

ESSAY REVIEW

Science: a limited source of knowledge and authority in the care of patients*. A Review and Analysis of: 'How Doctors Think. Clinical Judgement and the Practice of Medicine.'

Montgomery, K.

Oxford University Press, Oxford. ISBN 978-0-19-518712-0, pp. 256

Andrew Miles MSc MPhil PhD¹

¹Professor of Public Health Sciences, National Director: *UK Key Advances in Clinical Practice Series* and Editor-in-Chief: *Journal of Evaluation in Clinical Practice*, Department of Public Health Sciences, Division of Health and Social Care Research, King's College School of Medicine at Guy's, King's College and St Thomas' Hospitals, University of London, UK

Keywords

art and science of medicine, clinical judgement, clinical knowing, clinical rationality, clinical uncertainty, medical consultation, evidence-based medicine, individual patient, misrepresentation, phronesis, positivism

Correspondence

Professor Andrew Miles
Professorial Unit for Public Health Education
c/o P.O. Box LB48
Mount Pleasant Mail Centre
Farringdon Road
London EC1A 1LB
UK
E-mail: Andrew.Miles@keyadvances.org.uk

*Montgomery (2006) [1] (p. 199)

Accepted for publication: 1 June 2007

Introduction

How do doctors think? Is medicine a science or an art, or an uneasy interrelationship between the two? What is this process we call 'clinical judgement' and exactly how reliant upon it are we in making decisions in the context of the individual case? It is with fundamental questions such as these – posed by many authors, many times elsewhere – that Kathryn Montgomery, Professor of Medical Humanities at North-western University USA, opens her important monograph *How Doctors Think: Clinical Judgement and the Practice of Medicine* [1].

Structurally, Montgomery's volume is constituted by 12 chapters and divided into four parts. She qualifies her endeavour by describing herself at the outset as 'an outsider, a sort of licensed trespasser in clinical territory' (p. 6), although there is scarcely need for such an early *apologia* given the fundamental importance of the questions she raises and the observations that she will go on to make. Neither is it entirely necessary for her to divulge to the reader the very personal background against which the largest part of her book has been written – her 28-year-old daughter's diagnosis of, and treatment for, breast cancer (p. 13), although from this revelation we are able to gain no small insight into the penetrating nature, indeed urgency, of the greatest number of her observations and questions. While these observations and questions will be seen to be in many ways particular, Medicine is, after all, at its best and most authentic, when it talks of individuals and not populations, for the reasons that Montgomery reminds us of time and time again, in varying ways, throughout her text. Hers is a necessary philosophy which re-states what remains, and what must remain, the heart and soul of good clinical medicine.

Medicine: science or art or art and science?

'We make a great, even dangerous mistake about Medicine,' Montgomery asserts, 'when we assume it is a science in the realist Newtonian sense . . . even . . . as Lewis Thomas described it (as) the youngest science.' Indeed. Such words are 'noble and the aspirations praiseworthy, but assuming that medicine is a science leads to the expectation that physicians' knowledge is invariant, objective, and always replicable' (p. 16). Which, of course, it clearly is not. So, if Medicine is not a science, then what is it? Is it perhaps, what the eminent medical historian and doctor Henry Sigerest suggested: 'not so much a natural as a social science?' (p. 29). Montgomery thinks not, especially since in doctors' minds in particular, the thinking of the 1940s and 1950s has given way to the thinking of the last 60 or so years, during which we have seen, to be sure, huge developments in the biological basis of medicine and in the strategies designed to find application for this new knowledge. So, Medicine as social science? Perhaps not. Montgomery is surely correct in pointing out that within the profession and in Society at large, the everyday understanding of medical practice remains lodged in descriptions that are crude, incomplete and unreflective, such that when it is asserted that Medicine is a science, it is also asserted that Medicine is an art. The affirmation of this duality is, for her, a reminder that Medicine remains 'poorly defined and poorly described by those who nevertheless practice it quite well' (p. 30). So what, for Montgomery, is the 'art' and 'science' of Medicine? For her, both terms are 'slippery', if not ill-defined and shallow, remaining largely unexamined and

which detract from the appreciation that good medicine is neither an art nor a science, but rather 'a rational practice based on a scientific education and sound clinical experience' (p. 30). Perhaps one might consider this question in terms of a 'binary economy', where 'art and science [need] to be yoked together (yet held apart) in order to accrue the strengths of their polar positions: soft versus hard, intuitive versus analytical, inductive versus deductive, visual versus logical' [2] (p. 32). Montgomery certainly agrees that some of the most interesting questions relating to clinical judgement are generated from the intersection of the two, but she insists that an inadequate examination of this interrelationship has the potential to render Medicine 'facilely described and . . . poorly understood' (p. 33). Montgomery is surely correct when, in raising questions as to the effect of this misrepresentation of Medicine on medical practice, she worries that the so-called science-art paradox has the potential to create two very different understandings of Medicine, suggesting that they function as alternatives. She is clear, as is this essayist, that the creation and maintenance of such a false dichotomy is damaging to a proper understanding of the true nature of medical practice and therefore what it is to be a good doctor.

Medicine as a practice

From this largely introductory discussion, Montgomery proceeds to consider Medicine's character as a practice, which she sees as neglected by the preferential and disproportionate study of the science-art duality. For her, medical practice is 'far more than a body of scientific knowledge and a collection of well practised skills . . . it is the conjunction of the two: the rational, clinically experienced and scientifically informed care of sick people' (p. 33). The core component, indeed description, of this activity is, as she points out, *clinical judgement*, a process of coming to a conclusion about the optimal management of an individual patient that has been much studied, both from within and outside Medicine. She goes on to discuss the practical reasoning inherent in the exercise of clinical judgement in terms of *phronesis*, particularly the Aristotelian description of *phronesis* that that philosopher expounds in his *Nicomachean Ethics* [3] and when he talks in terms of the intellectual capacity or 'virtue' that characterizes practical activities rather than science *per se*. This is a useful discussion, because it brings to the fore the reality that there is more than one kind of rationality of relevance to the formation of judgements than that typically employed as part of the scientific process. Indeed, as Montgomery points out, *phronesis* (while being an 'interpretive making-sense-of-things way of knowing' and thus having the capacity to take account, for example, of context and unexpected variability), is typically rejected in favour of the 'binary split between knowledge of the hard reliable stuff and the mushy but unavoidable ineffabilities' (p. 34). She asks: 'Why is clinical judgement not celebrated?' Why indeed? Probably, and as she points out, because it would be seen as a tacit rejection of 'science' or a disregard for 'evidence'. But she is equally clear that the idea that everything about disease and injury in individual patients can be, or will eventually be known, measured and predicted, is an unwarranted leap and it is in these *typical* circumstances that the need for clinical judgement as an integral and necessary part of good clinical care becomes appreciated.

Montgomery is clear that if Medicine were a science in the conventional sense, then its established laws could be programmed into a computer, with diagnosis and treatment selection being determined following data input. But such is not the case, for a multiplicity of reasons that the *Journal of Evaluation in Clinical Practice* (JECP), as one organ of scholarly communication in the field, has documented and discussed over long years. Taking one such reason, and perhaps the least considered to date, Montgomery highlights *the need for human contact* in the diagnosis and treatment of disease, a requirement, as it were, of the doctor and the patient, and which transaction is well described as the *clinical encounter*. It is the nature of this, as she rightly notes, that goes well beyond the patient's need for reassurance and support. Indeed, even in our increasingly technologically advanced society, the clinician invariably feels the need to examine the patient for himself as part of Medicine's ancient traditions and as part of this activity inevitably uses 'an immense and well-sorted catalogue of clinical cases and the clinical judgement to know how to use it, and that store of knowledge is activated by seeing, touching and questioning the patient' (p. 34).

Medicine and artificial intelligence systems

It is at this particular juncture in her text that Montgomery reflects on the nature of artificial intelligence (AI) in order further to illustrate her argument. Noting the progress that has been made via information technology, computer science and medical informatics in the codification of clinical expertise, she observes that such tools are able to work well really only in the hands of an already reasonably skilled practitioner. Are such limitations inherent or might they, perhaps, be overcome by further software development? Not for Montgomery, or indeed this essayist. Why not? To answer this question Montgomery points to the seminal volume *From Novice to Expert: Excellence and Power in Clinical Nursing Practice* [4], a text which many years ago advanced the notion that the development of clinical skills, while it has its origin in the learning and observance of rules, later demonstrates an ability to look beyond basic formulas and to comprehend a given clinical scenario more holistically. Montgomery did well here, I thought, to quote Feigenbaum, one of the early fathers of AI. When, observing the typical inability of doctors to describe the specifics of their decision making in the context of the individual patient, Feigenbaum states, with some frustration: 'At this point, knowledge threatens to become 10 thousand special cases' [5]. Not that Feigenbaum has remained alone in making such an observation. Indeed, as Montgomery notes, on these points academics of often very varying backgrounds and disciplines find themselves able to agree. For example, within the volume *Interpretive Social Sciences: A Second Look*, Hubert Dreyfus [6] (a philosopher whose work has consistently criticized AI as insufficiently contextual) and Stuart Dreyfus (an applied mathematician whose work on expertise, as Montgomery reminds us, Patricia Benner has used), are both in agreement that those individuals satisfying the definition of 'expert', reason 'holographically'¹ and *not* by methodical inference. For Montgomery, this quite simply underpins the per-

¹Montgomery refers here to holograms, not holographs or verified signatures, using the term metaphorically to describe a type of 3-D reasoning that challenges linear heuristics (or 2D representation).

haps intractable difficulty which confronts those who would model clinical expertise. So what is Montgomery's conclusion in relation to AI in this context? She certainly does not dismiss computerized expert systems as useless. On the contrary, she is clear that a good computer program is perfectly capable of suggesting potential diagnoses. But her central point is one with which this essayist agrees; that to function usefully in Medicine, AI systems need to base themselves on precisely those rules that, were they absolute, would establish Medicine as a science. Given that such rules are far from absolute, certainty is impossible. So why is it, then, that many clinicians continue to accept descriptions of Medicine as a science? The prevailing dogma of EBM has certainly led some colleagues to appeal to probability values derived from epidemiological studies as surrogate markers of certainty. Other colleagues accept the inherent uncertainty of medical practice, but seem to 'optimistically predict that Medicine's non-scientific subjectivity is a temporary flaw, an irrationality that will disappear when the last biological puzzle has been solved' (p. 36). I suspect that many readers will join with Montgomery in considering such a prediction wildly optimistic. Medical practice – despite massive pharmacological and technological progress – remains, as one hundred years ago, an inherently uncertain activity, with scientific reasoning of the positivistic, objective and replicable sort, continuing to play only a small part in clinical practice. Indeed, clinicians cannot possibly rely on an effect size calculated from an epidemiological study to determine of itself the most appropriate course of care for the given individual. On the contrary, they must:

'Understand human biology, investigate the patient's condition attentively, reach a diagnosis, understand the clinical research and its relevance to the particular individual who is the patient, and then weigh the benefits and burdens of therapeutic choices and adjust the treatment as events unfold. *Such a practice is certainly rational, but it is not (especially by medicine's own positivist definition) science.*' (italics mine) (p. 36)

The complexity of clinical rationality

I found Montgomery's discourse on the complexity of clinical rationality particularly interesting. Opening this section of her volume, she reminds us that clinicians must, given the substantial uncertainty of medical practice as a 'science-using practice that must diagnose and treat illnesses one by one', use a more detailed concept of rationality than a 'sparse, physics-based, positivistic account of scientific knowing'. Drawing upon Kirsti Malterud's thinking [7], which argues that traditional medical epistemology is an inadequate representation of medical knowledge given that the human interaction and interpretation which constitutes a considerable element of clinical practice cannot be investigated from that epistemic position [8–11], Montgomery proceeds to demonstrate the misrepresentation of knowledge that positivistic reasoning can result in. She agrees with Cassell [12,13] that clinical judgement is 'experienced knowing', the 'exercise of practical reasoning in the care of patients'. For her, this 'clinical knowing' will always be necessary, with scientific advances unlikely to change the necessity for doctors to exercise such practical reasoning in the care of patients, irrespective of the science base that (increasingly, admittedly) informs decision making. For Montgomery, it is the *phronesis* or clinical judgement that is indispens-

able in this context and which 'is the essential virtue of the good physician' (p. 37).

The radical uncertainty of clinical practice

Montgomery does not exaggerate when she talks of the 'radical uncertainty' of clinical practice which so often manifests itself in the face of the incompleteness of medical knowledge. She acknowledges the efforts of the protagonists of EBM and the various colonies that collectively constitute the Cochrane Collaboration in their attempts over long years to evaluate and reconcile the results of often conflicting studies, but she is in my view quite right to caution that the perception that 'invariant precision – real certainty – in dealing with illness is just around the corner', is essentially illusory. I disagree with Montgomery, however, when she states that '... EBM has never claimed [this]'. On the contrary, and as the JECPC has extensively documented and discussed, the EBM community had claimed precisely this, particularly during the rhetorical outbursts that were seen at its inception, although the change in direction of the EBM debate steered by the JECPC can be seen to have led to more intellectually measured claims and profoundly less hyperbolic rhetoric in recent years [14–24]. Clearly, the collapse of EBM's core philosophies and so-called practical methodologies that is now in evidence does not in any way obviate the need to continue to search for other more sensible approaches to increase diagnostic, therapeutic and prognostic skills, but such endeavours may need to learn to temper the scale of their ambitions, precisely because '... the distance between Achilles and the tortoise, the gap between invariant, reliable, universalizable laws and the variable manifestations of illness in a particular patient remains' (p. 38).

A science of individuals?

Montgomery uses the phrase 'a science of individuals' in this context, which recalls in part her description in a much earlier work of the patient as providing 'the text that medicine must read and make sense of and explain' [25]. The concept of a 'science of individuals' provides an important hypothetical basis for advanced study of the whole nature – and purpose – of clinical judgement, and reminds us vividly of the uniqueness of the individual patient in an era where advances in clinical epidemiology and the not altogether unrelated return of utilitarian health philosophies, threaten to view the individual patient as nothing more than a component part of a statistical population. So will advances in science – more randomized controlled trials, more mega-trials, more meta-analyses and more systematic reviews, change this? For Montgomery, and for this essayist, the answer is a simple 'no'. Even in what she refers to as 'that ideal future when the pathophysiology of disease is thoroughly known and the epidemiology of every malady established, and both are at the fingertips of the experienced practitioner', she is clear that Medicine can only remain a practice. What brings her, then, to this conclusion? An unique insight into the future? Some sort of special prospectoscope? Of course not. Simply the common sense appreciation of a series of immutable facts which Montgomery details so elegantly that I quote her here *verbatim* and at length:

'Diagnosis, prognosis, and treatment of illness will go on requiring interpretation, the hallmark of clinical judgement.

Physicians will still be educated and esteemed for the case-based practical reasoning that is situated, open to detail, flexible, and reinterpretable, because their task will continue to be the discovery of what is going on with each particular patient. Even with the last molecular function understood, the genome fully explicated, and cancer curable, the care of sick people will not be an unmediated 'application' of science. People vary; diseases manifest themselves in varying ways. The individual patient will still require clinical scrutiny, clinical interpretation. The history will be taken, the body examined for signs, tests performed, and the medical case constructed. Patients will go on presenting demographically improbable symptoms of diseases; some will require toxic therapy, and sometimes treatment will come too late. Tests will have to be balanced between their sensitivity to marginal cases and the specificity with which they can identify disease. Therapies of choice will be second choice for some patients and will never cure quite everyone. The attentive focus on the particular patient that is the clinician's moral obligation will continue to compel the exercise of practical reason. Because the practice of medicine requires the recollection and representation of subjective experience, physicians will go on investigating each clinical case: reconstructing to the best of their ability events of body, mind, family and environment. For this task scientific knowledge is necessary and logic essential, even though the task itself is narrative and interpretive. Clinicians must grasp and make sense of events occurring over time even as they recognize the inherent uncertainty of this quasi-causal, retrospective rational strategy. Piecing together the evidence of the patient's symptoms, physical signs, and test results to create a recognizable pattern or plot is a complex and imprecise exercise. It is subject to all the frailty of historical reconstruction, but it remains the best – the logical, rational best – that clinical reasoners can do. It is not science, not in any positivist sense, nor is it art.' (pp. 38–39)

Why does medicine collude in the misrepresentation of its rationality?

If one accepts Montgomery's general thesis, as does this essayist, then one is bound to ask the question as she herself does: 'Why does Medicine collude in the misrepresentation of its rationality?' Montgomery appears at first sight here to state that all doctors collectively assert the nature of Medicine as science. Such would not be true, although it must be acknowledged that a considerable body of doctors certainly misrepresents the rationality of Medicine in precisely the manner that Montgomery describes. Her argument that these doctors do so because Medicine's status in Society depends in considerable measure on the scientific nature of much of its information, is compelling, given the authority, respect and, in modern times, television and newspaper 'celebrity', that the figure of the doctor-scientist commands.

Such power systems worked well for doctors in Victorian and Edwardian times – *sed tempora mutantur et nos in eis mutant*. Indeed, patients now expect clinical certainty to be the norm and typically show unrealistic expectations of doctors as a direct result, generating as Montgomery points out, malpractice claims which result from such misplaced expectation and a perception by the

patient of error and neglect. A proper appreciation by patients and Society more generally of the nature of clinical judgement would prevent such misunderstanding and would show doctors to be what in reality they are: 'human and fallible, but still trustworthy authorit(ies)' (p. 39). But doctors recoil still from such admissions, perhaps less as a means of maintaining societal status than of a need for certainty when making important, sometimes vital, decisions in the context of the individual case. This entirely understandable quest for certainty, if it leads to rigour and care in the diagnostic, therapeutic and prognostic process is, without doubt, to be welcomed and is a professional and moral obligation on the doctor. The danger in my own view is where a particular system or philosophy in Medicine purports to provide the certainty for which doctors rightly strive, but where, in reality, no such certainty is provided or possible.

The EBM movement, in having made such claims – usually implicitly but sometimes explicitly – has vividly demonstrated its epistemological, ethical and moral flaws [26–28] within a framework of illogicality that has been both unscientific and antiscientific [14–24]. EBM is constituted by a concept and a method and can only be regarded as an experimental approach to clinical practice yet to be properly tested through quantitative and qualitative inquiries into any potential usefulness. It is certainly not some form of model illustration of what good clinical medicine is or should be, that much is now incontrovertible [11,27,29–40]. If future investigations of EBM show it to be of benefit to some groups of patients, then it may come to be regarded as a tool of value in the making of decisions in particular contexts. However, at the time of writing, it shows no proven potential and has little to do with good clinical judgement if we accept Montgomery's definition and explication of the same, as do I. Curiously, Montgomery does not make this observation and develop her argumentation accordingly and this, perhaps, is in my own opinion one of the very few shortcomings of her monograph and the principal one on which I would take her to task. It appeared odd to me that in noting that science is often regarded as the 'gold standard' of clinical medicine 'precisely because it promises reliability, replicability, objectivity', and in noting that medical students, indeed doctors, 'seem to need the honorific label "science" as a warrant for their clinical acts' (pp. 39,40) she failed, or chose not, to discuss the drivers of such indoctrination and misdescription that the protagonists of EBM have represented and indeed continue – through their involvement in medical education – to represent.

Medical educators and the misrepresentation of Medicine

Many medical educators insist that a belief that Medicine is a science is essential to proper medical education. In doing so, they therefore contribute directly to the misdescription of Medicine, and it is noteworthy that many of these colleagues are converts to the 'EBM cause' as a means of developing their own professionalism and in order to lay claim to be innovators and scientists in their own field, rejecting sound concepts that have served Medicine well, in favour of novelty and fashion. With others, this essayist has previously noted that many medical educational curricula have been, and continue to be, heavily influenced by EBM philosophies in the absence of any significant evidence that medical students

educated in this way make better doctors than those who are not. My own view is that no such progress is achieved by EBM-influenced curricula. Indeed, I believe the *reverse* to be the case and I hypothesize that as time elapses, and the relevant experience and data are accumulated, it will become possible to show this quite definitively. By that time, however, I believe that an essentially irreparable damage will have been occasioned to the historic nature of Medicine, especially as over-politicized and over-regulated health services increasingly embed the EBM-inspired practice guidelines and standardization culture into the minds of clinicians, for largely regulatory purposes, steadily converting medical professionals into health service technicians, as part of this process [41,42]. How will clinical judgement be exercised then? How will it be described? As an interesting facet of Medicine's history – something illustrating Medicine's 'pre-scientific', 'pre-economically rationalized', 'pre-unpoliticized', 'pre-unstandardized' past, perhaps? Certainly, there is a wealth of indicators within the Developed World which strongly suggests this to be the case.

Medicine's irreducible uncertainty and the over-reliance on science

I return now to the nature of certainty in Medicine and ask with Montgomery: 'Should we ask students in whom we inculcate the absolute need for observation of detail, the need for continuous update of knowledge, the need to provide optimal care to the individual, to acknowledge Medicine's irreducible uncertainty?' When we are patients, Montgomery asks, do we want doctors to disclose to us that their knowledge is incomplete, its application to our case imprecise and its usefulness uncertain? I have to confess to laughing out loud when she answers 'Not unless our complaint is very minor we don't'(!). But in such humour lies the truth that patients want, and in situations of distress *need*, to think of their doctors as learned, assured and quintessentially infallible figures. Herein, again, rests the allure of science for doctors as a means of achieving such a lofty perfection in practice and which leads many doctors to an over-reliance on science which is at once as absurd as it is dangerous. But, as Montgomery says, 'Few clinicians – or patients – for their respective reasons – have imagined challenging this *folie a deux*.'

If a lucid understanding of the limits of science leads the reader to recognize, with Montgomery, that science can only be a tool, rather than the soul, of Medicine, then should we be educating doctors (and patients) accordingly? For Montgomery, as for this essayist, the answer is an unequivocal 'yes'. If we were to ask 'how?', then Montgomery answers us by describing a formal moral framework where the foundational teaching urges the student, in a long and scrupulous preparation, to act wisely for the good of the patient in an uncertain field of knowledge. So how to go about this? For Montgomery, the process would begin with a scrapping of the unexamined description of clinical medicine as both a science and an art, as it is her conviction that that essential duality succeeds in ignoring all that Medicine shares with moral reasoning and reinforces a contemporary tendency to split Ethics from Medicine, hardly a good idea if one accepts that in Medicine, morality and clinical practice require *phronesis*, the practical rationality that characterizes both a reliable moral agent and a good doctor (p. 41).

Clinical judgement and the interpretation of the individual case

Acknowledging that the intrinsic limitations of EBM mean that it cannot by its nature turn Medicine into a science – not least because its methods require a clear clinical question and given that the formulation of such questions is the essence of clinical judgement – Montgomery goes on to consider clinical judgement as it is exercised in the interpretation of the individual case. In this context, she notes that doctors use both the scientific or hypothetico-deductive approach *and* the practical or interpretive and narrative approach [43,44], but she is clear that for her it is the latter which defines them as clinicians. Indeed, she emphasizes that while clinicians rely in considerable measure on the biological understanding of disease, talking of the medical 'knowledge base', it is the application of scientific information in a rational, science-using process, that characterizes the work of a doctor. Yet Montgomery is equally emphatic that the nature of biological knowledge – general, variable, evolving – that is so fundamental to Medicine, at the same time limits its usefulness in the care of individual patients, such that biological knowledge cannot be, in any sense, directly applied to individuals in some sort of formulaic manner. Indeed, at this juncture she importantly reminds us that while scientific generalizations play an important part in the practical reasoning of Medicine, 'neither biological facts nor epidemiological probabilities go very far alone' (p. 45). In talking of what can only ever be an 'approximate applicability' to individual patients of these sources of knowledge for practice, I found much of interest in Montgomery's reflection of how 'general truths' have always required *particularization*, as it were, not only in Medicine itself, but also in another two professions which emerged definitively from the Middle Ages: Law and Moral Theology. Here, also, generalizations have required 'particularization' through interpretation and judgement as they are 'put into action', or applied, to given individuals in varying, changing and often incompletely specified circumstances. It is the appreciation by Montgomery that these 'abstractions' sometimes fit well or badly (but never in detail) to the individual and her worry as to *which* general principle, law or maxim *is* applicable to the given individual case, that leads her on to the recognition that such thinking and decision-making processes demonstrate clinical judgement in action: the creation of a list of clinical possibilities, through differential diagnosis, to the making of a clinical decision. It is here that she turns to clinical judgement as narrative rationality (p. 46).

Doctors do not reason as scientists do

Montgomery, when looking more closely at the reasoning process through which doctors make clinical decisions, is clear that doctors do not reason as they imagine scientists do. She is clear that doctors – whether diagnosing or making a decision on treatment or examining options deriving from the field of so-called 'bioethics' [45,46] often eschew the 'top-down' deductive, scientific model in favour of case-based reasoning instead. Interestingly, this mode of thinking continues to characterize medical practice, despite the invective of recent years that has been directed against so-called 'anecdotal knowledge', such that case narration remains a principal means of thinking and remembering – of *knowing*, as Montgomery puts it, in Medicine. It is easy to dismiss this *modus*

operandi as a vestige of the past, as many members of the EBM community have done, but for Montgomery, as for this essayist, it in reality illustrates the exercise of clinical judgement. Not that Montgomery is unaware of the dangers of over-reliance on 'narrative-based medicine', but having reviewed some examples of these, she is confirmed in her view that narrative remains essential in Medicine as the mechanism through which insight from practice is accumulated for immediate and subsequent use [43,44]. If this is accepted, then diagnosis and the selection of treatments become not merely the products of 'cold' logic, but 'a more contextual consideration intertwined with history, identity, culture and the meaning of an individual's life'. By such a process, Medicine can take account of cultural, social, familial and psychological detail, such that illness and disease become 'biocultural', as Montgomery notes in reflecting on Morris' work [47].

Generalization and Particularization

In Chapter Five, *The Simplification of Clinical Cause*, Montgomery proceeds to look in greater detail at 'generalization' and 'particularization', processes which she describes vividly as 'lumping' and 'splitting', the 'doctor-reasoner' moving between them and utilizing both. She sees in this oscillation, as it were, an intellectual tension, with Medicine's counterbalancing movement between the patient's clinical presentation and the taxonomy of disease leading to the noting of exceptions to every 'established' rule. For Montgomery, this 'counter weighing', as she puts it, represents a central characteristic of clinical judgement, here illustrating the exercise of practical reasoning in an attempt to reason retrospectively under conditions of uncertainty, such that each move – 'lumping' or 'splitting', functions to test and curb or refine the other (p. 87). For Montgomery, this whole and undoubtedly 'risky' process of generalization satisfies a human need to categorize. Thus, experienced doctors make observations and accumulate information with which to test their initial hypotheses in order to arrive at a diagnostic conclusion as the basis of therapeutic intent. Moving to 'particularization' – the opposite or reverse of generalization – Montgomery examines how this process, essential to clinical judgement, is utilized in clinical decision making, framing this 'activity' in terms of how the clinician, faced with a wide range of generalizing studies of varying quality and uncertain relevance, determines which ones, if any, may be applicable to the individual patient.

Montgomery is clear that these processes of 'generalization' and 'particularization', the 'lumping' and 'splitting' as we have noted that she has termed them, pose inevitable difficulties for the clinician. In terms of generalization, the 'first half of clinical reasoning', its limitation derives from what appears to be a narrative instinct: humans are predisposed, it seems, to construct accounts of cause and effect from the evidence available to them and, indeed, sometimes from random events. Montgomery cautions against the error of generalizing from inadequate, flawed or insufficient evidence such that *post hoc, ergo propter hoc* – what follows an event is therefore caused by it – is always to be regarded as a 'suspect' conclusion. She views particularization, the 'other half of clinical knowing', as 'the essential act of clinical reasoning'. She describes it as beginning with the interpretive question that is the essence of the initial clinical encounter: 'What is going on with this patient?', thus placing the patient within a general

scheme of illness. But particularization, by its nature, precedes generalization, in that it is chronologically and methodologically secondary to particularization, such that 'lumping' precedes 'splitting' (p. 88). This is not to say that the particulars do not remain centrally important. Indeed, using the example of her daughter, she points out that clinicians *must* have an appreciation that a very small number of 28-year-old women *can* develop breast cancer, before they can sensibly ignore the studies of its statistical improbability. Indeed, as Montgomery properly emphasizes, 'an understanding of the individual in light of the general is, after all, the clinical point'.

Every lion is different

Montgomery's story of the Zookeeper in illustration of Medicine's epistemological predicament (and perhaps indicative of why Aristotle declared the impossibility of a science of individuals) is illustrative in this very context. The Zookeeper, who was renowned for breeding lions in captivity, was asked the secret of his success. In response to the question, he answers: 'You must understand lions. . . . You need to understand: every lion is different' (p. 89). It is at this juncture that Montgomery returns to a discussion of how EBM has contributed, in her view, to the problem of knowing in an uncertain practice, the problem of particularizing from generalized knowledge. While the ability to do so (and any method which refines such an ability) is most definitely a contribution to Medicine's 'phronology', I do not agree with Montgomery that EBM has made a major contribution to Medicine in this way. My own view is that EBM *has* promoted whole-sale epidemiological solutions to clinical problems, while paying lip service to the need to particularize such information to individual patients and the difficulties in doing so. In this sense, I do not believe that EBM has contributed anything of substantial or lasting value to Medicine's progress and my view is that History will show it as having been of disservice, rather than service, to patients and indeed to doctors whose professionalism has already been adversely affected by EBM-associated, and EBM-inspired, innovations in health services. I agree, however, with Montgomery's summary in this context that:

'Because clinical knowing arises from individual cases (however well aggregated in clinical studies) and must ultimately be applied to an individual patient, that knowledge is necessarily circumstantial and radically uncertain. Competent clinicians must simultaneously know the general rules of their practice and recognize exceptions when they occur. They must entertain the possibility of anomalies without letting that possibility distort their judgment. Yet even the best residency followed by a fellowship in the very smallest possible subspecialty cannot provide a physician with an example of every manifestation of disease he or she will need to recognize over a lifetime of practice. People differ, diseases change, new information floods the academic journals. Clinical judgment, when fueled by reliable information and a store of related experience, enables physicians in an unfamiliar situation to work out the best thing, under the circumstances, to do.' (p. 90)

What, in real terms, has EBM contributed to this process? While Montgomery is correct in stating that the methods of EBM *do not* supply 'correct' answers, she must surely recognize that, in fact, they *cannot*. EBM does not in my view assist the refine-

ment of clinical judgement, but on the contrary, acts to denigrate it, as the JECP has repeatedly and variously illustrated [11,14–24,26–40]. As Montgomery says, like the deduction that rules out unlikely diagnoses on the differential diagnosis list, the ‘answers’ supplied by EBM depend on the doctor’s fund of knowledge and experience. It is in this context that I would argue that such a fund of knowledge and experience, if properly formed, actually serves to recognize the errant philosophies and methods of EBM for what they are: erroneous. Thus, the more experienced the doctor, the more likely he is to see the limitations of EBM and to reject this concept and its methods accordingly as having any useful place in his practice. Conversely, the less experienced the doctor, the more likely he is to find the ‘certainty’ promised by the EBM paradigm alluring – which ‘certainty’, is not certainty at all, but rather a false certainty, far more likely to preclude excellence in clinical practice than to enable it [14–24]. It is on this basis that medical students or junior doctors who find themselves seduced by the promise of ‘greater certainty’ in decision making through EBM should be advised – and taught – to: (a) think for themselves (that is to say, avoid using other peoples’ thinking); (b) collect and use their own evidence from a variety of sources (that is to say, not to treat summaries of evidence produced by the ‘EBM Community’ as anything other than just one source of potentially relevant evidence among many others) and (c) always to see their patients as utterly unique individuals (that is to say, as they would see their Mother or Father, child or partner, and thus never to see the patient as a statistic deriving from an epidemiological subpopulation).

EBM, the individual and the exercise of clinical judgement

The ideology and pseudo-authority of EBM would reverse this advice; indeed, the position of EBM has always been to urge juniors to accept the ‘authority’ of EBM summaries of knowledge in preference to other sources of information and most especially to reject the advice of highly experienced doctors – those, that by virtue of their knowledge and experience, could most effectively foster a talent in their juniors for good clinical judgement. Not that commercial ventures have failed to see the considerable benefits of such an errant philosophy [48]. Indeed, the ideology and pseudo-authority of EBM promotes the concept of the epidemiological subpopulation, as it is these very subpopulations which form the experimental samples from which their ‘guidance’ on treatment decisions originates. It is ironic indeed, that the method of the randomized controlled trial ritually fails one of the cardinal requirements of experimental validity: – reproducibility. Why? Because the experimental population of the RCT is constituted by individuals, and individuals differ, it is as simple as that. And because individuals differ, they must be *treated differently*, if care is to be optimal, that is to say, tailored to the individual. But then, the same epidemiologists and biostatisticians who are the most enthusiastic proponents of EBM are also those who would talk of the need to achieve ‘reasonable’, rather than ‘optimal’, health of populations, thus advocating an approach to clinical practice that is utterly incompatible with the ethics and historic mission of Medicine and which continues to be completely contrary to Society’s requirements of its health care systems. It seems almost unarguable, then, that EBM is unable to enhance clinical judge-

ment, as Montgomery defines it, but, on the contrary, would normatively act to disable it.

Only in very recent years, following vigorous and sustained intellectual and clinical challenge [11,14–24,26–40,49], has EBM grudgingly begun to consider the need for ‘particularization’ of generalizable knowledge; indeed, this mutation of its original philosophy was noted, and related to a new political environment which emphasized the need to take into account patient choice as part of the modern ‘patient-centredness’ movement. In such circumstances, what could EBM do? Insist on its original philosophies and deny patient choice, on the premise that the ‘best evidence’ provided the ‘best decision’, irrespective of patient preference? Of course not, that would have proved immediately politically unsustainable and unacceptably paternalistic. Thus, EBM changed its original position, and has continued to change its position, with a frequency that should have proved of considerable concern to its adherents. (M. Loughlin, personal communication). What, then, has EBM to do with clinical judgement? Not a great deal, in my view, and for precisely those reasons that I have set out above. Curiously, despite some approbations of EBM throughout her text, I sensed that Montgomery seemed to feel likewise, at least in part, and I felt relieved when she came to admit that from the phronesiological position that she had discussed and advanced (p. 91): ‘To be truly valuable as a refinement in the process of clinical specification, it (EBM) must prompt new studies of clinical variables in more and more particularized groups of patients – the very research Alvan Feinstein charged that it supplanted’ [50,51].

EBM, clinical judgement and ‘Feinsteinian’ thinking

I was privileged to discuss some of these very points with Feinstein himself around the time that he wrote on my invitation for the JECP [52]. It may be of interest to Montgomery, and to readers of her text and this essay, that Feinstein held the most definitive concerns in relation to the effect of EBM on the professional integrity and future direction of World Medicine, not all of which were recorded with emphasis. Feinstein explained to me how, in his view, the ‘reductionism’ of the scientific method, as it were, had been magnificently successful in generating extraordinary insight into the mechanisms of disease and in providing an extensive array of technological interventions and novel therapies. His concern was, rather, with the seemingly relentless application of the reductionist approach to the care of patients, which for him necessitated an entirely different set of methods which readers will recall were described by Feinstein himself a quarter of a century ago [53–56]. I was particularly intrigued by his description of EBM as an ‘evasion’ of the clinical responsibility to identify and classify disease presentations; that is to say, to try to understand phenomena and to use ‘soft’ as well as ‘hard’ data in exercising the medical judgements that are so foundational to effective clinical decision making. He expressed his irritation that rather than remaining focused on such foundational activities, doctors had become preferentially concerned with gazing at computer displays, digesting the quantitative aggregates obtained from meta-analyses of randomized trials and with wondering how statistical effect sizes could be applied to patient care. He saw the reorientation of medical practice – away from fashions and novelties such as EBM towards the development of ‘Medicine-based evidence’

[57] as being in the hands of clinicians themselves, issuing the old aphoristic exhortation: 'physician, heal thyself'. Some of this was documented and discussed in the JECp at my request [52], but it is, in fact, one of my enduring regrets that he did not live long enough to receive and accept my subsequent invitation to him to join the Editorial Board of the JECp in order to assist the work of the *Journal* in defining and clarifying the nature of evidence for application in clinical practice.

It certainly remains my own view, undoubtedly influenced by Feinstein, that the nature of this evidence, and the methods by which it can be generated, will never quite be grasped by the EBM community, not least, because of their 'ideological conflicts of interest' [23]. Yes, as Montgomery notes, the EBM philosophy focuses via the initial clinical question on the individual (diagnosis having been established by quite different means indeed), but the evidence to which EBM would appeal to answer that question is general in nature and not immediately applicable to the individual patient. Herein lies the great dilemma for EBM: a concern on the one hand to 'do the best for the individual', but an appeal to sources of evidence that are quite unsuitable in strategies aimed at doing so. Again I ask: 'what has this to do with sound clinical judgement?' And again, I have to answer: 'not a great deal'. As Montgomery says, questions about the individual applicability of generalized knowledge have traditionally been settled by clinical intuition, with the inherent uncertainty and imprecision of such approaches being tolerated because the ultimate problem of individualization has been insoluble and widely acknowledged to be so. In this context, she returns to 'Feinsteinian thinking', in recognizing that a research focus on clinical phenomena that have the potential to take us closer to understanding particular cases, is long overdue. I agree. Indeed, during our discussions, Feinstein told me that he considered this one of the most urgent research agendas for modern Medicine and we agreed that genomics and its application in gene profiling was one of the most promising new technologies that might, with time, enable a particularization of general research evidence to take place at the bedside of the individual patient. To be able to speculate further on this point, we shall have to await further analyses and clarifications of the clinical usefulness of the genomic data that are rapidly accumulating, although preliminary data deriving from the Human Genome Project suggest great clinical potential in this context. However, we are in 2007 and not in 2017 and, as Montgomery notes, the goal at the present time is to identify how best to take care of a particular patient more immediately, with direct reference to the current state of knowledge. Such a question, and the moral and professional imperative to answer it, returns us to *clinical judgement* and to Chapter Seven of Montgomery's text, *Aphorisms, Maxims, and Old Saws: Some Rules of Clinical Reasoning*.

Clinical reasoning: far more situated and flexible than even the most complex clinical algorithm

Opening Chapter Seven of her volume, Montgomery is clear that clinical judgement is not a skill separable from a well-stocked fund of scientific and practical information (p. 103) [58]. She agrees, as do I, that if science were all that doctors needed, patients would have no need other than to consult an user-friendly computer programme and, in such a scenario, would never need to see

a doctor at all. I concur with Montgomery that sometimes it seems that Medicine – at least in general practice – has almost reached this point, what with the proliferation of computerized aids, the great many of which are designed by the EBM community and adopted by health service managers who see in them not only mechanisms for cost analysis and containment, but also mechanisms to monitor every facet of decision making [41]. But as Montgomery notes, helpful as these diagrams of decision pathways can sometimes be, clinical reasoning is far more 'situated' and flexible than even the most complex clinical algorithm can ever express. As she rightly points out, these decision trees are simply aids to clinical judgement – they are in no way a substitute. Neither is the answer necessarily more and more reading of textbooks, articles and evidence digests produced by one group or another. On the contrary, Montgomery is clear that it is *experience* that is the key to good judgement, deriving as it does, from long periods of clinical apprenticeship, the taking care of patients, the constant review of cases and the development of the power of reasoning that comes from all of this.

Clinical knowing – 'Don't think Zebras'

Following her excursion through the nature and utility of aphorisms, maxims and 'old saws' in Medicine and in the fostering of good clinical judgement (pp. 104–120), Montgomery turns again to concepts of clinical knowing in Chapter Eight of her volume – *Don't Think Zebras: A Theory of Clinical Knowing*. Reflecting on the much taught 'when you hear hoof beats, don't think zebras', she is clear that as Medicine's epidemiological watchword, it serves to remind doctors that the presence of signs and symptoms common to a number of diagnoses is unlikely to indicate the rare one on the overall list. The zebra aphorism epitomizes, as Montgomery says, the practical reasoning used by clinicians in the altogether uncertain task of caring for the sick. Indeed, as an intellectual but entirely practical activity (on which life and health often depends), Medicine insists on taking into account *every* possibility. There, as Montgomery notes, on the clinical presentation of the patient, the *ordinary* is not necessarily the most *obvious* explanation (p. 123). She goes on to point out that, useful as the statistically improbable may be to clinicians in training, the genuine clinical aphorism warns *against* thinking zebras, and she uses this observation in explaining how the zebra aphorism is of significant value in understanding the fostering of clinical judgement. She observes that doctors, on a daily basis and whether in primary, secondary or tertiary care, balance their knowledge of all of the theoretical clinical possibilities, with a clear understanding of the statistical probability of any of them. She sees this imperative and its process as constituting the exercise of clinical judgement. Thus, the aphorism 'Don't think zebras' encourages both doctors in training, as well as their seniors, to be rigorous in utilizing all they are learning, or have learnt, about statistical probability. Montgomery points out that when, in a clinical situation where, for example, a singular piece of evidence appears which simply does not 'fit' the perhaps otherwise well developing diagnosis, this mode of thinking cautions the doctor *against* the assumption that he is therefore dealing with a rare disease, but instead urges him to continue to think in terms of the working diagnosis: 'when you hear hoof beats – don't think zebras'. But, as she is quick to observe, 'the zebras are (still) there, unforgotten, unforgettable,

right there in the aphorism.' In this context, not only does the advice generate its own counter-aphorism in the less experienced clinician, but also, as an injunction to forget, it is contradictory in itself. In this way, as long as the reminder not to think zebras comes to mind, zebras cannot be unthought. For Montgomery, this simple though highly illustrative example represents a paradoxical maxim which is the epitome of Medicine's practical rationality. It is, in effect, its quintessential interpretive rule. Indeed, because dealing with uncertainty and sometimes radical uncertainty is a fundamental reality in clinical practice, but perhaps never an explicitly taught component of the formal medical curriculum, Montgomery sees the self-contradiction of the zebra maxim as teaching common sense procedure in a field where improbabilities should not be forgotten, even as they are not actively considered. Within this scenario, improbable diagnoses will only be considered, for example, when all of the most obvious and common diagnoses have been eliminated first.

'The research shows . . . and in my experience . . .'

Turning to the use of experience in clinical knowing (p. 130), Montgomery made me smile in quoting the prefatory phrases 'The research shows . . .' and 'In my experience . . .'. She is clear that, rather than heralding weighty clinical pronouncements by experienced elders, these statements draw on strong and potentially contradictory assumptions in relation to reliable knowledge and she sees each as likely to be invoked – perhaps by the same clinician – when discussion has become 'unbalanced'. For Montgomery, clinical experience and research could be depicted as two poles of Medicine's practical knowing, but a more detailed examination appears to identify clinical knowing as a continuum, with 'vivid particulars burned into an individual memory at one end, the abstracted data summarized in the tables of published research at the other'. If one accepts the existence of such a continuum, as does this essayist, then it is clear that neither, as Montgomery points out, functions well without the other. Clinicians will always frame the conclusions of available research against their own patient experiences and it is in this way that a doctor's judgement is developed and refined. These observations become all the more interesting when one considers, as does Montgomery, the pre-clinical education of medical students, where a great deal of basic science teaching might well be expected to ground the student's thinking irreversibly towards a primacy of the biomedical science base. But this does not appear to be the case and, for very good reasons in my view, explains the decrease in enthusiasm and appetite for the concept and practice of EBM as the junior doctor increases in knowledge and experience.

As Montgomery notes, doctors may be scientifically educated, *but they also have responsibility for other people's lives*, and this very considerable responsibility is exercised under conditions of uncertainty in a changing field of knowledge. Clinicians typically exercise considerable caution in clinical decision making, much of which, on analysis, can be seen to be entirely justified. Thus, in life-threatening clinical scenarios in particular, the so-called 'therapeutic initiative' can override information from so-called 'sound' research and it is the phenomenon (if it may be properly described as such) of doctors' confidence in their own experience that under-

pins their reluctance to modify their established habits in certain circumstances. As Montgomery says, 'the strength of experience works against newfangled strategies like evidence-based medicine as well' (p. 132).

Habits of practice

If we talk in terms of 'habits of practice', as indeed we have done immediately above, then how do we explain how doctors acquire such habits? Here, Montgomery refers to the traditional Flexnerian division of medical education into scientific and clinical halves, which was originally designed to introduce clinicians to science. Now, however, and as she observes, it marks the struggle to turn students of science into doctors capable of making 'wise' decisions under conditions of uncertainty. As has been touched on above, this 'daunting pedagogical task', has been traditionally undertaken in the third year of undergraduate medical training, in the absence of any useful discussion of the character of Medicine's rationality. Indeed, Montgomery is clear that after struggling to recast the biomedical sciences in terms of the care of sick people, every clinician comes to understand – and fairly rapidly I would suggest – that 'scientific knowing' is not at all the same as 'clinical knowing'. In this context, I particularly liked Montgomery's observation of doctors that: 'They may choose to honour their profession by calling it science, but they quite reasonably resist efforts to dislodge what their experience has suggested is efficacious.' She goes on to view as equally reasonable, the tendency of the medical profession as a whole to counterbalance this essentially conservative position with the injunction to 'keep up with the research'. I agree with Montgomery, here, that good clinicians know what the studies show and at the same time what their own experience has been. As she rightly says, *both* are valuable and she concludes this particular section of her volume by stating that in good clinical practice and the so-called 'theory' of EBM, each is shaped by the other.

The overarching paradox of Medicine's theory of knowledge

Montgomery's preoccupation with the nature of clinical knowing returns strongly as we approach the final quarter of her text. Here (p. 133), she describes the overarching paradox of Medicine's theory of knowledge as the 'habitual description of medicine as both a science and an art'. As earlier in her volume, she emphasizes her view that, as a practice, Medicine is neither. Rather, her position is that this paradox illustrates Medicine's recognition of the importance of phronesis, the practical reasoning which doctors use in the care of a sick person following a request for help. She emphasizes the truism that patients present to their doctor in the hope of a recognition by him of their predicament, their malady and with the anticipation that, consequent upon that recognition, he will act to assist them. Within this context, patients as the human beings that they are, seek some idea of what they can expect as a consequence of their diagnosis and treatment, but while science has become essential to Medicine within the last one hundred or so years (or perhaps for a little less), Montgomery is clear that 'the unavoidable reality of its practice is the uncertainty of applying general rules to particular patients'. This observation leads Montgomery to conclude that while much of its knowledge

in modern times is derived from biological science, Medicine is 'at its best (when) exercised with an experiential skill that may feel or look like art' (p. 133).

Counterbalancing as a practical theory of clinical rationality

I remain inspired by Montgomery's late development of her thesis in the section: 'Counterbalancing as a practical theory of clinical rationality'. Within this section, she notes that the later stages of undergraduate medical study (followed by the pre-registration and post-registration year internship and residency in North America), are usually referred to as 'training' – a term deplored as behaviourist and anti-intellectual by some teachers. For Montgomery, however, as for this essayist, 'it marks the difference between lectures, laboratories and examinations in human biology and the learners' long, slow stages of apprenticeship to those above themselves on the educational ladder.' Indeed, from the start to the finish of apprenticeship, the apprentices learn how to judge, how to act and how to conduct themselves as doctors. Towards the end of this particular chapter of the volume Montgomery is able authoritatively to observe:

'Medicine resolutely ignores the contradiction between its claims to be a positivist science and its interpretive practice even as the potentially contradictory, but always situational, rules of practice enable physicians simultaneously to express and to negotiate the contradiction. Clinical discourse and educational methods are guided by these counterweighted rules and shaped by their tension.' (p. 134)

Montgomery sees one of the central components of this type of reasoning ('believing two things before breakfast, as the use of contradictory maxims seems to require'), as a brilliant and invaluable resource. She believes that, given Medicine's proverbial wisdom, which like clinical practice itself, is always situational, always interpretive, it seems to make sense that its theory of practical reasoning should be expressed in maxims that – even as they offer support for a way of knowing – can be countered by maxims that are their opposite. As she reminds us, as lawyers, literary critics, historians and other students of evidence know well, rules are *not* self-interpreting. Thus, for Montgomery, the maxims that theorize clinical knowing are relentlessly contextual and incapable of generalization to all similar cases, and with the exception of the zebra aphorism they come, like the maxims for the clinical encounter, in counterweighted and contradictory pairs (p. 134).

Towards the conclusion of this, Chapter Eight of her text, Montgomery goes on to make clear that within Medicine, these counterweighted assumptions about the nature of knowing, serve as clinical medicine's substitute for a comprehensive, reflexive account of practical reasoning and its uncertainties. For her, informal though these are, they nevertheless constitute a theory of clinical practice, a phronesiology of Medicine. Importantly in my view, she highlights the fact that they raise the question as to whether Medicine (especially medical education) is well served by (typically) ignoring the counterbalanced tension of its rationality. I liked what Montgomery describes as the 'take home lessons' at the end of this particular chapter. She gives, in fact, two such lessons which, unsurprisingly, she provides as counterbalanced pairs. The first, she says, is intended to justify

the continual review of cases in clinical medicine's practical, Deweyian education: 'Experience is the best teacher', 'Learn from others' mistakes'. Her second such lesson is concerned with a difficulty particularly associated with learning in a hierarchical discipline: 'Pattern your practice on that of your clinical elders' and 'Question everything you are told and much of what you see'.

Knowing one's place: the evaluation of clinical judgement

It is at this point that we move on to Chapter Nine of Montgomery's text. Opening this particular chapter in her volume, Montgomery asks: 'If a kind of visual defect obscures not only Medicine's knowledge of the nature of its knowing, but also an awareness of that lack, how is clinical judgement evaluated?' Her own answer to this question is rather simple. 'If medicine were only a science, physicians could establish their clinical competence by answering test questions correctly. But because it is a practice, its evaluation is a much more complicated exercise.' She recounts how she stumbled upon this realization by chance when she invited second year medical students in her 'Sherlock Holmes and Clinical Judgement' seminar, to attend a hospital case conference in internal medicine, so that they could observe residents and attending doctors solving clinical problems [59–61]. After recounting various details, she goes on to acknowledge that 'because clinical medicine is not a science, knowing the biological and clinical facts that appear on tests is only a start towards being a good clinician'. Clarifying her position, Montgomery is clear that, doctors, a World away from experimental laboratories – which have their own ethos and behavioural norms – learn how to comport themselves in ways that exhibit an awareness of their knowledge and experience and signal their status as doctors (p. 139).

On the matter of how to evaluate clinical judgement – a question of no small interest to the JECP, Montgomery acknowledges that there is no good, single test of its quality. Indeed, she is right in noting that while clinical skills can be tested, as can the capacity to absorb and retain clinical information, the evaluation of how these 'abilities' interact together in the making of good clinical decisions is far from easily described and assessed. I agree with Montgomery that the assessment of clinical outcomes in this context, as a proxy measurement of effective clinical judgement, would fail to generate data of any relevance. While intuitively one expects (and while it remains probable *to an extent*) that 'good care' produces 'good outcomes', in reality, this relationship of variables is essentially unreliable. I found Montgomery's excursion in this chapter into the relationship between seating patterns within lecture theatres and their relationship to hierarchical status, at best a distraction and of questionable relevance in a book on clinical judgement, although I appreciated the basic point she attempted to make. Certainly, those who have been medically trained will immediately recognize – and smile or laugh out loud – at Montgomery's sociological analysis and discussion, but I did feel, on balance, that this section represented misplaced and irrelevant argumentation within the wider thesis of this important volume and might best have been omitted in order to create additional space for her more substantive thinking.

The 'self' in Medicine: the use and misuse of the science claim

The fourth and final part of Montgomery's book is concerned specifically with clinical judgement and the nature of Medicine. The first chapter of this Part examines the concept of 'self' in Medicine and the whole question of the use and misuse of the 'science claim'. I was immediately intrigued by Montgomery's opening story describing her encounter with an established academic in the Arts who had decided to train as a doctor. The Professor of English, after announcing to Montgomery his intention to train in Medicine, asked her: 'Is it going to change me?' To which she replies: 'Sure. It's going to turn you into a doctor.' Montgomery is clear that while she is convinced that individuals 'change' during their long period of learning and clinical apprenticeship, she herself cannot describe the nature of that change definitively, simply because she herself is not a doctor and therefore lacks the necessary insight to be able to discuss any such change with the necessary authority.

A transmogrification of 'self'

While I accept Montgomery's assertion that certain defining characteristics of an individual can change as a function of medical training and the direct and frequent clinical experience of, for example, distress, disease and death, I do not accept that the process of 'becoming a doctor' involves some sort of wholesale transmogrification of personality and behaviour. These of us who trained as priests, in addition to training as doctors and/or scientists, expected the same, but were in general sorely disappointed (!). It is, then, perhaps 'overplay', to suggest some sort of metaphysical transfiguration of the individual consequent upon 'becoming a doctor'.

Nevertheless, Montgomery is convinced that some sort of 'change' does, in fact, take place. For her, two things quite apart from doctors' professional knowledge and skill, 'set physicians apart from the rest of us'. Two things, she continues, 'shape them as people'. For Montgomery, these are a familiarity with death and an odd relationship to science, which for her are not at all unconnected. As she says, doctors have an early experience of death – from the dissection of bodies when medical students in pre-clinical anatomy, through a 'mere presence' at death at the bedside as students in the undergraduate clinical years, to the pronouncement of death at the bedside when qualified as junior doctors. Reminding the reader of the same, Montgomery continues by pointing out that against this 'onslaught', the juniors function, using what clinical skills they have developed by this time, in accordance with 'the profession's goal of exercising a cool, rigorous, scientifically informed rationality for the good of the patient'.

At the same time, she is clear, as am I, that they have *not* become scientists, but they have certainly by this point acquired crucial intellectual and behavioural skills and a rational clinical method (p. 159). Indeed, as she says, they have absorbed a commitment to objectivity which might be described as close observation, the suspension of judgement until information is gathered, scepticism about information they have not acquired or witnessed themselves, and, when results don't make sense, scepticism about their own procedures. Indeed, as Montgomery argues:

'They have learned a careful, rational method that enables them to sort through what once were bewildering signs and symptoms and now make medical sense of them. As they gain a capacity for clinical reasoning, they can begin to diagnose and treat an array of diseases with a fair degree of reliability. Their commitment to objectivity and their mastery of clinical method, both essential to clinical reasoning, enable them to do what is best for the sick people whose care is their responsibility. This is not science but clinical judgement. It is the exercise of *phronesis*, the situational reasoning necessary in practical endeavours. It is not just the possession of information or the ability to infer it from circumstances (although both are important) but the practical ability to select the right pieces of that knowledge for determining the best course of action in a given case.' (p. 159)

Science: not a synonym for 'rationality'

Given this, Montgomery observes that 'science' is not a synonym for 'rationality', despite the temptation to label doctors' rational procedures – exercised with direct reference to the needs of the individual and firmly within the context of a biological framework – as 'science'. Indeed, for her, clinical reasoning – with its commitment to the quest for objectivity and often extraordinary detail – often generates an 'acceptable level of certainty' within the context of the general 'uncertain undertaking of clinical medicine'. My own view is that she is absolutely correct in recognizing that it is precisely this sort of reasoning that enables doctors to 'ignore torn and distorted bodies, awful sights, nauseating smells, the patient's misery and pain, and the promise of worse to come in order to do what must be done to ameliorate – often repair or cure – such conditions'. It is by this 'circuitous route', that Montgomery sees the claim that Medicine is science as helping to sustain doctors in the face of uncertainty, helplessness and death.

The ethos of medicine

At this juncture in her text, Montgomery turns to the 'ethos' of Medicine, beginning with a quote from Emile Durkheim where that author observes that each profession in this World of ours has its own moral reasoning and framework, noting that Medicine is by no means an exception to this rule [62]. Montgomery, agreeing with Durkheim's position, returns again to Aristotelian philosophy as expounded within the *Nicomachean Ethics* [3], in order to explain how, in her view, this process 'works', as it were. Within this logical framework, *phronesis* (or practical reasoning) is acclaimed as one of the characteristics of the 'virtuous person', to the extent of being foundational in nature, such that it is envisaged that the practitioner will be a 'good person' in order to possess practical reasoning and that, conversely, the habit of *phronesis* will promote virtue in the practitioner. Thus, so *entwined* are *ethics* and *practice* that it is unsurprising, as Montgomery notes, that they then appear to be one and the same. Indeed, the values of clinical practice (and on the basis of these we should probably be designing and operating routine audits) include attention to the patient, reliance on perception, awareness of skill levels, careful observation and thoroughness, together with an accurate representation of what has been seen and done. As Montgomery says, because these values are held to be essential to good patient care, they are identified with clinical goals and obscured as moral virtues pos-

sessed by individuals. Thus, medical students absorb these clinical values – and junior doctors are judged by them – without their ever becoming taught in a formal sense. As she says, while clinical medicine shares *some* of its core values with science, the overlap between the two is far removed from the constitution of an identity (p. 160).

The nature of knowing as it relates to ethical discourse

I was stimulated by Montgomery's reference to Levinas' work where she draws upon this philosopher's thinking on the nature of knowing as it relates to ethical discourse [63]. Emmanuel Levinas became convinced that our response to one another constituted our identity as persons and that when faced with the immediate experience of our neighbour we are compelled to recognize and acknowledge him. Montgomery derives from this philosophy the conclusion that a doctor becomes a doctor only on the basis of taking care of patients. Thus, medical education, by its nature, confers, as it were, a social identity and a 'way of looking at the World', such that a doctor without a patient cannot meaningfully be described as a doctor in the same sense that a patient without medical attention cannot be described as a patient. It is herein that Levinas is able to describe this dyadic relationship – the patient's presentation to medical attention is just such an *en face* encounter; the moral claim at the heart of the medical encounter (p. 161).

What counts for Montgomery within this overall context is what she describes as the ability of a doctor to sort through incomplete and potentially imprecise information to determine what is going on with a particular patient and then – under conditions of uncertainty – to determine an effective course of action. Montgomery guides the reader away from the tempting conclusion that this is simply 'common sense' by pointing out that if it were so, then it would be common sense about very uncommon matters. She draws on Geertz' thinking in suggesting that wherever common sense occurs, it appears to be 'natural, practical, thin, immethodical, proverbial, accessible', all of these representing qualities that 'are bestowed by common sense on things, not bestowed by them on it' [64]. Thus, for Montgomery, clinical medicine operates as if it were a common sense cultural system, with a fundamental aim of medical education being to make it so, such that medicine can be described as an acquired rationality – culturally engendered, communally reinforced, interpretive, situationally sensitive and therefore dialogic and aphoristic in character (p. 165).

Habitus, phronesis, judgement, rationality, positivism

Montgomery is careful to distinguish between the essentially different concepts of common sense, *habitus* phronesis and clinical judgement. For her, Bourdieu's *habitus* [65] and Geertz's common sense [64] are useful concepts because, as with Aristotle's *phronesis*, they enable a characterization of a kind of knowing that is not hypothetico-deductive or scientific, but which could nevertheless be seen as warranting the description of 'rational'. She observes that those colleagues who appear to possess this 'rational capacity' (or virtue, even), in significant measure, are often held in esteem, indeed considered 'wise'. It is at this juncture that Montgomery makes, in my view, a particularly important observation: that in

Western Society, general concepts of rationality appears to have, as a whole, in some quarters, come into ill repute, because there has been a wholesale genuflection to Science as providing the absolute standard of rationality [66]. I feel strongly, personally, that this commonly observed refusal to admit any other form or concept of rationality outside of the so-called 'biomedical scientific paradigm' is an intellectually absurd reductionism which can accurately be described as Scientism. Montgomery notes the same in observing that since the mid 20th Century, substantial contributions to philosophical and anthropological thought have been pre-occupied with describing ways of knowing that fail to support such a positivist stance. I agree with Montgomery that those who would study clinical judgement, if they have not already done so, should consult Taylor's work forthwith. Indeed, what has science to do with the lessons that junior doctors must rapidly learn: how to conduct themselves and how to determine what action to take in situations of confusion, worry, crisis, disappointment, suffering, grief, deep human need and occasional joy? (p. 166).

'Medicine is science': a rhetorical flourish?

Montgomery's conclusion to Chapter Ten of her volume contains much of considerable importance to the 'science claim' of modern Medicine. In making clear that EBM has the potential to inform – but never replace – clinical judgement, Montgomery continues by attempting to explain why many doctors take frequent recourse to the 'science claim'. In the context of clinical education, for example, Montgomery sees the 'science claim' as deriving directly from a behavioural and intellectual norm that expresses Medicine's overwhelming imperative to act on behalf of patients in a manner that is immediately well reasoned and as certain as humanly possible (p. 171). I agree wholeheartedly with her that the claim 'Medicine is Science' is essentially rhetorical in nature, an attempt, perhaps, to appeal to and affect attitudes and habits, which Montgomery sees as perhaps a form of moral exhortation of the doctor to do his best for his patients. Certainly, as Montgomery points out, the reproducibility and certainty of scientific knowledge represent a central ideal in Medicine, but they are (and as she touches upon, albeit parenthetically), essentially unattainable. Doctors therefore aspire to the title of 'scientist' in vain – unless they leave the clinic or bedside *and become one* – a 'real' scientist, that is, within, say, the laboratory setting. I applaud here, an instance of clarification that Montgomery advances, that the aspiration of many doctors to the title 'scientist' illustrates, really, the customary failure to distinguish between 'scientific' (which correctly describes much of Medicine's knowledge) and the substantive 'science' (which falsely describes the fundamental nature of Medicine and its practice). Montgomery does well here, in my view, to expose, as it were, the fact that Medicine 'thrives by advancing its moral and intellectual goals as 'science', while covertly accomplishing them by interpretive, narrative, discursive means' (p. 171).

Medicine as science: vested interests and professional benefits

I found useful at this point, Montgomery's consideration of the powerful advantages that doctors can enjoy by identifying Medi-

cine as science. Indeed, it must not be forgotten that science has come to acquire an 'ethos' – an ethos that embodies rigour, openness and objectivity, all of which characteristics Medicine has shown itself historically jealous of, and which it has in relatively recent times directly appropriated as descriptions of itself and its practice. I agree that this process has resulted in nothing apart from a specious triumph, immediately deceptive in nature, for both patients and doctors alike and Montgomery provides a concise, but perfectly detailed exposition of the direct benefits to Medicine of its identification with science in the concluding paragraphs of Chapter Ten. What, then, Montgomery effectively asks, are these benefits? She sees three.

The *first benefit* Montgomery describes as the emotional support 'on offer', as it were, as part of the intellectual assurance that science by its nature offers. In this sense, Medicine is quite unlike any of the other professions in which knowledge is uncertain. Intellectual rigour remains essential, but as Montgomery points out, that despite a determination on the part of the doctor to be as careful and rational as possible, clinical reasoning remains inferential and susceptible to misjudgement and error. In illustration, she importantly cites Kassirer and Kopelman's text *Learning Clinical Reason* [67] which provides more than a few good examples of how the so-called 'rational mind' can err. Montgomery is clear here that, even when supported by the 'best available evidence' and the latest tools in medical decision making, it remains possible to observe neither deduction nor induction, but rather abduction. For her, the claim that this is science acts to screen clinical reasoners from a variety of pitfalls.

The *second benefit* Montgomery sees in ethical terms, such that science provides doctors with an easily described and defended ethical stance. She reminds us that the ethos of science is the open and unbiased pursuit of the truth of natural phenomena, with the tacit assurance that the methods of inquiry involved in this process, and their conclusions, are value free. Of course, they are no such thing and Montgomery rejects any such notion by appealing to the observations of generations of historians and philosophers of science. She insists, rightly, that 'science is as much a product of its time and place as any other aspect of culture'. Science strives to control bias and, as she says, Medicine does well to share this ideal, among many, of science. Montgomery is clear that while doctors' knowledge is always 'situated' and at its best, 'reliably intersubjective', these facts alone do not obviate the goal of fairness or the need at times for a suspension of emotional involvement. These things considered, and acknowledging that it shares some of the goals of science, she does not see a need for the profession of Medicine to label itself either morally neutral or intellectually objective and neither should there be an imperative for its practitioners to think of themselves in this way either.

The *third* and last benefit of the 'medicine as science' belief is, for Montgomery, the 'boost' it gives to clinical detachment, the 'professional façade maintained in the face of illness, pain and human disasters of every sort, especially a patient's untimely death'. One truism here is that all doctors practise medicine in circumstances which are at once the focus of human emotions, such that fear and the sense of mortality are ever present. As Montgomery says, clinical detachment has been the interpersonal goal of doctors for centuries and centuries [68,69], and so it is entirely understandable, indeed to be anticipated, that doctors will have recourse to whatever aid they can access in this particular

context. As she vividly puts it: 'After all, how to be attentive to another human being without losing oneself is a problem every human being struggles with in one way or another: how to care for children, spouse, parents, friends, without being overwhelmed.' Indeed, if we *do not struggle* in these circumstances, it may be, as she says, because we have been able to reinforce ourselves with something like the doctor's detachment (p. 173).

Medicine, professional detachment and the ideal of science

While at this juncture Montgomery has quite succeeded in making her definitive points, she continues, valuably, to look in a little more detail at the consequences of this 'professional detachment' which some writers have seen simply as a 'description', as it were, and not necessarily a 'goal' in the proper sense, at all [70]. Does this 'professional detachment' have the capacity to impair decision making? Certainly, is Halpern's view, who Montgomery highlights as having argued that the reverse; that is, emotional rationality, promotes better patient care [71]. Does the professional detachment supplied by the ideal of science deliver on its promise of protection for the doctor from emotional pain? No, says Montgomery, not without a cost to the doctor's ability to feel. Here, she quotes Reiser [72] and also Lantos [73], the former describing the 'carapace' that forms when professional detachment is not balanced by clinical engagement, and the latter more recently writing, from personal observation, of the benefits of taking a little time to mourn the death of a patient. Such sentiment, in the proper sense of that word, remains largely alien in Medicine and, where emotional reactions are precipitated by a dramatic clinical event, they are almost always buried beneath the surface and dealt with either in personal time or, more conventionally, suppressed, and thus, unlike other aspects of the clinical case, rarely discussed with colleagues. But while this may be so, Montgomery reminds us that there have been those clinicians who have been more than prepared to experiment with the admission of emotion into accounts of practice. Here, she refers her reader to the work of Branch and Suchman [74] and to a corpus of important writings in the *Journal of the American Medical Association*, in the *Annals of Internal Medicine* ('Narrative Matters'), and to related bodies of work published by the American Board of Internal Medicine (p. 173). It is, in my view, impossible to overstate the relevance of such work to the current exercise of effective clinical practice and to its evaluation and development. Montgomery is clear, as is this essayist, that emotion has a fundamental place in the rational life [75–78]. Indeed, contrary to some bodies of opinion, emotion is not irrational, and I join with Montgomery in emphasizing the reality that emotions can directly assist rationality in Medicine and thus directly assist clinical judgement and the making of sound decisions within the context of the individual patient.

Montgomery is convinced that 'far from providing a safe way to be in contact with patients, Medicine's science claim is a frail defence against uncertainty, death and human emotion'. Indeed, she believes that there is a price to pay, as it were, for this claim, which she describes in terms of the personal development of medical students and junior doctors, the lives and psyches of doctors more generally, the aid and comfort of patients and the role of Medicine in Society. She sees the medical profession's

ideal of an objective, stable and certain knowledge base as having resulted in a frequently brutalizing medical education and an impoverished clinical practice. Montgomery believes that contemporary medical education appears largely to ignore the individual gifts of students, including their sense of *vocation*. Indeed, when I used that word a little earlier above, I was struck, momentarily by how 'quaint' it sounded when used in the present context of contemporary 21st Century utilitarian, secular, economics-driven, service-orientated Western culture [42], but it remains my own view, and I suspect Montgomery's, that it is the students who feel, and articulate, and demonstrate, a vocation to Medicine, that are the most valuable to select, the most worthy of our attention, the ones who will go on to make the 'best doctors'. And somehow, just somehow, I do not think that patients would disagree, even though such students may well represent the polar opposite of the 'types' that modern politicians would wish, for their own purposes, to select.

Types of doctor

What type of doctor is most useful? One who spends time with patients – the amount of time *necessary* and *sufficient* to provide good, humanitarian medicine, or a functionary who enacts technical processes and procedures to ensure the fastest possible, almost industrial, throughput within modern health care environments? Doctors and patients are likely to answer in the affirmative to the former, while economists, managers and politicians seem predisposed to affirm the usefulness of the latter. It is easy to see therefore how what I might term 'humanitarian medicine' can be modulated by – rather than itself modulate – cold political imperatives that seem, ever increasingly in health services, and indeed everywhere outside, to dictate how we should think and act in all aspects of our professional and personal lives. I will talk further in the JECP, with others, on the effects of this malignant politicization of medical and health services and how it relates to a surveillance culture more broadly, later this year [41]. But in the context of medical education – the shaping of those who will come to think and act in the interests of the sick – the continuing inattention to what it is to make and be a 'good doctor' remains gravely worrying. Gravely worrying whether it takes the form of a failure to recognize and foster a true vocation to the practise of Medicine in the early years ('sense of calling'), or whether it results from a bastardization of the historic nature of Medicine through an over-reliance on the 'science claim' of *some* within Medicine, or from strategic political manoeuvres.

The positivistic scientific stance of modern Medicine: a 'wrong warrant' for doctors' authority

Montgomery considers many of these questions and observations when she reflects directly on how impoverished medical practice has become. She is right to lament that the belief that Medicine *is* science (or *ought to be* science as the EBM movement has sought to inculcate) can act to demonize, as it were, the possession and exercise of those real qualities that are the appreciation of the individual person and the anecdotal event, the recognition of a person's pain, the attention to feelings, the awareness of one's

own emotional life and participation in the lives of others and a healthy understanding of the provisional nature of much of clinical knowing (p. 174). It says a great deal, I think, that these characteristics, as Montgomery herself says, are often regarded as flaws in the care of the sick individual, rather than being wholeheartedly celebrated as part of Medicine's foundational nature and purpose. The positivistic scientific stance of much of modern medicine is thus, for Montgomery and for this essayist, a 'wrong warrant' for doctors' authority – this much is surely illustrated by the propensity of the idealization of science to result in a disregard for many of the most important characteristics and actions of clinical medicine, some of which have been described in outline immediately above. It is for this reason that I continue to disagree with Montgomery's assessment of EBM. When she advances that 'rightly understood, evidence-based medicine promises a far better defence against the perils of clinical practice than an unexamined idealization of nineteenth century physics', she describes a concept and practice of EBM that continues to be rejected by the greatest part of the body of its protagonists. Of one thing I can assure the reader of Montgomery's text, this essay and Montgomery herself: Montgomery's conception of the real nature, value and potential of EBM is not shared by the majority of those who use the term or who consider themselves 'evidence-based practitioners'. The extraordinary thing, perhaps, is that while the protagonists of EBM do not overtly or explicitly claim that EBM is a science, even during episodes of their most hyperbolic rhetoric, their writings and actions confirm such beliefs covertly and implicitly [14–24].

I am, 'with Montgomery' and wholeheartedly, when she posits this exhortation which closes Chapter Ten of her volume:

'It would surely be better – for patients, for physicians, and for medicine as a part of society – if physicians understood medicine's practical rationality, described its strengths and limits realistically, and acknowledged the quest for unbiased, certain knowledge not as a scientific imperative but as a moral and clinical one. Surely the ideal of science is not so essential to the selfhood of the physician that it cannot be replaced. Science has mistakenly come to represent both the rationality and the ethos of medicine, the professional commitment to do one's rational best for the good of the patient. In time, these have become the beliefs that count most both for the people who are physicians and for the profession as a whole. Giving up the idea that medicine is or soon will be a science and the dream of certainty and victory over death would require an awareness of method, a recognition of personal and professional limits, and, especially, an examination of the profession's attitude toward death. But it need not in anyway diminish the commitment to rationality, technology, or best evidence. On the contrary, a recognition of the nature of medicine's rationality, its phronesis, leads straight to a lifelong commitment to professional self-awareness and self-education. Anything else would be irresponsible. Giving up the science claim would also entail a new look at medical education and a consideration of both the personal qualities it fosters, including the qualities essential to the care of the self and the care of the patient that it currently disvalues and neglects. Medical education would still turn students, even middle-aged English professors, into doctors, but it might perform that extraordinary feat more effectively and more humanely.' (p. 175)

A medicine of neighbours

Chapter Eleven, the penultimate chapter of the Volume, sees Montgomery inverting the 'medicine as science' claim to ask: 'What would happen if medicine disavowed the claim to be a science and emphasized instead its character as a practice?' Answering the question, she does not anticipate any change in the way in which doctors think and work, neither does she see some sort of ensuing reduction in the importance ascribed to biomedical science and technological advance and neither does she predict any resulting change in the doctor's moral duty to the patient or his intellectual obligation to diagnose, treat and prognosticate. But she does wonder if a change in the doctor's social role might occur in these circumstances (p. 176). The phenomenon of what Montgomery goes on to describe as a 'medicine of strangers' will be immediately recognized by the majority of doctors working within modern health care systems today. She refers, of course, to the fundamental changes which have taken place in the doctor–patient relationship consequent upon a variety of factors, but most notably perhaps, those that have resulted directly from patients' increased geographical mobility (between as well as within countries) and the increased direct management of the 'transaction' of the consultation by influences external to the clinical encounter and which, until relatively recently, have properly had no place within Medicine. Thus, she is able to lament, as do I, that the practice of Medicine we look for when we or our loved ones become ill, has become, whether in general practice or hospital medicine, a 'medicine of strangers', with the clinical encounter becoming 'a brief, almost mechanical *ad hoc* meeting of strangers . . .' Since this situation directly supports the maintenance of the 'professional detachment' which has been discussed earlier, it tends to foster a lack of clinical interest in the psychosocial nature of medicine and in the public health more broadly.

External management of the consultation: patients' problems as diagnostic and technical versus human and social

Montgomery is right to recognize that the external management of the consultation, resulting as it now has, in the seeing of patients, one after another, as quickly as possible, reduces the person of the patient to an individual posing only diagnostic and technical, rather than also human and social problems (p. 177). She is clear that the advances of biomedical science and Medicine's own goals of increased precision and efficacy are not responsible for this essentially reductionist result. Nor does she believe that the 'medicine as science' claim has itself led doctors to view their work mechanically or estrange them from their patients. However, she does assert, and I think it very true, that when the 'science ideal' is held with tenacity, doctors become a great deal less concerned with the current moving away of Medicine from its traditional status as a 'caring profession' and with its seemingly increasing disinterest in the wider public health environment in which they practise. As there is an increasing tendency in the Developed World to view patient care technocratically, as it were, with the measurement of the 'efficiency' of medicine being the judging of its product – health – my own view is that we need to keep the proper definition of *health* firmly in mind. Here, I refer to the definition of health not simply as the absence of disease but rather,

as the World Health Organisation definition has it [79], and thus not simply as the absence of disease or infirmity, but rather a state of complete physical, mental and social well-being, to which I would argue we must now add 'spiritual'. Thus, doctors must *remain* concerned not solely with successful cure (i.e. the renewed absence of disease), but rather with what might be termed the 'general health status' of their patients. That is to say, Society (which gives doctors their licence to practise) [80], should be concerned to ensure that a holistic, rather than a reductionist, approach to patient care, remains normative for clinical practice and to this end, the content of the undergraduate medical education curriculum is of particular importance as is a proper 'ethos' as part of the early postgraduate training years.

It has been previously noted that while the scientific evidence linking biological, behavioural, psychological and social variables to health, illness and disease is substantial, the translation and incorporation of this knowledge into standard medical practice has been, and remains, notoriously unsuccessful. Within this context it is interesting to observe that the exhortations that innovations in medical education which take explicit account of these factors should be introduced during and after medical school training have been largely ignored. Indeed, the astute reader will call to mind the document *Improving Medical Education: Enhancing the Behavioural Social Science Content of Medical School Curricula* [81] published some 3 years ago by the Institute of Medicine of the National Academy of Sciences, Washington, USA. The Institute enthusiastically recommended that innovation in medical education – during and after medical school training – should take explicit account of six specific areas of emerging knowledge of immediate relevance to clinical practice. These include: (a) a focus on 'mind–body' interactions; (b) patient behaviour; (c) doctors' roles and behaviours; (d) doctor–patient interactions; (e) social and cultural issues in health care; and (f) prevailing health policy. A full discussion of the theoretical basis of these recommendations is beyond the scope of this essay, but I for one am convinced that if such innovations were successfully to be implemented we would finally be able to see what Downie and Macnaughton have referred to as an 'amalgam' of scientific, technical and humane judgements, enabling the exercise of clinical judgement [82], illustrating what I would term the clinical use of clinical evidence and directly resulting in changes in health processes, improvements in health outcomes and increases in patient satisfaction.

A medicine of friends

If the changing nature of the consultation, resulting in a 'medicine of strangers', disturbs Montgomery, then why should she be similarly disturbed by the idea of a 'medicine of friends'? For Montgomery, the idea of the doctor as 'friend' although giving the reassurance of the doctor as 'trustworthy and solid', seems a 'bit too simple'. It is self-evident that the nature of friendship varies, so what underpins, then, the concept of the doctor as a friend? Some authors, as Montgomery explains, see friendship in this context as related to the medical virtue of compassion. Here, a good doctor would always be compassionate, like a friend, but brings to the relationship a competence not required of friends [83]. Other authors develop the explanation further, describing 'friendliness' as the 'key virtue in medicine' [84] and insist that the doctor–patient relationship requires a foundation of 'loving friendship'.

Can 'friendship' between the doctor and patient be regarded as an ethical standard? Yes, for some thinkers that Montgomery cites [85] while others advance the ideal of friendship in models of the doctor–patient relationship which call for the clinician to engage in 'values clarification' and 'moral persuasion' as a teacher or friend [86]. So, if 'the secret to the care of the patient is to care for the patient' [87], then should the creation of friendship between doctors and their patients be a goal of medical practice (p. 180)? Montgomery is clear that it should not. Tellingly, she points out that the idea of a 'medicine of friends' is held more by those who are members of the medical profession than those who are not, that is to say, those that doctors serve. For her, the concept has real flaws as an ethical goal for medicine, quite apart from having the potential to be emotionally exhausting, even perilous for the clinician. If this is so, then from where does the concept derive and what maintains the idea in the medical consciousness? Is the concept 'all bad' as it were, or are there elements of its general philosophy which should be rescued and prized?

Compensatory rhetoric?

I agree with Montgomery that the concept of the doctor as a friend is what might be termed a 'compensatory rhetorical turn', which is based in part on the anxieties clinicians increasingly experience as they see medicine becoming less and less of a caring profession and more and more of a business. But there is more to it than this. Clinicians should celebrate – and in my own view never suppress – the occasions on which they become 'touched' by occurrences in the personal lives of their patients. Indeed, compassion, *one* of the ethical obligations on a clinician, can also be described as 'co-feeling'. The core matters of importance here are the limits within which such 'co-feeling' (and its extent) is exercised, limits which are as important to the patient as to the doctor and which act to define the proper and enduring nature of the doctor–patient relationship. Montgomery does well to consider these limits and the factors which do or should define them in a concise, yet impressively comprehensive manner. Thus, in addition to having considered 'impersonal medicine', and having reviewed some possible benefits of a more 'personalized' clinical care, she balances her overall exposition by discussing the idea of friendship in this context as 'simply bad medicine' with the capacity to violate the autonomy and dignity of the patient (p. 181), in addition to reflecting upon the inherently unequal relationship within the consultation and how that very inequality is often integral to the efficacy of medical practice. So, despite attempts by some doctors to become the patient's 'friend', and however, incautious or misguided these may be, can the doctor, in reality, ever *actually* realize such an ambition? Montgomery does not even, on reflection, think so.

In continuing her exposition, and in explaining her position further, Montgomery poses the question: 'What do patients want?' She is convinced that it is *not* friendship. Clearly, they would wish to see courtesy and friendliness, but even those patients who seem to see their doctors as friends, do not advocate friendship as a goal of their care (p. 183). This is not to say that some sort of friendship might not evolve over time – especially in the context of chronic illness – but even here Montgomery sees such friendship as an 'accidental reward and not a precondition or goal of the relationship'. Contemporary illness narratives confirm the patient's need

and Montgomery discusses these as well as quoting a particularly illustrative section from Broyard's account of his uncommunicative surgeon [88].

The 'decontextualization' of the patient and its remedy

So if patients do not want doctors as their friends and if it is accepted that a doctor's attempt to create a doctor–patient 'friendship' is incautious or hopeless, and if we are not to have a 'medicine of strangers', then to what should doctors and patients be aiming? Montgomery recognizes that the ideal of friendship is an attempt to redress Medicine's necessary decontextualization of the patient, but also acknowledges that doctors long not only to exercise their skills, but also to have a safe way to be in a relationship with their patients (p. 184). Mindful of all of this, and the preceding, she recommends a 'medicine of neighbours' (p. 185). Neighbours, after all, are people in an 'accidental almost gratuitous relationship, but are no less full of possibility for all that'. Indeed, 'neighbourliness is a duty, especially in times of need, but a limited duty that leaves considerable room for both self-preservation and performance over and beyond its call.' Moreover, 'the fulfillment of neighbourly duty is judged by acts rather than by motives or emotions . . . (and) . . . distinct from love and liking, being a neighbour requires only a fundamental respect, involved in one human being's recognition of another. Above all, in its randomness it is a relationship open to time, chance, difference, surprise' (p. 185). With these musings, Montgomery sets out the basis on which she is to argue, very successfully in my view, for a form of doctor–patient relationship situated somewhere in between the polar opposites, as it were, of a 'medicine of strangers' and a 'medicine of friends', and one which at once expresses much of what is most valuable in the ethos of medicine (p. 185).

Some readers may reflect on what is written here in summary and analysis of the penultimate chapter of Montgomery's volume, and may be forgiven (without reading the original in its entirety) for asking: 'but what exactly has this to do with clinical judgement?' How doctors think about their relationship with a patient(s) will determine in no small measure how they act, and that has everything to do with clinical judgement. I reproduce here, *verbatim*, Montgomery's intellectual conclusion which closes Chapter Eleven of her volume:

'Seen as a science rather than a practice in the service of the ill, medicine easily appropriates a detachment that defends against emotion, intimacy, and death. Biomedical science focuses on altered structures and malfunctions of the body, and if medicine has the same focus its responsibility narrows to the study of disease in laboratories and in the living containers that are patients. Although friendship may seem to be the antidote to this view, especially at a time when the social and economic organization of clinical practice has made patients strangers, the physician's responsibility is larger. Good clinical practice requires neither detachment from patients nor their adoption as friends but rather responding to them with attention and respect. Medicine already is or should be the care of neighbours. It is a norm that was available to medicine long before clinical practice incorporated science. We are challenged now to extend the benefits of medicine not only to those we live among, our literal neighbours, but more widely to figurative neighbours with

whom we share the planet. We could do worse than to imagine the physician not as a scientist or a science-using technician but as a neighbour, and to evaluate both our beliefs about medicine and the public policy to which we consent by the degree of neighbourliness they permit and encourage.' (p. 188)

Uncertainty, the ethics of practice and the limitations of statistics

We reach at this juncture, the final chapter of Montgomery's volume. Returning at the outset to her daughter's diagnosis and care, she returns also to further discussion of the nature and effects of uncertainty in medical advice giving and decision making. Particularly interesting in the first sections of the chapter were Montgomery's thoughts on the often symbolic nature of test results and on the limitations of statistics and statistical extrapolations to the individual. She is clear that patients and their families want more than information – they want 'the something', as it were, that science cannot provide. This is true even where there can be an educated grasp of statistics – numbers, as Montgomery reminds us, are only a substitute for the re-assurance patients need (p. 195). It follows, then, that in order to provide the reassurance that patients need, doctors must understand the limitations of statistics in their advice giving and decision making, and use in good measure all those other indices for clinical practice at their immediate disposal and these include experience, expertise and judgement, the 'listening' to hunches, intuition, an acknowledgement of the enduring importance of anecdote and narrative and the ability to 'connect' and 'co-feel' with the patient.

I agree with Montgomery that 'a richer, more complex understanding of clinical medicine and its characteristic rationality could readily replace the flawed idea of medicine as a science' (p. 198). What, then, might such a 'richer understanding' involve? For Montgomery, it would admit the pivotal need for the exercise of clinical judgement required for the resolution of the constant tensions of practice in resolving what she describes as the 'tug of war between case-based knowledge and the abhorrence of the anecdotal'. It would, in addition, assist the resolution of the conflict between dependence on the patient's self-reported history and the scepticism which habitually surrounds this. It would, also, assist in dealing with the uncertainties inherent in the need for generalized knowledge to care for particular illnesses (p. 199).

Montgomery emphasizes the urgency with which we need to understand the practical importance that the ideal of science has as a counterweight in clinical medicine's system of balances, simply because left unexamined or misunderstood, it endangers that balance. For Montgomery, and for this essayist, when the belief that Medicine is a science dominates, it upsets the balance of information and experience in clinical medicine and, in direct consequence, undermines and corrupts proper medical practice. In my own view, Society must come urgently to understand this and thus to mandate the necessary revisions to the content and ethos of undergraduate and postgraduate medical training, so that students in the undergraduate clinical years and junior doctors in the early postgraduate years can be properly educated in the nature of medical practice, so as to predispose them to competence in proper medical conduct and therefore to the skilled exercise of clinical judgement in determined attempts to be 'a good doctor' and to do the very best for their patient.

Conclusion

Montgomery's volume contributes very valuably indeed to an advancing understanding of the nature of effective medical practice in our times. Her volume makes an immediate, a significant and an important contribution to the medical literature and the reflective practitioner and the interested scientist will both gain much from a thorough reading of her text. If her volume had been written perhaps 20 years ago, Montgomery may have risked overstating her case in warning of the dangers of an over-reliance on science in clinical decision making and its potential to lead to a misdescription of Medicine that would benefit neither doctor nor patient. But her monograph does not predate the inception of EBM, but has rather been written against a background of vigorous international debate on the nature of knowledge for practice and where the training of doctors in many countries is now heavily influenced by EBM-inspired curricula. Montgomery's text does not replace older volumes on medical thinking and clinical judgement, but in my view provides a particularly sharp insight into this field of study. Interested readers – if they have not already done so – would be well advised to read Montgomery's text in conjunction with a commendable earlier text [82] and the most recent, perhaps least impressive one [89], simply in order to make comparisons and contrasts with these rather different works and to broaden their overall understanding of the field accordingly. Montgomery is to be congratulated on a fine achievement and I recommend her book most enthusiastically to all undergraduate medical students, to doctors in specialist training and to all those colleagues with a general or specific interest in clinical decision making. While Montgomery's text is entitled 'How doctors think', it could equally be entitled 'How doctors *should* think'. We need more books of the kind Montgomery has produced – and urgently.

References

1. Montgomery, K. (2006) *How Doctors Think. Clinical Judgement and the Practice of Medicine*. Oxford: Oxford University Press.
2. Jones, C. A. & Galison, P. (1998) *Picturing Science, Producing Art*. New York: Routledge.
3. Irwin T. Trans (1985) *Aristotle Nicomachean Ethics*. Indianapolis, IN: Hackett.
4. Benner, P. (1984) *From Novice to Expert: Excellence and Power in Clinical Nursing Practice*. Reading, MA: Addison-Wesley.
5. Feigenbaum, E. & McCorduck, P. (1983) *The Fifth Generation: Artificial Intelligence and Japan's Computer Challenge*. Reading, MA: Addison-Wesley.
6. Dreyfus, H. L. & Dreyfus, S. E. (1987) From Socrates to expert systems: the limits of calculative rationality. In *Interpretive Social Sciences: A Second Look* (eds P. Rainbow & W. M. Sullivan), pp. 327–350. Berkeley, CA: University of California Press.
7. Malterud, K. (1995) The legitimacy of clinical knowledge: towards a medical epistemology embracing the art of medicine. *Theoretical Medicine*, 16, 183–198.
8. Malterud, K. The art and science of clinical knowledge: evidence beyond measures and numbers. *Lancet*, 358, 397–399.
9. Malterud, K. (2002) Reflexivity and meta-positions: strategies for the appraisal of clinical evidence. *Journal of Evaluation in Clinical Practice*, 8, 121–126.

10. Malterud, K., Candib, L. & Code, L. (2004) Responsible and responsible knowing in medical diagnosis – the medical gaze revisited. *Nordic Journal of Women's Studies*, 12, 8–19.
11. Malterud, K. (2006) The social construction of general knowledge – the context of culture and discourse. *Journal of Evaluation in Clinical Practice*, 12, 292–295.
12. Cassell, E. (1991) *The Nature of Suffering and the Goals of Medicine*. New York: Oxford University Press.
13. Cassell, E. (1997) *Doctoring: The Nature of Primary Care Medicine*. New York: Oxford University Press.
14. Miles, A., Bentley, P., Polychronis, A. & Grey, J. E. (1997) The limits of evidence-based medicine. *Journal of Evaluation in Clinical Practice*, 3, 83–86.
15. Miles, A., Bentley, P., Polychronis, A., Grey, J. E. & Price, N. (1998) Recent progress in health services research on the need for evidence-based debate. *Journal of Evaluation in Clinical Practice*, 4, 257–265.
16. Miles, A., Bentley, P., Polychronis, A., Grey, J. E. & Price, N. (1999) Advancing the evidence-based healthcare debate. *Journal of Evaluation in Clinical Practice*, 5, 97–101.
17. Miles, A., Charlton, B. G., Bentley, P., Polychronis, A., Grey, J. E. & Price, N. (2000) New perspectives in the evidence-based healthcare debate. *Journal of Evaluation in Clinical Practice*, 6, 77–84.
18. Miles, A., Bentley, P., Polychronis, A., Grey, J. E. & Melchiorri, C. (2001) Recent developments in the evidence-based healthcare debate. *Journal of Evaluation in Clinical Practice*, 7, 85–89.
19. Miles, A., Grey, J. E., Polychronis, A. & Melchiorri, C. (2002) Critical advances in the evaluation and development of clinical care. *Journal of Evaluation in Clinical Practice*, 8, 87–102.
20. Miles, A., Grey, J. E., Polychronis, A., Price, N. & Melchiorri, C. (2003) Current thinking in the evidence-based health-care debate. *Journal of Evaluation in Clinical Practice*, 9, 95–109.
21. Miles, A., Grey, J. E., Polychronis, A., Price, N. & Melchiorri, C. (2004) Developments in the evidence-based health-care debate – 2004. *Journal of Evaluation in Clinical Practice*, 10, 129–142.
22. Miles, A., Polychronis, A., Grey, J. E. & Melchiorri, C. (2006) The evidence-based health care debate – 2006, Where are we now? *Journal of Evaluation in Clinical Practice*, 12, 239–247.
23. Miles, A. & Loughlin, M. (2006) The progress and price of EBM. *Journal of Evaluation in Clinical Practice*, 12, 385–398.
24. Miles, A., Loughlin, M. & Polychronis, A. (2007) Medicine and evidence: knowledge and action in clinical practice. *Journal of Evaluation in Clinical Practice*, 13, 481–503.
25. Montgomery, K. (1991) *Doctors' Stories: The Narrative Structure of Medicine*. Princeton: Knowledge Princeton University Press.
26. Loughlin, M. (2003) Ethics and evidence-based medicine: fallibility and responsibility in clinical science. *Journal of Evaluation in Clinical Practice*, 9, 141–144.
27. Loughlin, M. (2006) The future for medical epistemology? *Journal of Evaluation in Clinical Practice*, 12, 248–256.
28. Loughlin, M. (2006) A platitude too far: evidence-based ethics. *Journal of Evaluation in Clinical Practice*, 12, 306–311.
29. Tonelli, M. (2006) Integrating evidence into clinical practice: an alternative to evidence-based approaches. *Journal of Evaluation in Clinical Practice*, 12, 248–256.
30. Djulbegovic, B. (2006) Evidence and decision making. *Journal of Evaluation in Clinical Practice*, 12, 257–259.
31. Miettinen, O. S. (2006) Evidence-based medicine, case-based medicine; scientific medicine, quasi-scientific medicine. *Journal of Evaluation in Clinical Practice*, 12, 260–264.
32. Porta, M. (2006) Five warrants for medical decision making: some considerations and a proposal to better integrate evidence-based medicine into everyday practice. *Journal of Evaluation in Clinical Practice*, 12, 265–268.
33. Lipman, T. (2006) Evidence and casuistry. *Journal of Evaluation in Clinical Practice*, 12, 269–272.
34. Tanenbaum, S. J. (2006) Evidence by any other name. *Journal of Evaluation in Clinical Practice*, 12, 273–276.
35. Sa Couto, J. (2006) Can we forget how to treat patients? *Journal of Evaluation in Clinical Practice*, 12, 277–280.
36. Upshur, E. G. (2006) The complex, the exhausted and the personal: reflections on the relationship between evidence-based medicine and casuistry. *Journal of Evaluation in Clinical Practice*, 12, 281–288.
37. Gupta, M. (2006) Beyond 'evidence'. *Journal of Evaluation in Clinical Practice*, 12, 296–298.
38. Geanellos, R. & Wilson, C. (2006) Building bridges: knowledge production, publication and use. *Journal of Evaluation in Clinical Practice*, 12, 299–305.
39. Buetow, S. (2006) Opportunities to elaborate on casuistry in clinical decision making. *Journal of Evaluation in Clinical Practice*, 12, 427–432.
40. Tonelli, M. (2007) Advancing a casuistic model of clinical decision making: a response to commentators. *Journal of Evaluation in Clinical Practice*, 13, 504–507.
41. Miles, A. (2007) Mandate, surveillance and judgement in the modern micromanagement of the public health: the new Snoopocracy. *Journal of Evaluation in Clinical Practice*, in press.
42. Timmermans, S. & Berg, M. (2003) *The Gold Standard. The Challenge of Evidence-Based Medicine and Standardization in Health Care*. Chicago, IL: Temple University Press.
43. Greenhalgh, T. & Hurwitz, B. (1998) *Narrative-Based Medicine: Dialogue and Discourse in Clinical Practice*. London: BMJ Books.
44. Hurwitz, B., Greenhalgh, T. & Skultans, V. (2004) *Narrative Research in Health and Illness*. Oxford: Blackwell Publishing Ltd.
45. Loughlin, M. (2002) *Ethics, Management and Mythology*. Oxford: Radcliffe Medical Press.
46. Loughlin, M. (2004) Camouflage is still no defence – another plea for a straight answer to the question 'what is bioethics?'. *Journal of Evaluation in Clinical Practice*, 10, 75–83.
47. Morris, D. (2000) *Illness and Culture in the Postmodern Age*. Berkeley, CA: University of California Press.
48. Upshur, R., Buetow, S., Loughlin, M. & Miles, A. (2006) Can academic and clinical journals be in conflict of interest situations? The case of evidence-based incorporated. *Journal of Evaluation in Clinical Practice*, 12, 399–404.
49. Buetow, S., Upshur, R., Miles, A. & Loughlin, M. (2006) Taking stock of evidence-based medicine: opportunities for its continuing evolution. *Journal of Evaluation in Clinical Practice*, 12, 399–404.
50. Feinstein, A. R. (1994) Clinical judgement revisited: the distraction of quantitative models. *Annals of Internal Medicine*, 120, 799–805.
51. Feinstein, A. R. (1999) Statistical reductionism and clinicians' delinquencies in humanistic research. *Clinical Pharmacology and Therapeutics*, 66, 211–217.
52. Feinstein, A. R. (2002) Will clinicians' challenges be solved by another theoretical model? *Journal of Evaluation in Clinical Practice*, 8, 139–141.
53. Feinstein, A. R. (1983) An additional basic science for clinical medicine. I. The constraining fundamental paradigms. *Annals of Internal Medicine*, 99, 393–397.
54. Feinstein, A. R. (1983) An additional basic science for clinical medicine. II. The limitations of randomised trials. *Annals of Internal Medicine*, 99, 544–550.
55. Feinstein, A. R. (1983) An additional basic science for clinical medicine. III. The challenges of comparison and measurement. *Annals of Internal Medicine*, 99, 705–712.
56. Feinstein, A. R. (1983) An additional basic science for clinical medicine. IV. The development of clinimetrics. *Annals of Internal Medicine*, 99, 843–848.

57. Kottnerus, J. A. & Dinant, G. J. (1997) Medicine-based evidence, a prerequisite for evidence based medicine. *British Medical Journal*, 315, 1109–1110.
58. Elstein, A. S., Shulman, L. S. & Sprafka, S. A. (1978) *Medical Problem Solving: An Analysis of Clinical Reasoning*. Cambridge, MA: Harvard University Press.
59. Montgomery, K. (1999) Sherlock Holmes and clinical judgement. In *Teaching Literature and Medicine* (eds A. H. Hawkins & M. C. McEntyre), pp. 299–305. New York: Modern Language Association.
60. Bresnahan, J. F. & Montgomery, K. (1989) Ethics education at Northwestern University Medical School. *Academic Medicine*, 64, 740–743.
61. Montgomery, K., Chambers, T. & Reifler, D. R. (2003) Medical humanities education at Northwestern University's Feinberg School of Medicine. *Academic Medicine*, 78, 958–962.
62. Durkheim, E. (1957) *Professional Ethics and Civic Morals* (trans. C. Brookfield). London: Routledge.
63. Levinas, E. (1989) Ethics as first philosophy (trans. S. Hand & M. Temple). In *The Levinas Reader* (ed. S. Hand), pp. 75–87. Oxford: Blackwell.
64. Geertz, C. (1983) Common sense as a cultural system. In *Local Knowledge: Further Essays in Interpretive Anthropology*, pp. 75–84. New York: Basic Books.
65. Bourdieu, P. (1990) *The Logic of Practice* (trans. R. Niece). Stanford: Stanford University Press.
66. Taylor, C. (1989) *Sources of Self: The making of the Modern Identity*. Cambridge, MA: Harvard University Press.
67. Kassirer, J. P. & Kopelman, R. I. (1991) *Learning Clinical Reasoning*. Baltimore, MD: Williams and Wilkins.
68. Osler, W. (1932) *Aequanimitas*. In *Aequanimitas*, 3rd edn, pp. 1–12. New York: McGraw-Hill.
69. Shen, S. (1973) *The House of God*. New York: Richard Marek.
70. Charon, R. (2001) Narrative medicine: a model for empathy reflection, profession and trust. *Journal of the American Medical Association*, 286, 1899.
71. Halpern, J. (2001) *From Detached Concern to Empathy: Humanizing Medical*. New York: Practice Oxford University Press.
72. Reiser, D. (1973) Struggling to stay human in medicine: one student's reflection on becoming a doctor. *New Physician* May 1973.
73. Lantos, J. (2001) The Lazarus Case: Life and Death Issues in Neonatal Care, pp. 50–51. Baltimore, MD: Johns Hopkins.
74. Branch, W. & Suchman, A. (1990) Meaningful experiences in medicine. *American Journal of Medicine*, 88, 56–59.
75. Callaghan, S. (1988) The role of emotion in ethical decision making. *Hastings Centre Report*, 18, 9–14.
76. Connelly, J. E. (1998) Emotions, ethics and decisions in primary care. *Journal of Clinical Ethics*, 9, 225–234.
77. Nussbaum, M. (2002) *Upheavals of Thought*. Cambridge: Cambridge University Press.
78. Damasio, A. R. (1994) *Descartes' Error: Emotion, Reason and the Human Brain*. New York: Anchor Books.
79. Preamble to the Constitution of the World Health Organisation as adopted by the International Health Conference, New York, 19 June–22 July 1946.
80. May, W. F. (1977) Code and covenant or philanthropy and contract? In *Ethics in Medicine: Historical Perspectives and Contemporary Concerns* (eds S. J. Reiser, A. J. Dyck & W. J. Curran), pp. 65–76. Cambridge, MA: MIT Press.
81. Institute of Medicine (2004) *Improving Medical Education: Enhancing the Behavioural Social Science Content of Medical School Curricula*. Washington, DC: Institute of Medicine, National Academy of Sciences.
82. Downie, R. S. & Macnaughton, J. (2000) *Clinical Judgement: Evidence In Practice*. Oxford: Oxford University Press.
83. Pellegrino, E. D. & Thomasma, D. C. (1993) *The Virtues in Medical Practice*. New York: Oxford University Press.
84. Drane, J. F. (1994) Character and the moral life: a virtue approach to biomedical ethics. In *A Matter of Principles? Ferment in U.S. Bioethics* (eds E. R. Dubose, R. P. Hamel & L. J. O'Connell), pp. 284–309. Valley Forge, PA, USA: Trinity Press International.
85. Lysaught, M. T. (1992) Who is my neighbour? *Second Opinion*, 18, 59–67.
86. Emanuel, E. J. & Emanuel, L. L. (1992) Four models of the physician-patient relationship. *Journal of the American Medical Association*, 267, 2221–2226.
87. Peabody, F. W. (1927) The care of the patient. *Journal of the American Medical Association*, 88, 877–882.
88. Broyard, A. (1992) *Intoxicated by My Illness*. New York: Clarkson Potter.
89. Groopman, J. (2007) *How Doctors Think*. New York: Houghton Mifflin Company.