

Letters

A convergence of cultures & technologies

SIR

Three thousand and six hundred years ago the island of Santorini (Thera) blew its top. In a cataclysmic volcanic eruption, thirty cubic kilometres of pumice and volcanic ash buried the island and its civilisation. These dramatic events have given rise to a number of legends and myths including that of the lost city of Atlantis. The apparent sudden destruction of the Minoan civilisation on the Island of Crete used to be ascribed to this catastrophic event, although modern day archaeologists no longer believe this to be true. Moreover, the timing of the volcanic eruption was undoubtedly close to the timing of the exodus of the Jews from ancient Egypt and a rational explanation for the ten plagues described in the Old Testament follows some of the predicted events with a volcanic eruption of this magnitude.

Approximately two years ago, a shaft was being dug to provide foundations for a permanent protective cover over the archaeological excavations at Akrotiri, a site at the southern tip of the crescent-shaped island. Amongst the rubble, a workman discovered a perfectly preserved wooden box containing a most beautifully crafted and perfectly preserved golden ibex about the size of a new born kitten. Closer inspection revealed that it was hollow with all four limbs welded at the junction with the trunk. The local experts assumed it was fabricated by using the lost wax technique but the technique for welding the limbs onto the trunk was a mystery.

This sublimely proportioned artefact can be looked upon in three ways—as an object venerated for its beauty, as an archaeological curiosity capable of throwing light on the bronze age civilisations of the Cycladean Islands and their trading links, and as a technological challenge to assay the gold and interpret the technique for joining the limbs to the trunk which in its own way would shed light on its archaeological provenance.

In June 2000 a group consisting of archaeologists, technologists and—as will be explained below—oncologists gathered in the subterranean laboratories of the archaeological museum in

Thera. The golden ibex was placed upon a laboratory table and a miniature x-ray source was directed precisely at the weld at the junction between a hind-limb and the trunk of this enigmatic beast. Electrons were accelerated down the capillary tube and x-rays from the gold target at the tip of the device excited the molecules within the Bronze Age weld of the ancient gold. The signal from the excitation of these molecules was then picked up by another extraordinary technological invention developed for the NASA Mars exploration project. This detection probe then provided us with a wave form printout describing the precise content of the solder. Thus with the benefits of modern technology the artisan of an ancient Cycladean culture was able to speak to us over the centuries.

This same x-ray device has also been developed for use in intraoperative radiotherapy in the treatment of early breast cancer. Introduced within the cavity following wide local excision of an early breast cancer it can deliver a full booster dose of radiation to the excision margins.¹ As an oncologist involved in the development of the technique, I was invited to attend the investigation of the golden ibex, and was thus privileged to witness an historic first in the history of archaeology.

Reference

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Medical humanities, kalology and philokalía

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Professor Leopoldo Acuña in his interesting article on the teaching of medical humanities highlights some difficulties emerging from the use of the term “humanities” and proposes “kalology” as more appropriate to define the relationship between the arts and medicine.¹

The dominant term, “medical humanities”, extended to include history, philosophy, ethics, politics, anthropology, literature and fine arts applied to medicine has become widely understood. However, some difficulties remain. The term suggested by Professor Acuña, “medical kalology”, as-yet-unsanctioned but coined in accordance with the rules of medical terminology, could be an alternative. The term was not in use in classical Greek, but this does not pose a problem in itself since

other, perfectly comprehensible, terms such as “thalassaemia” or “euthanasia” were either not found in classical times or had a meaning quite different from their current one.

An additional alternative term to encompass the topics covered by “medical humanities”, with some emphasis on literature and fine arts, would be “medical philokalía” (or “medical philokalý”). *Philokalía* literally means the love of, and care for, the beautiful.² Philo- (which derives from *philos*, translated as “friend”) has formed long established terms such as philosophy, philology, philanthropy; and -kalia (which derives from *kalos*, translated as “beautiful”) is already used in the proposed “kalology”. The term *philokalía* was commonly used by classical Greek authors including Thucydides³ and Galen⁴ and the opposite form *aphilokalía* has survived as well.⁵ The use of *philokalía* was continued by Byzantine authors, primarily as a title for text anthologies.

If terms alternative to “medical humanities” or to “humanities applied to medicine” are needed, a potential one could be—alongside “medical kalology”, “kaloiatrics” and “medical aesthetics”—the term “medical philokalía”, especially if emphasis is to be given to literature and fine arts applied to medicine.

References

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What price dissection? Dissection literally dissected

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Francis and Lewis quote from *The Memoirs of Hector Berlioz* on his horror in the dissecting room.¹ They surmise that this gruesome experience may have been responsible for his abandoning a medical career in favour of music.

Had their quoted source immediately continued, they might have had

their answer, and been surprised at the force with which it supports the thrust of their argument. *The Faber Book of Science* contains the more extensive extract, albeit in a different translation.² It continues thus: “The shock of that first impression lasted for twenty-four hours . . . In the end he got me to agree to make another effort. For the second time I accompanied him to the hospital and we entered the house of the dead. How strange! The objects which before had filled me with extreme horror had absolutely no effect upon me now. I felt nothing but a cold distaste; I was already as hardened to the scene as any seasoned medical student. The crisis was past. I found I actually enjoyed groping around in a poor fellow’s chest and feeding the winged inhabitants of the delightful place their ration of lung. ‘Hallo!’ Robert cried, laughing, ‘you’re getting civilised. “Thou giv’st the little birds their daily bread.”’ ‘An o’er all nature’s realm my bounty spread’ ’ I retorted, tossing a shoulder-blade to a great rat staring at me with famished eyes.”

Dehumanisation of the soul of the great composer in twenty-four hours?

References

- 1 Francis NR, Lewis W. What price dissection? Dissection literally dissected. *Journal of Medical Ethics: Medical Humanities* 2001;27:2-9.
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Book reviews

Genetics and Reductionism

Sahotra Sarkar, Cambridge, Cambridge University Press, 1998, 256 pages, £45 (hb), £16.95 (pb).

Genes, Genesis and God: Values and their Origins in Natural and Human History

Holmes Rolston III, Cambridge, Cambridge University Press, 1999, 416 pages (hb), 432 pages (pb), £42.50 (hb), £15.95 (pb).

Genetics and Reductionism is a careful, clear and systematic account of reductionism and how it operates in the con-

text of genetics. Sarkar distinguishes explanation from reduction—the latter being a type of explanation which bridges realms of inquiry, explaining one set of phenomena in terms of another—and also explanation from prediction. There is a formal treatment of issues around reduction, making clear that explanation lies within the scope of epistemology (how do we know) while determinism is concerned with ontology (what is the case). The substantive issues around reduction are dealt with at greater length, with an account of the assumptions that must be made for an explanation to “work”, an account of the various types of reduction, and a discussion of the problems that arise from making approximations in the course of an attempted reduction. The virtues of reduction are also introduced, especially the generation of fruitful hypotheses that can lead to the development of a field of study, although of course reduction is not always fruitful and unifying hypotheses and insights are not always reductive (for example, evolutionary theory).

Sarkar then tackles three major approaches to the unravelling of genetic phenomena. In chapter 4, The obsession with heritability, he describes, evaluates and finds wanting the usefulness of attempts to measure the heritability of quantitative traits in contemporary human genetics. In particular, while there may be some useful application of (narrow) heritability to plant and animal breeding, he dismisses the claim that measures of the heritability of IQ and psychological traits establish that these can be largely explained by (unspecified) genetic factors. The assessment of heritability makes a number of highly implausible assumptions and, in any case, much variation in heritability can arise simply from variation in allele frequencies. Heritability itself applies only to a specific population, over a specified time interval and in a specified range of environments—it tells us nothing about the contribution of environmental or genetic factors to the phenotype of an individual. Sarkar wonders at the curious motivation that underlies the recurrent fixation of some investigators with this dubious approach to genetic investigation, and the misdirection of molecular genetic research that attempts to build on this shaky foundation. What is it that drives this obsession, with so many possibilities for the political and social abuse of whatever results emerge?

The reduction of phenomena achieved by classical genetics, through segregation analysis and linkage analysis, is then covered in chapter 5. While Sarkar finds Fisher’s demonstration of the compatibility of biometry with Mendelian genetics rather problematic (because it involves counterfactual assumptions) this does not really amount to a reduction. Segregation and linkage analyses do amount to a form of reduction, however, although the molecular mechanisms are of course unspecified. It is in this section of the book that I did find a very few minor errors in the detail of some of the case studies presented; fortunately, these were technical points that did not interfere with the case being argued. There are potentially confounding factors in classical genetic reduction, such as the existence of phenocopies and variable expressivity, but it has provided explanations of many phenomena and has generated numerous fruitful hypotheses, some of which can be tested with the newer methods of molecular biology. The limitations of these classical genetic approaches to complex, multifactorial disorders are also discussed.

The reduction that can be achieved through molecular biology is then contrasted with that of classical genetics. Sarkar argues, convincingly, that both the scope and the methods of these types of reduction are different. While classical genetics employs explanatory models of a purely formal nature—with no necessary relation to chromosomes, for example—molecular biology employs models of macromolecular structure derived from Dalton’s model of the atom and Pauling’s theory of chemical bonds. Molecular biology does not reduce to fundamental physics or to quantum chemistry, and cannot predict the behaviour of macromolecules (in protein folding or DNA-protein interactions), but it is an empirical fact that its explanations have been powerful and very fruitful despite the crudity of the underlying chemistry. Explanations in molecular biology may fail on empirical grounds if they remain unable to predict macromolecular structures or to account for classical genetic phenomena such as dominance.

The final pages of this book then propose a definition of “genetic” that might well be acceptable to scientists and yet may help to challenge the inappropriate use of the term in the political arena. This definition is that a trait may be termed genetic if and only if three criteria are met:

- i) the trait is under the control of a few loci;

- ii) the trait always (that is, in all populations) shows a high expressivity, and
- iii) the immediate (RNA and protein) products of the alleles at these loci form part of the biochemical characterisation (that is, description at the biochemical level) of the trait.

Whilst some may contest this definition, and here is not the place to defend it, I would warmly recommend this book to a wide readership among scientists and philosophers. It demonstrates that reduction can make a valuable contribution to understanding in the field of genetics, but that some attempted reductions fail for good reasons and can arise from suspect motivations. The book is clearly written and employs useful accounts of specific genetic phenomena, which will both appeal to the scientist and help to provide important insights into the science of genetics for the philosopher.

The starting point of the second book, *Genes, Genesis and God: Values and their Origins in Natural and Human History Genes*, and its conclusion some 370 pages later, is that the emergence of order (termed “information” in this book) and of values during biological and cultural evolution is firm evidence for the existence of a Presence (God). In effect, Rolston is presenting an elaborate reworking of Anselm’s proof of the existence of God in Darwinian terms: the fact of religious belief proves the existence of God. While I am not doing justice to the argument of the book in such a brief summary, that is its essence.

The structure of the book is clear, with an orderly progression along the path of biological and cultural evolution in the course of its six chapters, culminating in a discussion of religion. Chapter 1 considers the science of genetics and finds evidence of “value” emerging in the course of evolution—in particular, the evolution of complexity is taken as indicating that biology “values” self organisation. This and the subsequent chapter, on genetic identity, present a lot of biological facts as if they supported the author’s position, but this was unconvincing and the argument is weakened by a number of erroneous biological statements. The frequent conflation of a science with its subject matter (for example using the word “biology” when what is meant is “life” or “the living world”) was irritating, and the broadening of the use of the word “value” to stretch from “survival value” to “ethical principle” will cause confusion and introduces inappropriate teleology. Rolston’s argu-

ment against the application of the word “selfish” to DNA or the gene, as in *The Selfish Gene* is literalistic and comes across as pedantic. I am no supporter of Dawkins, but the arguments marshalled here against his position are not convincing.

Chapter 3 argues that the genetic processes of evolution have enabled the human species to develop cultures that evolve (largely) independently of the genetic constitution of the relevant individuals. Cultural phenomena constitute a different order of complexity from biology, and cultural events are not determined by the underlying biological organisation (although they may be constrained by it). An infant is born with the capacity to learn any existing human language and to adopt any pattern of behaviour—we are not determined by our genes to speak Swedish as opposed to Swahili, or to play the guitar as opposed to the sitar. Although the fitness of different genotypes may vary with the culture and the history of the group into which a child is born, human history cannot be reduced to biology. There is a lengthy discussion of the limitations of biological explanations of cultural phenomena.

Rolston then examines science, addressing a range of questions in the philosophy and sociology of science. The reflexive nature of science—the human mind peering backwards to examine the processes that led to its own creation—is considered. Parallels are drawn between the growth of scientific knowledge and evolution, and between genetics and language, but in both cases they are pushed further than is useful. The relationship between “facts” and “theories” is made explicit, giving due importance to the (often implicit) framework within which facts are asserted and understood, and the relationships between theories of natural selection and the organisation of capitalist societies are presented. The argument later in chapter 4, against the use of sociobiological explanations to account for human behaviours, is presented well in parts, but when Rolston suggests that the fitness (reproductive success) of sociobiologists be measured to assess the truth of their doctrines, I feel that he has scored a good debating point but one which adds little to my understanding.

Chapter 5 argues that ethics is a distinctively human concern, and considers the extent to which this concern could be accounted for by evolutionary psychology and sociobiology—the alternative, implicitly, being that one must resort to a deity in order to “explain”

ethics, especially altruism. The complexities of the kin selection account of ethics include the cultural processes now in operation that generalise our concern for others to include those who are not close relatives. Rolston reviews a wide range of ideas about the reproductive success of different behavioural strategies (personalities). Our tendency to altruism must have evolved, however, long before our current mass society—indeed, long before even mediaeval society—when travel was infrequent and often related to essential trade so that the stranger/visitor would often be helpful to the host. So the argument that today’s ethical conduct is not explicable as kin selection, does not demolish the plausibility of the view that the mental processes leading to such altruism evolved through natural selection in the past. Furthermore, given that Rolston has argued (sensibly) that culture is not determined by biology, it is strange that he does not seem willing to accept that some cultural behaviours may escape from biological determinism and take on the force of their own logic. Commitment to a cause such as conservation may not be to one’s personal biological or reproductive advantage—although it could be, if one met a mate at conservation meetings—but the strong biological selfishness that “should” be present if behaviour were controlled simply by evolutionary motivations could plausibly be displaced by the internal logic of ethical concerns that have also arisen through an evolutionary process.

There are parallels drawn in this chapter between sociobiology and psychoanalysis because both can be wielded to account for any observed pattern of behaviour but neither can predict specific future behaviours.

The final chapter starts with nonsensical hyperbole—the claim that there are more synapses in one human brain than there are atoms in the universe—but then settles into an evolutionary account of religion. Is religion so widespread because it promotes fertility or because it emerges as a byproduct of intelligent self consciousness? Rolston points out that many religions do have a focus on fertility, but I doubt that the belief systems of modern religions have had much evolutionary impact. Any evolutionary advantage of a propensity to religious belief will either be a general, intellectual benefit or will have developed in the remote, preliterate past. The lengthy argument asserting that world religions constitute counter-evidence to sociobiology cannot (and

does not) lead to any convincing conclusions. In the discussion, however, Rolston raises a fascinating question. If religion is neither a biological mistake nor a necessary epiphenomenon of self consciousness, might it have been required in the past as a mechanism for the cultural transmission of a society's accumulated wisdom? He also raises the interesting idea that our minds need to work accurately in relation to practical matters but that it may be to our biological advantage for them to promote comfortable delusions in the inner life of the imagination. Perhaps religion is an opiate . . .

In so far as the book has a conclusion, it is that order and values emerge from evolution and that this process requires a supernatural helping hand rather than mere Darwinian selection. The length of the book and its style—as if it were the transcript of the Edinburgh University Gifford lectures (1997–8) from which it originated—do not encourage me to recommend it. It develops a number of interesting arguments, but it does read as if the conclusion had been fixed (predestined) long in advance. It is therefore difficult for me to recommend this volume to a wide readership.

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The Healing Arts: an Oxford Illustrated Anthology

Edited by R S Downie, Oxford,
Oxford University Press, 2000,
352 pages, £15.00 (pb).

“The essence of the arts is that they speak directly to us”, and so the readers of this anthology of poetry, prose and music will each have a different experience. This is one of the reasons why the sciences that seek generalisability and reliability of observation are so complementary to the arts. Some readers will dip into the book in a chaotic way and find gems. Others will choose one of the important themes to focus upon, and a few will read from cover to cover. Yet it is not the comprehensiveness of coverage that will determine the experience of the reader. It is the remarkable interaction between an author who provides content, and the reader who provides unique context that results in a new experience with every piece.

“Holistic” approaches to health and healing are elusive concepts because

the word implies a total understanding of the subject and it is only the very arrogant or narrow minded who would ever lay claim to complete understanding of these subjects. Within medical circles holistic approaches usually imply a rejection of both mind/body dualism and the compartmentalisation of knowledge.

Downie's anthology touches a very wide range of human experiences through the eyes of chosen artists. The topics he and his writers cover range from sex and conception to disaster and death. Each piece is freestanding within a theme and each will invigorate or prick the consciousness and conscience of the reader, particularly if the reader is medical or nursing in orientation.

The first theme in the book is “The way we are”. Here pictures by Leonardo de Vinci and Rembrandt are followed by a poignant poem, *First Foetal Movements of My Daughter*, (Penelope Shuttle). The theme deals with the ages of mankind. Numerous powerful pieces are included and it closes with T S Eliot who captures the cycles of life and learning. Eliot leaves the reader to ponder a personal interpretation:

“We shall not cease from exploration and the end of all our exploring will be to arrive where we started and know the place for the first time.”

Disease and mental illness come next and this theme is launched by Hippocrates but teased out by many. Among them are John Milton writing about his blindness, Beethoven lamenting his deafness, Bacon and Shakespeare on deformity and Jackie Kay's, *Dance of the Cherry Blossom*, which deals with advancing death in two lovers who ask “why?”. Nietzsche (1844–1900) closes the theme with his definition of collective insanity: “Insanity in individuals is something rare—but in groups, parties, nations and epochs it is the rule”.

Doctors and psychiatrists come into focus next with a range of views that vary from deep appreciation and recognition of high ideals to cynicism and humour about quackery. Nurses, patients, chaplains and hospitals are dealt with under theme 4.

Healing is the focus of theme 5 and no student should pass the Final examination without reading Fanny Burney's letter to her sister in the late 1700s, describing a mastectomy without anaesthetic. The hopes, fears and cares of those who have found healing then flow forward into therapy from music and art. Spiritual healing is dealt with through Manley Hopkins, John Keats and others. Theme 6 is on suffer-

ing, funerals, and the experience of dying. Research (theme 7) and “Ethics & Purpose” (theme 8) are next.

In the closing chapters of this book the nature of ethics and life's purpose are teased out. We are reminded that medical codes of practice still draw heavily on ancient Greek and Christian teachings. Yet it is in the ordinary activities of life that most people must find purpose and meaning. Civilised codes must resonate in ordinary people living now and in the recent past. Downie quotes Flanders and Swan, Aristotle, Persig, Twain, Austen, Waugh, Sondheim, Richardson, Hurwitz, Warnock, Wittgenstein, Mahler, and Wisdom: they all contribute to themes that echo belonging and discovery of meaning in ordinary lives.

This remarkable “miscellany of art forms” reveals the richness of our language and the huge number of works that a student would have to read to find this collection. Downie has helped us to break through this daunting barrier and has given us an anthology that sensitises the reader to a public view of medicine and healing. This is as relevant in the 21st century as ever, because the National Health Service is creaking and groaning under the weight of public pressure to be more holistic and people friendly.

Should this text become required reading for all clinical students? Deans have already responded to the injunctions of the General Medical Council and reduced the taught factual content of medical courses by 30%. That 30% has created space for self-directed learning, optional in-depth “special study modules” and time for reflection. A special study module on the healing arts would be a valuable addition to most curricula. Those students who remain with mainstream scientific options may well be advised to borrow or buy Downie's book for a weekend of reflection and discovery in their final years. The anthology is readable over a weekend but it is not digestible in so short a time, which does not allow time for the reflection and discussion which make reading a book of this kind such an enriching experience.

Undergraduate deans would be well advised to find a place for this text in their courses on medical ethics, communication, or clinical skills training. A short essay question or even the OSCE (objective structured clinical examination) would be a good place to test whether students can describe both evidence and art that conveys the lay person's experience of medical and nursing care.

In his foreword to *The Healing Arts* Kenneth Calman quotes R S Peters who said: “the measure of an educated person is his or her ability to converse in a civilised and intelligent way across a wide range of subjects”. This well produced softback anthology would help many students in the health sciences to draw closer to that goal.

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The Human Effect in Medicine: Theory, Research and Practice

M Dixon and K G Sweeney,
Abingdon, Radcliffe, 2000, 157
pages, £17.95.

Given that in England and Wales triage, access and treatment based on national frameworks are increasingly important for politicians and therefore for the National Health Service (NHS), clear advocacy for the human effect in medicine is timely. The NHS plan for England proposes an end to single-handed general practices, and the huge investment in NHS Direct with its dependence on binary chain logic to assess patients' needs may lead to this being the single gateway to primary health care. So, whilst in the foreword of this book Denis Pereira Gray says that “the pendulum has started to swing back to the personal” he clearly refers to academia rather than health policy.

Reviewing the theory of the subject in the first of three sections in the book, Kieran Sweeney assesses the philosophy and history of medical practice. In common with the rest of the book, the human effect being examined is almost exclusively patient-doctor rather than the broader range of care professions. He traces scientific rationalism and the relationship between objectivity and subjectivity in medicine from the Hippocratic tradition through Descartes to the evidence based medicine movement. Professor David Sackett's statement: “in all this, the assumption is that medicine is rational and so are you” is effectively erected as an edifice which the remaining review attempts to tear down. Through the recounted history, there is much to trouble the rational view of health and disease: hypertension is a disease in Germany but not in the UK; are alcoholism and chronic fatigue syndrome diseases at all? There are also many delights in

such a canter through history: Aesclepius, Hygeia, Koche and Harvey all feature.

Sweeney analyses the relationship between doctor and patient and its contribution to health and health care. There is a clear demonstration that to discount the human effect and the importance of patients and clinicians is to overlook essential elements of health and wellbeing. This first section of the book draws to a close with a reference to Michael Balint's 1952 book, *The Doctor, His Patient and The Illness*.¹ The reference begs the question, whether this review of the succeeding years has added to Balint's thesis. Two new elements have been introduced by Sweeney. First, a greater role is proposed for subjectivity than Balint's behavioural, but nevertheless scientific, approach. Second, there is a review of evidence that a good, personal doctor-patient relationship has a therapeutic effect. In the absence of clear direct evidence, however, the review deals with the effect of social wellbeing and lack of stress on disease experience and studies which largely demonstrate the benefits of effective communication and consultation on “compliance”.

The second section of the book focuses on research, particularly into the efficiency of placebos. It argues that if placebo medicines or healers who are not medically trained can produce 50% improvement rates in a wide range of conditions, how much more effective could an experienced doctor be? As elsewhere in the book, the text is well referenced and here includes a review of the types of patients, placebos and doctors most likely to be successful. It is surely unlikely, as patients and doctors relate on increasingly equal terms, and as open information and disclosure become the expectation and right of all patients, that the therapeutic use of placebos without patients' knowledge, will ever again be acceptable. Accepting that placebos or faith healing can trigger the body to heal itself or to override symptoms is not the same as saying that placebos labelled as such will be similarly effective. Explanations arising from the study of conditioned response and the developing field of psycho-neuro-immunology both confirm that the patient has to expect an effect for there to be a chance of the effect taking place.

From the discussion of placebo, Michael Dixon develops the concept of the physician-healer: “primary care . . . What we are offering is more than a soup kitchen for evidence-

based medicine”. This is a self-healing process generated by the efforts of the physician-healer. Three theories are then offered to develop an explanation of this role and how it works. They deal with the effect of consultations in altering patients' perception with an improved physical state; the roles which can be adopted by the physician to encourage independence and passive or active healing, and finally the potential for economic efficiency if health services can supplement the increasing dependency on drugs and technology with effective use of the physician-healer—the therapeutic effect of the doctor.

In the third section, the focus is on turning theory into practice. In considering the doctor-patient relationship, the first model proposed is largely dominated by the doctor. It considers the authority of the doctor and the roles of magic or mystery. “If a therapeutic process is beyond a patient's comprehension, there is a tendency in some to lend it a degree of credibility that is out of all proportion to its actual effectiveness.” Whilst these issues are seen as inevitable parts of a consultation, the review moves to therapeutic effects which might be included: empathy, reassurance and so on. Finally, the end point of any ongoing doctor-patient relationship is described as putting the patient in the driving seat through information, self-help groups, relaxation and positive thinking.

At its conclusion, the book makes the case for empowering patients and provides a review of techniques which can be employed by doctors to make this a reality, particularly through the development of relationship. As such, it is indeed a counterbalance to the growing one-stop-shop, access-driven culture of the NHS. The evidence-base for this conclusion is strong and much of it provided as references. Therefore, the championing of subjectivity and attacks on the evidence-based-medicine culture appear gratuitous. They may lead critics to suggest that the book is a defence of, rather than a dissection of, doctor dominance and of doctor-rather than patient-led, variations in practice.

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