GPs — at home with science and the humanities?

CONFRONTING COMPLEX ISSUES IN GENERAL PRACTICE

If we as GPs describe our patients' problems, no matter how complex, as originating in hormonal and chemical imbalance it should be no surprise if our patients seek pharmacological fixes. This sometimes unrealistic expectation is not always helped by media portrayals of the natural sciences as giving a comprehensive description of the human condition. In popular media these accounts can include claims not just of dramatic new treatments but also wider claims, even solutions to the mysteries of the universe.[1] This confidence may seem at best premature to GPs faced with Mrs Smith's inexplicable pain. We wonder if science will 'come good' when faced with the deep and complex issues of humanity and community, but are we really ready to move in with the humanities?

Recently the *BJGP* has had an abundance of articles suggesting that there is something missing in general practice: art, literature, music, compassion, understanding complexity, spirituality, or a new conception of humanity. We may plan to integrate these perspectives, but we often become red-faced and sheepish when asked for the evidence. The benefits of creative action, the effects of cultural changes, relationships, narrative, or belief are, for technical, ethical, and philosophical reasons, beyond investigation using the strict scientific criteria on which we rely. Hence GPs vacillate: venturing out towards a more sophisticated and nuanced conception of truth, followed by a retreat to 'evidence', all the while feeling that we might like to be free to engage more confidently with the humanities.

As GPs, our actions are constrained by a fundamental difficulty if we have greater confidence in experimental and numerical truths than in those of our shared human experience. If we are brought up with a model of science where *'Physico-chemical reductionism … is the orthodox view and any resistance … is regarded as not only scientifically but politically incorrect'*[2] this may have serious consequences for our engagement with the humanities and with patients. Some authors have suggested that our normal approach to science is problematic[3] but GPs may be reluctant to leave the certainties of home with no clear destination. Some scientific soul-searching is needed if we are going to escape what some see as the polarising effect that an increasingly specialised science education has had on the relationship between science and the humanities.[4]

> *"… our normal approach to science is problematic but GPs may be reluctant to leave the certainties of home with no clear destination."*

CHALLENGES TO THE DETERMINISTIC VIEW OF SCIENCE

Critical realism, a contemporary and influential movement in the philosophy of science, suggests that natural science is beset by some basic conceptual challenges, one of the consequences of which is an inability to form a credible model of what it means to be a conscious being, a serious restriction to practising GPs. To progress towards a better model, critical realism suggests we may need to allow changes to our basic assumptions about science, and even reality, itself.

Scientific thought has provided the basis for many powerful therapeutic approaches. By the early 1900s many felt that natural science had the tools to investigate reality objectively and could potentially completely describe the universe in terms of matter, laws, and equations. Logic and deduction applied to experimental observation were increasingly held to be the surest way things could become known. This was backed by the belief that science was a value-neutral practice, building solid fact on solid fact. The strength of these claims, perhaps familiar to those trained at medical school, split the relationship with the humanities, who moved into a bed-sit, leaving science to occupy the big house.

Several discoveries have subsequently eroded this confidence and, by implication, call for GPs to hold a humbler, less simplistic and deterministic, view of science. Einstein showed that Newton's laws of motion did not apply to very fast objects and quantum theorists discovered that subatomic particles are governed by different physical laws from larger physical systems. Physics had to face two fundamentally differing theories that it still struggles to unite. Heisenberg showed that even in simple experiments the act of observation effects the result, thus challenging the possibility of truly objective experiments. Popper's valuable contributions in the early-to-mid-20th century described the way that scientific knowledge grows incrementally but his test of science — falsification — has weaknesses, including the fact that many reasonable conjectures cannot be refuted, and that properties such as meaningfulness or significance cannot be addressed by this approach.[5,6]

In 1973 Thomas Kuhn produced a highly influential book on the philosophy of science, which pointed out that science, far from progressing by logic from fact to fact, develops more akin to a political system involving the formation of a scientific theory that is always provisional, open to 'paradigm shifts'; an eternally fallible science expressed through language and progressing through the winning of arguments, force of personality, and changes in culture. This led to a need to re-examine some of the basic dogmas of science, and, in particular, a need to understand the provisional and social

> *"This led to a need to re-examine some of the basic dogmas of science, and, in particular, a need to understand the provisional and social nature of science".*

"Critical realism is, at its most fundamental, a new version of reality providing a central pillar between two seemingly unbridgeable worlds: the physical basis of our existence and the experience of living

nature of science. Kuhn claims that these discoveries *'... overthrew not only old science but basic metaphysics'*.[7]

BRIDGING THE TWO WORLDS

Where do these issues with basic science leave general practice? In the late 20th century, philosopher Ram Bhaskar authored *A Realist Philosophy of Science*. The complex language and radical nature of these writings limited its initial impact but it is now increasingly respected as a science of humanity and society. Could this be the new science of general practice? Bhaskar's work crystallises some of the philosophical and practical difficulties of the standard model of reductionist science, but he does not leave us homeless. Rather, he describes how science can, and must be, modified in the light of these problems to be more credible and valid, and how this leads to a new version of reality.[8]

Bhaskar's account combines perspectives from science, social science, and philosophy in a contemporary and coherent description of the way things are. It acknowledges the reality of an objective material universe, but that our observations of it are provisional and fallible. It points out that observer-free experiments may be impossible and this is certainly the case in the study of humans. It acknowledges the irreducible properties of complex things, and gives room for the existence of a thinking, deciding mind rather than one simply reacting to survival threats. Bhaskar suggests that without an updated understanding of reality scientists are *'victims of a stasis of thought from which science has still to recover'*. Critical realism is, at its most fundamental, a new version of reality providing a central pillar between two seemingly unbridgeable worlds: the physical basis of our existence and the experience of living.

We may fear leaving our science mansion and moving in with the humanities but the complex issues of personhood that we as GPs face may mean embracing change. Critical realism may offer a promising new shared destination, a truer science of humanity, and a place where we can both be at home.

Alistair Appleby,
GP, Aviemore Medical Practice, Muirton, Aviemore.

John Swinton,
Chair of Divinity and Religious Studies, School of Divinity, History and Philosophy, King's College, University of Aberdeen, Aberdeen.

Philip Wilson,
Director, Centre for Rural Health, University of Aberdeen, Aberdeen; Centre for Health Science, Inverness.

Provenance
Freely submitted; externally peer reviewed.

Competing interests
The authors have declared no competing interests.

DOI: https://doi.org/10.3399/bjgp17X693833

ADDRESS FOR CORRESPONDENCE

Alistair Appleby
Aviemore Medical Practice, Muirton, Aviemore, Inverness-shire PH22 1SY, UK.

E-mail: alistairappleby@nhs.net

REFERENCES

1. The metaphysics issue: how science answers philosophy's deepest questions. *New Scientist* 2016; **3 Sep:** https://www.newscientist.com/issue/3089/ (accessed 19 Sep 2017).
2. Nagel T. *Mind and cosmos: why the materialist neo-Darwinian conception of nature is almost certainly false*. New York, NY: Oxford University Press, 2012.
3. Dowrick C, Heath I, Hjörleifsson S, *et al*. Recovering the self: a manifesto for primary care. *Br J Gen Pract* 2016; DOI: https://doi.org/10.3399/bjgp16X687901.
4. Okasha S. *Philosophy of science: a very short introduction*. New York, NY: Oxford University Press, 2002.
5. Popper K. *The logic of scientific discovery*. 2nd edn. London: Routledge, 2002. [Originally in German 1934, and in English 1959: Hutchinson and Co.]
6. Popper K. *Conjectures and refutations: the growth of scientific knowledge*. 2nd edn. London and New York, NY: Routledge, 2002.
7. Kuhn TS, Hacking I. *The structure of scientific revolutions*. 50th anniversary edn. Chicago, IL, and London: University of Chicago Press, 2012.
8. Bhaskar R. *A realist theory of science*. Abingdon: Routledge, 2008.