

disturbances, behavioural differences, and a much higher rate of accidents. Given that most domestic and industrial appliances are designed for right handers, a high rate of accidents might be expected among left handers. This is borne out by Coren's research, in which he found that left handers were 90% more likely to be injured in an accident and six times more likely to die from causes initiated by such injuries.

Sidedness or asymmetry is not an exclusive feature of humans or other warm blooded mammals. Research in molecular biology, protein structures, bacterial motility, and intracellular handedness in ciliates was reported at a Ciba Foundation symposium and showed the virtually universal nature of asymmetry and handedness in living systems.⁴ Perhaps the position was best put in a beautiful understatement by J W Galloway: "the message from molecular biology is clearly that ambidextrousness is not a feature of biology at the molecular level."

The message of recent studies is that handedness is not an issue that clinicians should take lightly. Certainly, physicians have not neglected the hand in their professional heraldry—it has played a large part in the heraldic designs of professional medical associations.⁵ Perhaps this medical historical research therefore provides scientific credibility to the old proverb that there is a right and wrong way of doing everything.

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1 Coren S. *Left hander: everything you need to know about lefthandedness*. London: John Murray, 1992.

2 Heidegger M. *Gesamtausgabe*. Vol 54. Frankfurt am Main: Vittorio Klostermann, 1982.

3 Hertz R. *Death and the right hand*. London: Cohen and West, 1960.

4 Bock GR, Marsh J, eds. *Biological asymmetry and handedness*. Chichester: John Wiley, 1991. (Ciba Foundation symposium 162.)

5 Beasley AW. The hand in heraldry. *Aust NZ J Surg* 1991;8:935-41.

The knowledge disease

Knowledge is luggage; it is best to travel light

We live in times dominated by knowledge. Knowledge is heaped on each of us from the cradle to the grave. Every day at school, every examination, and every qualification is a test of the retention of knowledge. To be knowledgeable is considered important; to be called knowledgeable is a compliment. Erudition, scholarship, and intellect are supplementary words to savour. Ignorance may be bliss for some, but not if we want to get on in life.

And yet, as knowledge piles up by the hour, do we really benefit from carrying as much as we can in our heads? After all, so much knowledge exists on a myriad of topics. As each topic grows and multiplies there is no end to it. It is evident, at least to the discerning, that the "knowledge base" is exploding in front of us.

What good fortune then that, in the nick of time, the computer memory has arrived to save us the bother of remembering all that knowledge. Why not dump most of the knowledge in the memory bank, to be recalled at the touch of a button or mouse? A totally comprehensive, continuously updated encyclopaedia: what could be better? We could then turn our attention to other valuable activities that cannot be computerised, such as doing things.

There is another reason for scepticism about the value of retained knowledge. Firstly, it decays. Almost all knowledge has a shortening shelf life. For computer science it is a matter of years; for molecular biology it is even shorter. The old knowledge is then not just rusty but obsolete. Secondly, as we cannot yet rinse out the human memory the old knowledge remains firmly in place, often barring the entry of the new. This common frame of mind is often referred to as NIH—not invented here. It is the normal obstacle to progress.

Filling up the head with more and more about less and less is undoubtedly the way to academic success, but it carries the danger of obstructing the process of making connections. So many specialists fall into the habit of looking where the light is—that is, offering solutions only in territory familiar to them. Those trees that obscure the wood are actually trees of knowledge, and wonderful examples exist of otherwise excellent researchers who are unable and unwilling to recognise evidence contrary to their beliefs. This is the land of prejudice, and such a state of mind can be dangerous, even fatal, when those beliefs are religious or political.

The burden of the past has always been a problem. The metaphor of the human race marching backwards into the future does not upset traditionalists, who see virtue only in the past. But it is a great weight to carry if the world itself is changing fast and the price of prosperity is the willingness to ride the crest of that wave of change. Not for nothing were Dickens's books on the wisdom of the ages just empty covers. Not for nothing was the advice given to shoot every officer over the rank of captain if the next war was not to be fought on the principles of the last.

Too much knowledge can therefore be a handicap. Our preoccupation with knowledge has led to a serious neglect of other forms of learning. Skills are often only for blue collar workers. And yet skills, especially intellectual skills, are the very stuff of life, of jobs, and certainly of wealth creation. Skills are acquired by practice under the eyes of others. Their acquisition is a rewarding process that adds to the human persona in a way that knowledge does not. Doctors and lawyers have always known that, and the curious position of medicine and law in universities reflects the distance between them and the more knowledge based disciplines. Good citizens are sorely in need of skills, be they computational, language, financial, management, or, of course, social skills.

Skills are rooted in reality; knowledge is not. Knowledge quite quickly engenders hypotheses and theories, which take on an unrealistic life of their own. Reverence for theories is even greater than for knowledge. As the professor of economics said, "That's all very well in practice but will it ever work in theory?" Anyone pedalling abstract ideas (or paintings) is bound to make a good living because people are gulled by their assumed ignorance. If these theories touch life, as with politics and economics, only tragedy can be expected.

The person who first said that a little knowledge is a dangerous thing could have gone on to say that more of the knowledge might be even more dangerous. Knowledge is fine in small doses. But generally speaking, knowledge is luggage, and it would be best to travel light.

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