively useful results, produced by a handful of minimally directed experts. Perhaps – and we're stretching things here – there are also elements of open source creativity in primary care: 50,000 professionals doing their daily thing with 1 million members of the public. The idea that we might improve things by having less command and control has a keen appeal. So what makes busy people donate their time and effort to open source projects? The answer is peer approval. All professionals are much more motivated by pride and peer esteem than by money and both Linux and Cochrane have evolved subtle but explicit ways to recognise excellence and commitment. This works because open source (and much else in the world of professional motivation) functions as a gift economy – prestige derives from what you give, not what you have.

Many a PCT already feels like a badly run gift economy – all giving and too little recognition. Correcting this with money alone will never work – there is never enough and financial rewards are paid regardless of quality. So what are the lessons of open source successes for primary care organisations? Pay more attention to the subtle, public recognition of good work by your professionals. And for the Department of Health? Take your anxieties in both hands and ease up on command and control. hodgkin@primarycarefutures.org

For more on open source see 'The Cathedral and the Bazaar' by Eric Raymond. O'Reilly Books 1999 or see www.tuxedo.org/~esr. See also the Open Source Health Care Alliance at www.oshca.org hodgkin@primarycarefutures.org

Reference

1. Vinken P, Schl ter L. The foreground of Bosch's *Death and the Miser*. *Oud Holland* 2001; September/October [in press].

More information at www.BoschUniverse.com, which will outlive the exhibition. World famous triptychs, such as *The Garden of Earthly Delights* can be opened to zoom in on the many bizarre details that characterise Bosch's paintings. Plus art history, science, and (it says here) interactive gaming – the game's final goal is Bosch's heaven or hell.



The Death of a Miser
Hieronymus Bosch.
National Gallery of Art, Washington

Hieronymus Bosch as a storyteller

Boijmans Van Beuningen Museum, Rotterdam, 1 September–11 November 2001

Opening hours: Tuesday– Sunday from 9.00 am to 6.00 pm.

Admission: Euro 9.08 per person. Catalogue in English : Euro 27.0

It sounds like a short story by Jorge Luis Borges: a medieval painter whose life is a mystery except the year of his death; the creator of a highly original and remarkable output; frightening devils and monsters, filled with peculiar symbols and satire. Mysteries of attribution – which panels are original and which not? A man who had many imitators and followers, the painter of many panels and drawings which for the most part got lost, the creator of a very private universe appealing to different audiences during the centuries, all symbol-hunting and in search for a meaning in his work. But he's not a fictional hero. No, his name is Hieronymus Bosch.

Hieronymus Bosch was born around 1450 Hertogenbosch in The Netherlands. He lived and worked there throughout his life and is named after the city. Only 25 paintings and seven drawings are generally recognised as by Bosch himself. All these drawings, and 17 panels, are now on show at the largest Bosch exhibition in history, only on view in Rotterdam this autumn. This is an exhibition large in scale, though the authentic work of Bosch is small (in amount and size) and its pictorial elements even smaller. Every visitor should wear his bifocals and make sure he's in a fighting spirit: all the visitors are crowded in front of the panels.

The comparison with Borges is not a lighthearted one, for Hieronymus Bosch is also a story-teller. A painting by Bosch is meant not only to be looked at, but to be read. Pictorially read, that is, for it is full of a visual vocabulary with which everyone was familiar in his time. The combination of text and image in his paintings is also superb. And ambiguity abounds: in his famous *Extraction of the Stone of Fools*, for example, he painted *Meester snijdt die keyras* – *Myne name is lubbert das* (Master, cut the stone out quickly – My name is lubbert das). At that time, lubbert das meant something like lazy lump. The painting makes fun of man's credulity. Who is silly enough to have a stone cut out of his head?

There are new discoveries. Dendrochronological analysis – in which the rings of the paintings' wooden panels are counted – reveals that four famous panels previously thought to be independent works are in fact part of the one triptych. The four works concerned *The Pedlar* (from Rotterdam), *The Ship of Fools* (Louvre), *The Allegory of Gluttony* (Yale), and *The Death of a Miser* (National Gallery of Art, Washington) now appear to have formed the outer and inner sides of the left and right wings of a triptych. The subject of the middle panel remains unknown.

Of these four, *The Death of a Miser* is especially interesting, as it is one of the very

few representations by Bosch of an internal setting. The panel reveals a bare, narrow, wood-vaulted room where a naked man is seated in bed. Death, aiming his long arrow at the dying man, enters the room from the left. An angel props the man upright and urges him to recognise the emanating crucifix in the Gothic arched window. The depiction is derived from a scene from one of the mortality books which, under the title *Ars moriendi*, circulated throughout Europe in the late Middle Ages. The objects in the foreground – the assembly of armour and weapons, the cloak, and the sleeved garment – have no obvious place in this death scene and they have not so far been satisfactorily explained. Interpretations range from those who regard the objects as referring to the miser's previous life and those which see them as being imbued with symbolic significance. In the catalogue the curator opts for an interpretation (dating from 1982) that the dying man is a pawnbroker and money lender.

But there may be another explanation for this diverse range of objects. Consider the passage from Saint Paul's Letter to the Ephesians 6:10-17, in which the Ephesian Christians were called upon to seek their strength in the Lord: '*Put on the whole armour of God, that ye may be able to stand against the wiles of the devil.*' (Eph. 6:11); and *Whereupon take unto you the whole armour of God, that ye may be able to withstand in the evil day, and having done all, to stand.*' (Eph. 6:13) In subsequent verses Saint Paul associates theological concepts with four pieces of armour: the hauberk of justice, the shield of fate, the helmet of salvation and the sword of the spirit, which is the sword of God. For pointing this out I'm very much indebted to Pierre J Vinken (a former neurosurgeon and chairman of Reed Elsevier Publishers) who will publish his findings next month in *Oud Holland*, a scientific journal on the history of art.¹

The accompanying catalogue, by Jos Koldeweij, Professor of Medieval Art History at Nijmegen, is otherwise outstanding. He has done a remarkable job to make clear that there is much more to Bosch than merely painting monsters and freaks: We now know, for example, that he drew no distinction between religious and secular subjects or between elite and popular visual culture. He combined everything in one story. In fact he painted what was perceived as reality in the Middle Ages.

The Bosch exhibition is superb and, because of the fragility of the panels, even moving. For me the central point about his work must be that there is more reality in the fantasies of Hieronymus Bosch than we could ever have imagined.

Frans Meulenberg

Doing Right: A practical guide to ethics for medical trainees and physicians

Philip C Hebert

OUP Canada, 1996

PB, 230 pp, £14.95, 0195411048

Why on earth would I want to read a book about ethics? If this is your immediate reaction on seeing this review, read on. If, like me, your recollections of ethics lectures at medical school were of old men who gently lulled you off to sleep with long words, then this is the book for you. I was a little sceptical at first, but after checking out the first couple of chapters, I had to read the rest.

I read this book from a GP's viewpoint, but the style and content make it suitable for just about anyone at any stage of their medical career, regardless of their specialty. As the author says in his introduction, medical students and doctors do not have the luxury of time to reflect on the moral dilemmas of the day; they want problem-based learning that is relevant to their practice. This is achieved through a combination of clear, concise writing with case histories to illustrate different ethical points; these case histories are so everyday that most readers can probably recall being faced with almost identical ethical dilemmas, probably without even realising it. These range from the seemingly banal, such as whether to prescribe antibiotics for colds, to the more meaty issues of withdrawal of treatment and euthanasia. The histories are followed by a discussion of the relevant ethical and legal principles.

Each chapter covers a different area of potential ethical difficulty, allowing the reader to direct his attention to an area of particular interest or difficulty, rather than having to plough through it from start to finish a definite benefit for the occasional reader. These start naturally with ethical principles, then move through autonomy, patient care, confidentiality, due care and consent, duty of care and justice, to finish appropriately enough with end-of-life decisions.

My favourite chapter is the one on truth, lies, and deception in clinical practice. Here, in addition to the anticipated discussion of how to disclose terminal illness, the author goes on to discuss what to do should you accidentally drop a small baby when no-one is looking! A more down-to-earth approach is difficult to imagine. Perhaps the most refreshing change from contemporary ethics books is the acknowledgement early on that we have needs too; that there are some patients that we cannot stand; that we do get tired and that we also need time off. These factors all affect the way we make decisions and we must recognise them as such.

Did I enjoy the book? After reading the copy loaned to me I went out and I bought my own.

Rob Daniels

trefor roscoe

The Day That Changed the World

On non-clinical days I sit at my computer and am alerted to new mail messages with a small sound. Shortly after lunch, on Tuesday 11th September, I had an incoming message from a software company in the US. I was on their mailing list as a result of buying from them and was going to delete it when I read of an appalling tragedy happening in New York. I went to the CNN site (www.cnn.com) thinking of a bomb explosion but it was not available. The BBC site (www.bbc.co.uk/news) was also difficult to access and appeared to be being rebuilt. I carried on working for a bit then switched on the TV. I was just in time to see the collapse of the second tower of the World Trade Centre.

Over the next six hours I watched TV and surfed the major news sites on the web. When CNN recovered it had similar coverage to www.ABCNews.com and www.msnbc.com. Usually rich in links and complex content, they all were in a constant state of flux with a few temporary pages being rewritten as the tragedy unfolded. The web is not quite as instant as live satellite television but can provide a greater richness of information extremely rapidly. Photographs, video, maps and interviews started to appear explaining what had happened. The New York Times (www.nytimes.com) provided the immediacy of an internet site with the gravitas and depth that an international newspaper can provide. The Washington Post (www.washingtonpost.com) had a slightly different view, particularly as the Pentagon is in their back yard.

A week later, the number of internet sites with reference to the World Trade Centre Disaster has mushroomed; a search on Google (www.google.com) for "wtc" generates over 400,000. Many are specifically devoted to aspects of the tragedy and many more have been taken over by it. The aftermath is poignantly captured on message boards for bereaved relatives seeking information and spiritual comfort. The New York branch of the Red Cross (www.nyredcross.org) provides several. Because of the volume of people missing the searching facilities of the internet have been used to good effect to cross reference lists of the dead and injured such as www.wtcfamilies.org. The city authorities have used their web space (www.nyc.gov) to provide a many of these links with particular emphasis on the families of emergency workers who also died in their hundreds.

The thousands of cameras that journalists and ordinary people used in the city on that fateful morning have generated hours of tape and countless images. The photo section on <http://news.yahoo.com> has a feature showing the most visited that others have downloaded or sent to friends. An event on this scale requires a broad picture to bring it home, none broader than satellite images provided by www.SpaceImaging.com from several hundred miles up showing the vast plume of dust and debris spreading out from the end of Manhattan Island within hours of that attack. By the time you read this it will be a fortnight since the events of that Tuesday afternoon. I can only hope that the satellite images on the web are not showing death and destruction in cities elsewhere in the world.

morrow s books

Zen and the Art of Motorcycle Maintenance Robert Pirsig. A travel through Greek philosophy and the mind of one man. Enlightening and troubling.

The Counterfeiters Andre Gide. Truly an incredible achievement. Witty and self-deprecating, a masterpiece of French literature.

The Story of San Michel Axel Munthe. A must for any aspiring doctor. (*Absolutely Yes, Dep Ed*) The youngest graduate from the Sorbonne tells his autobiography from treating the aristocracy to the slum dwellers. Strong on Napolese rats.

Catch 22 Joseph Heller. The anti-war tour de force.

The Little World of Don Camillo Giovanni Guareschi. A gently humorous book on the woes of one small community in Italy. Marxism and priests, a sure-fire combination

War and Peace Leo Tolstoy. Huge book, huge scope. Terrific detail, not just in the developing love stories and battle, but in the social comment.

The Plague Albert Camus. Grim social policy played out in allegorical form in this novel set in North Africa.

I served the King of England Bohumil Hrabal. A hugely entertaining and diverting tale of one man's travel through the second world war. A modern fable for our time.

The Joke Milan Kundera. Captivating short novel looking at the intricacies of the police state in Czechoslovakia. More communism.

The Gulag Archipelago Alexander Solzenitsyn. Testament of man's indomitable spirit amidst the most terrible imprisonment and torture. Solzenitsyn's epic book details the worst of Stalin's gulag and his survival.

Gerry Morrow

uk council, september

Chairmanship

September Council was the last occasion when a Council Meeting was chaired by Mike Pringle. We shall have a chance in November to thank him formally for all his hard work. As the College cycle moves on, we look forward to David Haslam taking over the Chair in November, and the beginning of another new year for the College.

Shipman Inquiry

... Perhaps not quite such a major impact for the College as was once thought. The Inquiry has indicated that the College will only be invited to give information on certain issues and so far that has been confined to the issue of Death Certification and Cremation Certification. We shall continue to consider the extent to which we need legal advice in these circumstances.

Faculty Budgeting

The Honorary Treasurer, Tony Mathie, has proposed a new system of Faculty Budgeting. These proposals, together with comments received from Faculties, were debated by Council. A number of important issues have been drawn to our attention not least how the processes for accounting and making bids should be transparent. Council agreed to a "shadow year" in the next financial year (2002-03). The results of the pilot from both central College and Faculty viewpoints will inform our next step. At the very earliest full introduction could be achieved in financial year 2003-04.

Bristol Royal Infirmary Inquiry

Council debated a summary of the report by Ian Kennedy, and a paper I had prepared on the implications for general practice and the College. The implications centre on communications by GPs with patients, the development of our proposed Leadership Programme, the concept of patient safety in a blame free culture, as well as seeing how the input of our Patients' Liaison Group can be further taken forward.

Council was very helpful in identifying other issues including:

The nature of the visiting and inspection of SHO posts which will be referred to the Hospital Recognition Committee and the Joint Committee on Postgraduate Training for General Practice;

College input to the work of the deaneries and education for leadership in PCTs which will be considered by the Education Network.

Proposed Council for the Regulation of Health Professions

Quickly following on the heels of the Bristol Report is a consultation paper from the DoH on the proposed new overarching regulatory body for the health professions - the Council for the Regulation of Health Professions. Whilst this has more implications for the

GMC as far as doctors are concerned than the College, it does add to the weight of regulation of GPs. Our main concerns focus on the potential remit of the new Council in regard to Medical Education and whether this will compromise the role of the College.

We were only able to table a draft response and Council was asked to feed in further comments by email until 21st September so that we can finalise our response.

Modernisation in the NHS

"Modernisation" of the NHS continues apace, velocity dependent upon where you live in the four countries of the UK.

One of the main themes we are seeing developed at present is that of GPs with a special interest. You will recall that we prefer that term to "Specialist GPs". The Government now appears ready to use our terminology. A paper by Mike Pringle, about implementing a scheme for GPs, was discussed. There are different ways in which GPs with special interests can operate such as a GP leading on service development; or a GP delivering a clinical service. An amended version of this paper will be posted on the RCGP website. We look forward to firm proposals from DoH.

The Future of the General Practitioner

(See paper by Mike Pringle and David Haslam) What forces might influence the development of general practice over the next ten years or so? Four major areas have been identified for general practice development - the patient-centred nature of the NHS; the funding of healthcare; clinical medicine primary care roles and skill mix; and technology.

GPs and New Contractual Arrangements

There were two papers on our agenda examining how quality could be reflected in GPs' contracts.

Quality criteria and the new GMS contract under negotiation by the General Practitioners Committee of the BMA.

Quality aspects of salaried GPs contract arrangements. Again the detailed issues will be for GPC to negotiate.

General Medical Council

Sir Donald Irvine is concluding his term as President of the GMC next January having been the College's representative for many years. Sir Donald has carried forward a huge task of reform at the GMC. An advertisement will appear in the November issue of the BJGP for the College's representative on GMC to succeed Sir Donald from February 2002.

The GMC agreed its new governance arrangements in July. Mike Pringle will be meeting with the GMC at the beginning of October to offer views on these issues and comments should be sent via e-mail as soon

Network Appointments

Has Joshi - Quality Network (formerly the Assessment Network).
Steve Field - Education Network.
Incoming Chairman of Council, David Haslam, has invited **Tina Ambury** to become one of his Vice-Chairs with **Mayur Lakhani** continuing as the other Vice-Chair for a further year.

50th Anniversary of the College

Our 50th Anniversary year draws close, the programme of events is taking further shape and you will continue to hear more about this. Just to mention a few of them:

Spring Symposium in 2002 being hosted by the Midland Faculty

We shall be issuing a **medal** to all Founder Members, Fellows and Associates irrespective of College membership status and this will be done through the **President's Reception for Retired Doctors** in 2002 or by local faculties wherever appropriate.

There will be a **National General Practice Week** from 9th-15th September 2002 to celebrate the strengths of Family Medicine and to build stronger links with the public.

There are also a limited range of commemorative gifts, a **50th Anniversary Grand Draw** and, we are promised, a **College Rose** named *Caritas*.

There will be an **RCGP Open House** event on the 22nd September 2002, and a **50th Anniversary Open Day** for invited guests on 17th January 2002.

Annual General Meeting 2001

The Annual General Meeting this year will be held at the Paragon Conference and Exhibition Centre on Friday 16th November 2001, commencing at 2.00pm. The meeting as usual will include the presentation of **Fellowships** and **Awards**, a lecture by Professor **David Mant** of the University of Oxford on *A Case of Mural Dyslexia* as well as formal College business.

Date of Next Meeting

Council will next meet the day after the AGM on **Saturday 17th November 2001**, commencing at

as possible to andrewh@rcgp.org.uk.

Revalidation and Appraisal

As well as updates from the four UK countries, Council also noted the revised version of Good Medical Practice, which has now been agreed by the GMC. This has allowed the final revision of Good Medical Practice for General Practitioners under the excellent guidance of Professor Martin Roland. The document will be sent out soon.

Accredited Professional Development

Council received a report on progress towards APD, a new route to revalidation particularly for College members although it will be available to all GPs. Ruth Chambers has been appointed as APD convenor and will be closely overseeing the development of this product.

Patient Safety in Primary Health Care

The establishment of the National Patient Safety Agency in England has stimulated review of risk management and patient safety to be taken forward by the St Paul/RCGP Quality Unit. The plan is to build on the strengths of significant event analysis and ensure that safety and risk management are built into College assessment procedures and quality markers.

GP Qualifications

Our Patients' Liaison Group are working on a page for the Patient Centre of the College Website to explain how a GP becomes qualified to practice, and to set out many of the common qualifications which are represented by letters after GPs' names.

Health Informatics Programme for Coronary Heart Disease

This Health Informatics Programme has been developed by the Sowerby Centre at the University of Newcastle. The HIP supports GPs in providing the tools and methods to help PCGs and Trusts in England measure the effectiveness of the care they deliver and meet the milestones and standards set out in the National Service Framework for CHD. A practical example of clinical governance, it says here.

RCGP Certificate in the Management of Drug Misuse in Primary Care

Claire Gerada reported progress to date on the development of the College drugs misuse initiative. This work is funded by the DoH and Council endorsed a proposed RCGP Certificate in the Management of Drug Misuse in Primary Care.

Use of Private Finance in the NHS in England

To what extent can private finance be used in the delivery of health care services in the NHS in England? Work ongoing for the new chairman of Council, David Haslam, and his thoughts soon...

Maureen Baker

Searching the literature

Anyone who has ever done a literature search knows how difficult they are. Do you know any sort of writing further removed from literature in the usual sense than what passes for English in medical journals? Literature moves the soul; medical writing moves the bowels, if it moves anything at all. Most medical writing is so indigestible that intractable constipation seems the likeliest outcome. In a futile attempt to alter usage (all attempts to alter usage are futile - but noble), I refuse now to ask, "Have you reviewed the literature?" but rather, "Have you looked at what's been published?" is what I say and what I mean.

But when you do, what happens? When you check the MeSH terms, you realise that your subject is not clearly defined and you'll have to make do with a few approximations. At least half the retrieved titles are irrelevant. And you know that the other half will be in journals not stocked by your library. The most important papers won't be retrieved at all. You'll learn of them when your paper is rejected, complete with the referee's acerbic comment and a neatly printed list of missed gems.

So I was interested in an unsolicited e-mail. It congratulated me on having a paper recently indexed in MedLine, and offered me a subscription service to let me know automatically of work related to any indexed paper. Wanting to close the deal, they gave me the website for work related to my own recent article. Eagerly, I copied the website to my browser. With a date range of 1995 to 2100 (I don't know whether that was a typo or wishful thinking), the service provided me with 843 documents.

My article was about doctors making mistakes; it was titled, "There but for the grace" Not an original title, but it made the point. A point entirely missed in the 843 documents. The first document, from Nursing Economics, was called, "The art of leading with grace." It had a relevance count of 10%, but I thought it unlikely to say anything about doctors giving the wrong drugs. The second grabbed me with its title, "The relationship between value and temporal context is an empirical question" - and also made it to 10% relevance having being co-authored by Grace, RC. Of the top ten documents, four were there courtesy of the surname Grace, one was from Grace General Hospital, and in two GRACE was the Global Registry of Acute Coronary Events.

I didn't take up the offer.

Nev.W.Goodman@bris.ac.uk

As free as a bird

Forked tailed African migrants favour the nooks and crannies in the old buildings of our village as secure refuges in which to bring up their families. Scotland's hordes of tiny winged carnivores with which they share our airspace and which torment more earthbound creatures with their bites, are an abundant food supply to swifts and swallows. Long, light summer evenings afford good hunting, so the sky is full of fine flying, as well as midges.

Swallows have the languid style of supreme accomplishment; their flight is a symphony of effortless grace. Staccato twists and dives among trees and bushes, poles and posts, fences and cables and wires, punctuate looping curves on lazy wings. They are the slalom skiers, the stand-off halves, the antelopes of the air. Swifts fly higher, elegantly carving slices of sky on frenetic, scimitar wings. They are the downhillers, the wing three-quarters, the cheetahs. In late summer evenings they fly low, hard, and fast in tight formation, calling continuously to each other, scorching the air around gables and chimney pots in exuberant displays of adolescent athleticism. (Who knows, maybe there are one or two old masters in there too?)

While each bird is indelibly recognisable as one of his or her kind, every turn in pursuit of a snack, every manoeuvre in display flight, every choice between turn, dive or climb, is perfectly individual, a unique, split-second confluence in the hard-wiring of experience and sensation, and a consequent action. Were swallows self-aware, they might experience the incredible complexity and glorious vitality of purposeful flight as their expression of free will.

This evening, beneath the regular flying display, this summer's rarer human visitors also mill about deciding where to eat and drink, exercising choice, their more pedestrian manoeuvres also determined instant by instant by confluences in the hard-wiring of experience and sensation, which feel like the exercise of free will.

Much of civilisation is based on this illusion of free will, on the idea that we are perfectly free to choose and so can reasonably be blamed and praised, punished, and rewarded for the bad and good that we do. But, curiously, the practice of medicine is singularly free of holding others responsible. We try not to blame those who make themselves ill by their habits, whether by climbing dodgy rock or by injecting with dodgy needles. We certify and mobilise support on behalf of those who profess backache and stress in favour of gainful employment. We don't refuse to see ever again those who, with tedious regularity, miss appointments but at all other times of the day and night besiege the surgery with demands for replacement prescriptions for lost Valium.

I used to feel strongly about free will. My own, mostly. The divergence between the intensity of that subjective experience and working in a way which denied it in others was disturbing. I think I am less wedded now to the splendour of my absolute freedom to choose, but I still experience a sense of loss from time to time, of regret for the passing of a tight, unique, encapsulating idea of myself.

Perhaps we are on the cusp of rejecting a responsible, moral, authoritarian universe, while flirting with a more determinist view of things in which tolerance might flourish. Conceivably, medicine finds itself an early explorer of this territory. Democritus, Plato's contemporary, would be pleased. He thought that the soul, like everything else, was made of atoms and that thought was just another physical process governed by mechanical laws.

I should, really, have no regrets for the passing of a wispy fantasy of freedom. I am after all as determined, and as free, as a bird. And free to follow Democritus in aspiring to cheerfulness as the goal of life and in thinking of moderation and culture as the best means to it.

our contributors

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When readers whizz up the M74 from Carlisle into Scotland, think of Chris Burton in Sanquhar, in the darkness, off to the left...

Neville Goodman is a Bristol anaesthetist, cited frequently when peer review specialists gather

Kevoork Hopyayan practises in Suffolk

Frans Meulenberg was (until last year) managing director of the department of clinical guideline development at the Dutch College of General Practitioners. He is now a freelance science journalist
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Gerry Morrow practises in Allendale, Northumberland

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Joan Scott is attached to the Dept of General Practice in Glasgow, and can write mean text very quickly