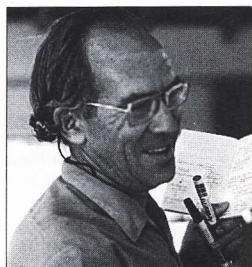


How medicine lost consciousness — Part I



Curriculum Vitae

Jacques studied philosophy at Stellenbosch, medicine at Wits, internal medicine at the University of the Free State and public health at UP. His career has included health and university administration, as well as medical education and a stint as academic principal of a high school. Presently he is a consultant physician in the Department of Medicine, Medunsa and a post-graduate student at RAU.

A GLOSSARY IS APPENDED

Department of Internal Medicine,
Medunsa
and
Department of Philosophy
Rand Afrikaans University
Johannesburg

1. The research on which this paper is based was done as part of a Masters programme in the Department of Philosophy, Rand Afrikaans University. A longer version was presented at the 1996 annual conference of the SA Science and Religion Forum at the University of South Africa.

Summary

Since the beginning of the 19th century western medicine has identified itself with the natural sciences and therefore with the world view of the natural sciences. This in turn led to great technical insight into and control of body processes and technical advances in diagnosis and management of diseases. However, it has also fundamentally influenced the understanding of the basic concepts of medicine such as patient, disease and therapy and in this manner has had a decisive influence on the nature of clinical practice and medical research. It has specifically failed to give the clinician the tools to understand the meaning of the illness for the patient and the role that these subjective meanings plays in diagnosis, therapy and healing. This loss of consciousness is a major limiting factor of the model. The regaining of consciousness is a central requirement for a transformed clinical method. The theoretical requirements which are necessary before a transformed clinical method will be accepted by the profession for medical practice and research are defined as a new model of the nature of science and a new understanding of the structure of reality which can recognise consciousness as real.

Introduction: How medicine became a natural science

Since the middle of this century with the discovery of penicillin by Fleming, medicine has undoubtedly headed the 'scientific hit parade' with dramatic advances in the understanding of disease processes, diagnostic technologies and therapeutic breakthroughs. But the fundamental shift in thinking, call it a paradigm change if you will, that made all this possible, actually

Jacques Kriel
BA Hons, MBCh, MMed, FCP(SA)

S Afr Fam Pract

1996;17:361-366

KEYWORDS

Philosophy, medical;

Physicians, family;

Ethics, medical;

Physician-patient

relations;

Worldview;

Science.

Medicine has

undoubtedly headed the

'scientific hit parade'.

Consciousness

took place at the beginning of the 19th century, soon after the French Revolution when French physicians (amongst others Laennec who introduced the stethoscope into clinical practice,) introduced a simple change in clinical practice. They started examining patients in the wards, and then, if they died, attended at post mortem examinations in order to correlate clinical findings with the pathology found in organs.¹

From this practice the whole complex nosology (classification of diseases) of 20th century medicine was developed, and on this pathology-based nomenclature and classification, all other diagnostic and therapeutic developments depended.

In the 18th century doctors did not examine patients, they only talked to them. And this is understandable, because for them *disease was not located in an organ of the body* (even though they had very good anatomical knowledge), but was due to a disturbed balance of the humours in the blood.

Everything changed when clinical pictures began to be correlated with actual pathology in an organ. Diseases were now located in observable (even quantifiable) pathological processes in an organ or organ system. This opened the way for increased specificity in describing and classifying the organ pathology, in searching for causal factors and for correlating the clinical findings at the bedside with the organ pathology, thus improving the clinical diagnoses.

According to McWhinney¹ this change to clinical examination with the purpose of diagnosing organ pathology, was not a development or new discovery within medicine. It was a fundamental change in attitude towards the patient and the human body, a change in attitude that made a new way of practising and thinking about medicine possible, and opened the way for medical science to develop. Foucault² has pointed out that this

change in medical thinking depended on a number of changes in French society of the time. However, there is another story that needs to be understood in order to grasp this fundamental shift in medical thinking and practice, the story of the development of the natural sciences³. There had been nearly a hundred years of development of Newtonian science and the Newtonian world view to which French scientists had made a major contribution.

I believe that the new clinical method (correlating clinical picture with underlying organ pathology) which established modern medicine was motivated by a desire to emulate the methodology of the physical sciences which had by then proven its efficacy, or, to put it more definitively, medicine identified itself as a natural science.⁴ But of course, with this identification of itself as a natural science, medicine also took over the whole world view of Newtonian science. It is this world view that I now wish to analyse, but before doing so we have to show that science functions on the basis of a world view.

Does science have a world view?

The term world view is usually associated with cultural analyses. Every known human society is thought to rest on some set of largely tacit, basic assumptions about who we are, what kind of universe we live in, and what is ultimately important to us.⁵

However, since Thomas Kuhn⁶ introduced the term paradigm into our understanding of what science is, one could argue that science itself functions on the basis of a set of largely tacit assumptions regarding the nature of reality (ontology) and how that reality can be known (epistemology). This set of assumptions can therefore be called the world view of science.

The methodological and ontological assumptions of a discipline tend to become a world view in another sense

The whole complex nosology (classification of diseases) of 20th century medicine was developed when clinical presentations were correlated with post mortem findings.

It was a fundamental change in attitude towards the patient and the human body.

when they are generalised as the fundamental characteristic of the nature of science and as the nature of the world. This happened to the science which developed from the work of Descartes and Newton. The paradigm that Descartes proposed and Newton applied in his physics was increasingly generalised as the requirement for science as the only way to generate valid scientific knowledge.⁷

During the second half of this century this tendency to generalise from one science or set of sciences, has been fundamentally questioned, and a much more nuanced, open and pluralistic understanding of science has replaced the natural scientific totalitarianism of before. At the same time a much more complex view of reality has been emerging, a complexity which must be factored in to our understanding of the world and our scientific methodology. However, this pluralistic view of science, has had little influence on medicine as yet.

I now wish to analyse the effects of the natural science world view on the clinical practice and the science of medicine.

How medicine lost consciousness: The world view of science and the clinical method

Searle⁸ has given the following summary of the ontology (the view of reality) of modern science. It is assumed, he says, that: We live in a world made up entirely of physical particles in fields of force. Some of these are organised into systems. Some of these systems are living systems and some of these living systems have evolved consciousness.

But if reality only consists of material building blocks interacting according to timeless laws, it is understandable that the metaphor for describing the world that became dominant in science was that of the world as a physical machine or mechanism. Because of the fixed interactions of the elements of a

machine, the view of these interactions was a deterministic one, and the task of the scientist became that of finding the deterministic laws defining those interactions.

The first characteristic of the world view of science is therefore a mechanistic and deterministic materialism. When this world view is translated into medicine, the patient is conceptualised (and treated) as a biological machine. Disease is understood as a purely physical phenomenon (a malfunction of the biological machine) requiring physical interventions. The task of the clinician is purely that of correlating the clinical findings with a nosology (classification) of physical diseases, or, as McWhinney¹ put it, to diagnose a disease rather than to understand a patient. The conscious worlds of the patient and the doctor and their interaction in the doctor-patient relationship will become irrelevant. The research tradition based on this world view will seek to understand the patient in health and disease in mechanistic and deterministic biological terms while ignoring consciousness as a causal factor in either.

The methodological correlate of this mechanistic and deterministic materialist ontology is the assumption that what is scientifically real (ie a necessary quality of scientific knowledge) is *what is physically measurable*.

A second methodological correlate is reductionism, ie the assumption that scientific explanation can only be found in the reducing of phenomena to more elemental events, such as explaining the temperature of a gas in terms of the motion of its molecules. A phenomenon is understood by analysing it into its parts and then elucidating their interaction. A whole is the sum of its parts.

Because the conscious worlds of the patient and the doctor and their interaction in the clinical situation is not physically measurable, it was therefore ignored in medicine. Medical research

What is scientifically real is what is physically measurable.

Disease is considered to be completely understood when its molecular basis has been defined.

The conscious worlds of the patient and the doctor and their interaction in the doctor-patient relationship became irrelevant.

and clinical practice concentrated on quantitatively defining the normal and the biological deviations from the norm which were called diseases. The reductionistic assumption found expression in the progression from explaining disease in terms of organ pathology, to explanations in terms of cellular pathology and now to chemical and molecular pathology. At the end of the 20th century a disease is considered to be completely scientifically understood when its *molecular basis* has been defined.

This view of what is scientific also determines the interaction between the doctor and the patient. The doctor's agenda is to diagnose the physical disease causing the patient's symptoms. The doctor is therefore not interested in the patient's needs, fears and expectations¹⁰ ie in the patient's agenda but wishes through directed questioning to draw the patient into her reductionistic, mechanistic and materialistic medical agenda (even if in her nonprofessional life she is not a materialist!) in order to make a diagnosis and prescribe treatment. The natural science paradigm therefore dictates the structure of the interaction between the doctor and the patient.

Another aspect of natural science methodology of importance for medicine is the belief in the objectivity of scientific knowledge and the scientific method. It is thus knowledge which is free from all personal bias and commitments of the knower and free of all personal feelings, expectations, fears etc. Scientific knowledge is impersonal, generally valid, a-cultural, value free, universal and timeless.⁴

The effect that this framework of assumptions has on the clinical method is obvious: the subjective world of the patient, the doctor and their interaction must be methodologically excluded. Not only are the values of the patient and the doctor methodologically irrelevant, but the uniqueness of this patient, in *this* situation, interacting with *this* doctor

must be subsumed under general categories which are acultural, impersonal, universal and timeless. Just as a physics laboratory in Tokyo and London function in exactly the same manner, so the clinical interaction in Burkino Faso and New York must take place in exactly the same manner.

The scientific method proceeds according to a strict sequence of experimentation, inductive logic, verification (or, according to Popper, falsification) and theory formation. This model holds a tremendous fascination for clinicians who consider the clinical method itself to be an expression of the scientific method. Harvey et al⁹ express this conviction in the following words: The analytic process by which clinical information leads to the diagnosis is closely akin to the scientific method – the process whereby experimentation leads to the discovery of new knowledge. They then go on to construct a model of the clinical situation which is analogous to this process.

The influence this had on the definitive concepts of clinical medicine can be summarised as follows:

- i) *The patient* is understood as being essentially a biological mechanism (machine) which, in the words of Descartes, is "so built up and composed of nerves, muscles, veins, blood and skin, (that) though there were no mind in it at all, it would not cease to have the same functions" (quoted by Foss and Rothenberg⁴). This is today still the basic model of the human being underlying the teaching of both the basic sciences and the clinical sciences as taught at medical schools in the western world.

Descartes' dualism sanctioned the idea of the body as a machine that can be analysed independently of the mind and of the social and cultural context of the person. This means that the diagnostic process abstracts

The natural science paradigm therefore dictates the structure of the interaction between the doctor and the patient.

the patient from his or her concrete existence and assumes that the patient, conceptualised purely as a biological organism, can be diagnosed in a context-free environment.⁴ Cartesian dualism was later reduced to a monistic materialism in which the body became primary and psychological functions became secondary epiphenomena of bodily processes. The psychological and social dimensions of human existence became irrelevant to the science and practice of medicine.

- ii) *Disease and disease causation.* In Biomedicine disease is conceptualised as something physically wrong in an organ or organs which can be described as a deviation from the norm of measurable biological parameters (functional or structural). Similarly the causes of disease are physical factors: The presence of too much or too little of a critical substance or the presence of an intrinsically harmful agent. Disease is caused by a linear chain of physical causal events so that essentially there is one cause for a disease.

Since disease is biology gone awry, there is no need to delve further than the physical mechanisms of disease. In this manner the ultimate level of explanation of disease becomes the level of molecular biology.

- iii) *Therapy.* Against this background it is clear that therapy will also be conceptualised in purely physical terms as physical intervention (chemical, electrical or surgical) that will compensate for the surplus or deficiency of the critical substance or will neutralise the pathogenic agent.

A last concept to understand the positivistic world view with which medicine identified itself, is the concept of the *unity of science*.⁷ According to this concept, there is only one model of scientific activity and that is the natural science model. This concept has tremendous

controlling power within the scientific community.

Glossary

Determinism: The view that all events are explicable in terms of a linear chain of antecedent physical causal events. The relationship between events are analogous to interactions between parts of a machine. The relationships can be expressed in terms of universal laws. It is therefore a theory of causality.

Dualism: The view that consciousness and phenomena related to 'the mind' represent a separate non-material reality. The problem: what is its nature, where does it come from and how does it interact with material reality.

Epiphenomenon: Brought about by something else. If mind is brought about by material events, it is an epiphenomenon and has no independent, causal reality in its own right.

Empiricism: Only knowledge based on direct or instrument mediated observations of quantifiable material phenomena counts as valid scientific knowledge. Most of us who have survived medical school are overt or covert empiricists.

Epistemology: Theory of knowledge. 'The only valid knowledge is knowledge gained through the method of the natural sciences' is an epistemological statement. (See positivism). We all have an epistemology of one type or another.

Materialism: The universe consists only of matter. All non-material phenomena can be explained in terms of material processes. The problem is how do physical processes bring about and sustain conscious phenomena that seem to be able to interfere in physical causal chains? And it denies a very real aspect of our

Disease is caused by a linear chain of physical causal events so that essentially there is one cause for a disease.

empirical experience of ourselves. See dualism.

Monism: Everything is explained in terms of a single entity or principle. The view that the method of physics is the only valid scientific method, is a methodological monism. The view that only matter is real, is a form of ontological monism.

Ontology: The term refers to the ultimate nature or structure of the world or the universe ie of reality. So eg the statement that only matter (in the form of atoms) is real, is an ontological statement, as is the statement that disease is only biology gone awry. Ontological assumptions are assumptions about the ultimate nature of reality. Scientists and ministers of religion are fond of making ontological statements, but most of us have some ideas about the nature of reality. So you too have an ontology.

Paradigm: Kuhn used the term to refer to the assumptions, theories and instrumentation that is considered to be normative within a scientific disci-

pline by a community of scientists at a particular point in time and in terms of which theories are developed and problems are identified and solved. I use it in a more general sense to refer to the ontological and methodological assumptions underlying the scientific method.

Positivism: A theory of science which stated that the method of the physical sciences, especially physics, is the only valid scientific method. Sometimes used to refer to the assumption that only if something can be measured or weighed, can it produce real knowledge of the world. Most physical scientists (and medics) are positivists who look down on the 'soft' social and human sciences.

Reductionism: The view that the only valid form of explanation is to analyse something into its parts and then to determine the laws governing the interaction of the parts.

Most physical scientists (and medics) are positivists who look down on the 'soft' social and human sciences.

References to follow in Part II in the next issue of SA Family Practice

News

INDUSTRY

Reducing cholesterol reduces mortality

It has previously been shown that a direct relationship exists between elevated cholesterol levels and death from CHD. The question of whether reducing cholesterol also reduces total mortality remained unanswered.

The 4S Study proved for the first time that aggressive reductions in total cholesterol (TC) reduced total mortality by 30% and CHD mortality by 42% in patients with CHD. These mortality reductions were achieved by LDL-C reduc-

tions of 35% or more and TC reductions of 25% or more in an attempt to achieve a TC goal of 3-5.2mmol/L.

The use of simvastatin in the 4S study also demonstrated

the cost-effectiveness of the medication. Stroke – which is the most expensive end debilitating procedure in the western world was reduced by 30%, hospitalisations for CHD were reduced by 30% while total days spent in hospital were reduced by 36%.

Data from the Cholesterol Monitor in South Africa shows that less than 1% of CHD patients have TC less than 5mmol/L (the target goal for these patients according to the EAS guidelines).

The reduction of cholesterol levels to between 4.5 and 5mmol/L is being increasingly supported by medical literature.

Reduction in risk of cardiac events

A drug commonly prescribed to control high blood pressure – the angiotensin converting enzyme (ACE) inhibitor enalapril – can also reduce the risk of heart attack, angina, stroke, mortality and hospitalisations due to cardiac events by 24%.

Results from the multi-national four year SOLVD trials (Studies on Left Ventricular Dysfunction), which investigated the ACE inhibitor enalapril in mild to moderate heart failure, showed a statistically significant reduction of 26% in overall mor-

tality and other morbid events. A sub-analysis of the landmark SOLVD trials, reported that the ACE inhibitor enalapril can improve survival and reduce mortality in patients with hypertension and heart failure as well as in those patients with heart failure alone.

The reduction in risk of cardiac events with an ACE inhibitor (specifically enalapril) in patients with high blood pressure and diminished heart function is the first such data reported.

Contact Logos Pharmaceuticals for further information on these drugs. Private Bag 3, Halfway House, 1685. Tel: (011) 805-2161. Fax: (011) 805-3306