Behavioural science in general practice

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SUMMARY. Dr Peter Sowerby has written an important criticism of Michael Balint's work based on his understanding of Karl Popper's writings. I dispute Sowerby's interpretation of Popper and disagree with his conclusions, which I suggest would lead general practice into a retreat. I believe Balint made a major contribution to general practice and has helped us towards practising whole-person medicine.

Introduction

IN the October 1977 issue of this *Journal* Sowerby (1977) raised some important questions about the philosophy of general practice and in so doing criticized the contribution of Michael Balint, who many think has had a major influence on the renaissance of general practice in the United Kingdom since the 1950s. Sowerby's article has already been criticized in the correspondence columns of this *Journal* and in articles by Williamson (1978) and Marinker (1978). However, I believe that these criticisms have largely missed the point.

Sowerby bases most of his argument on ideas derived from the work of Karl Popper. It is tempting to criticize his paper on the basis of its tortuosity, *non sequiturs,* and logical invalidity (all the more ironic in view of Popper's clarity) but this would be to neglect the fundamental errors of his premises. Sowerby has misunderstood not only Balint's but also Popper's work and in so doing has come to mistaken conclusions about the nature of general practice.

Aim

I propose first to re-examine Popper's contribution, secondly to show how Sowerby's criticism of Balint is invalid, and finally to present some new arguments and thoughts about Balint's contribution and a philosophy of general practice.

Popper's beliefs

Karl Popper believes that the duty of a philosopher is to solve philosophical problems and that these are always rooted in urgent problems outside philosophy. One of his own major contributions has been an attempt to solve some of the philosophical problems of epistemology which are of major importance to us as medical scientists (Popper, 1959, 1963, 1972).

In 1919 Popper was particularly interested in four theories: Einstein's theory of relativity, Marx's theory of history, Freud's psychoanalysis, and Adler's individual psychology. He was aware of a satisfaction with the first but a dissatisfaction with the other three. This dissatisfaction had nothing to do with their exactness or truth. His thinking about this problem led him to a solution of the problem of the demarcation between science and metaphysics. His solution, as Sowerby has stated, was that the criterion of the scientific status of a theory was its refutability, or falsifiability, or testability.

Einstein's relativity was refutable—Eddington's expedition could just as logically have refuted it as confirmed it (which it did); but the other theories were not logically refutable—Popper could not think of any situation which could possibly refute them.

This solution of the philosophical problem of demarcation provided him with the solution to another problem, Hume's (1739) problem of induction: "How can we form any conclusion, from instances of which we have experience, about those instances of which we have no experience?" Logically, as Hume said, inductive inference is not valid—we cannot form any conclusion about instances beyond our experience; but science seems to proceed inductively. Does science therefore proceed illogically?

Hume solved this problem by proposing a psychological explanation; that our habit of believing in laws (inductively) is the product of repetition: if we observe instances enough times we expect them to recur. Popper agrees with Hume's logical refutation but is unhappy about his psychological explanation. He solves the problem by denying that science proceeds inductively at all, but by conjectures and refutations. We try to impose regularities upon the world, to discover similar-

ities in it, and to interpret it in terms of laws invented by us. Knowledge advances by a method of trial and error-elimination. We propose a theory and then subject it to the most rigorous testing we can design; the more testable the theory the more satisfactory it is and the greater truth content it has.

Truth content must be distinguished from truth. Tautologies are by definition true (a table is a table, $x = x$), but have zero truth content. A good theory has a high truth content, which is the class of all true statements that follow from that theory. Any statement having a greater truth content than another has more verisimilitude and is more 'like the truth'. As scientists we aim to explain the world. We do this by proposing new theories as explanations of problems raised by our old theories. Our oldest theories are built on pre-scientific myths which become superseded by newer myths and in turn by early scientific theories. If the new theories are better, that is, if they have a higher truth content, or are more testable, then they replace the old theories and in turn raise new problems to be explained. So knowledge advances.

The third world of objective knowledge

Popper proposes that our theories belong to a third world, along with myths, ideas, arguments, and problems—in an objective sense. This objective third world is autonomous (though we act on it and it acts on us) and is distinguishable from the second world of mental states and the first world of physical objects.

The second world, or the mind, is the link between the first and third worlds: all our actions in the first world are influenced by our second world grasp of the third world. That is to say that we base our actions on our beliefs which are based on our experience of the third world, on our myths, ideas, and theories. Actions based on scientific theories with a high truth content are less risky than those based on myths or metaphysical ideas. Although we cannot assess our myths or metaphysical theories on their truth content, since they are not testable, they are more or less rational in so far as they try to solve problems. The better their problem-solving ability, the more use they are to us.

Sowerby's misunderstanding

Having briefly outlined Popper's thinking, we can see how Sowerby has misunderstood it. The nub of Sowerby's thesis seems to be that scientific theories of human behaviour are logically impossible, a thesis which he derives from Popper. But Popper's reference was not to a 'theory of human behaviour' but to Freud's psychoanalytic theory of 1919, and in talking of the scientific status of these theories we must not confuse them.

Popper (1963) himself states: "I personally do not doubt that much of what they [Freud and Adler] say is of considerable importance and may well play its part one day in a Psychological Science which is testable." And later, in 1972: "It is also conceivable, though less likely, that we may one day have good reductions . . . of psychology to physiology and thus to physics."

He earlier equates 'good reduction' with 'scientific reduction', a reduction being an explanation of the theory to be reduced in terms of another (reducing) theory. It is clear from just these two examples that Popper does not consider that theories of human behaviour can never be scientific, only that Freud's psychoanalysis in 1919 was not. But Sowerby infers the former from the latter, which is an invalid conclusion.

My second disagreement with Sowerby is with his assertion that myths, because they are not scientific, belong to an artistic discipline (without saying which discipline). He gives the impression that this also derives from Popper. But as we have seen, Popper demarcated myths and metaphysics from science within a third world of objective knowledge. Myths may be different from scientific theories but they are both part of our knowledge. Psychoanalytic theories, although having the status only of myths, still belong to this third world.

Sowerby shows us his confusion when he discusses the language used in describing doors and smells. He states that we may describe a door 'scientifically' but a smell only 'artistically', but then contradicts himself by saying that we can in fact describe a smell scientifically if we do so using our knowledge of the chemical structure of the smelly substance. The truth of the matter is that we can describe both doors and smells in terms of 'art' (or sense experience, or second world mental states), or in terms of 'science' (or third world objective knowledge).

So too with human behaviour. The fact that at the moment we are relatively lacking in good scientific theories of human behaviour means that we are more or less restricted to its description in 'mythical' terms. When a scientific psychology is established, we will be able to use scientific terms rather than the 'mythical' terminology of psychoanalysis, which nevertheless belongs to the third world. Of course, it is even possible to describe a scientific theory in artistic terms (the 'elegance' of quantum theory) or art in scientific ones (the mathematical analysis of a Bach fugue). The dichotomy is false.

Sowerby's assumption that we must relegate theories of human behaviour to a secondary artistic discipline is nonsense. What we must do is work to make those theories better and more scientific and even to describe them artistically while so doing.

Balint's contribution

From these false premises Sowerby concludes in his penultimate paragraph that Balint has diverted general practice from its true course and states his belief that it must return to a primarily scientific orientation; that is,

it should leave behavioural (non-)science in a secondary position. Although I agree with the necessity of a critical, scientific approach, I believe Balint, if anything, put general practice back on the path from which it was wandering (*Journal of the Royal College of General Practitioners,* 1972). Behavioural science is of crucial importance in keeping it there. To support this thesis I wish to introduce some concepts from a theory of behavioural science, namely general system theory.

General system theory

General system theory is a set of definitions and assumptions which deal with reality as an integrated hierarchy of organizations of matter and energy. A system may be defined as a set of components in mutual interaction (von Bertalanffy, 1971). Living systems are a subset of reality having properties and principles to themselves. They may be arranged in a hierarchy as follows (Miller, 1971): cells, tissues, organs, organisms, groups, organizations, societies, states, and nations (Table 1).

A danger of this classification is that in dividing living systems into hierarchies we become too preoccupied by the components, and so are diverted away from the dynamic relationships between them. The principles of the system theory have been summarized as follows (Commoner, 1971):

1. Everything is connected to everything else.
2. Everything must go somewhere.
3. Nature knows best.
4. There is no such thing as a free lunch.

System pathology

As doctors we are concerned with pathology in human living systems. For the purpose of simplicity I will use the numbers of the system levels rather than the names used in Table 1. I believe that an important distinction can be made between the function of a general practitioner and that of a hospital specialist in that the general practitioner is presented with (and thus concerned with) systems at a higher level (mainly level four) than a hospital specialist (mainly level three). This is not to say that he should not be concerned also with levels other than these but that these levels are his main focus.

Table 1. A hierarchy of living systems.

Level		
9	Nations	Living systems
8	States	
7	Societies	
6	Organizations	
5	Groups	
4	Organisms	
3	Organs	
2	Tissues	
1	Cells	
	Organelles	
	Macromolecules	
	Molecules	
	Atoms	
	Subatomic particles	

In his Yorkshire Oration 1977 Marinker (1978) comes very close to this concept. His patient Hilda Thompson presented him not only with pains in the arms and legs, but with the purchase of a grocery shop, her husband's coronary, an angry voice, a shopping bag of apparently unsuccessful tablets, and a belief that society does not care about the little man. It is only on consideration of the higher (level four and above) organizational levels that any relationship can be seen between these ideas. However, the rheumatologist is really only concerned with pathology in part of Hilda Thompson, at the lower levels of the subsystems (level three) making up level four.

The explosion of knowledge in the latter half of this century has led to the creation of specialism, each specialist taking a subsystem of the human organism as his topic in order to lessen the burden of his knowledge. This has meant that while the subsystems (level three) and the subsubsystems (level two) became better and better understood, the way they interact to make up the organism, and the way organisms interact to make up groups (level five), have been neglected by medical science. General practice was in danger of following this retreat into specialism, but because of its peculiar relationship to the patients, who continue to present with problems at higher levels, it has found it difficult to do so.

It is these interactions at level four and above that are the special province of behavioural science, and of psychoanalysis as a part of that discipline. As long as patients continue to present us with ideas, as Marinker puts it, that persist beyond the discourse of tissues, organs, and chemical reactions, then we must have equipment to deal with these presentations; that is, equipment to diagnose pathology at level four and above. Thus, far from behavioural science being a 'secondary art', it is of primary importance to the general practitioner as objective knowledge.

I do not wish to give the impression that I am reversing Sowerby's plea, and relegating the medicine of disease to a secondary position. Nothing could be further from my intention; pathology presenting at level four may just as well be *within* a subsystem of level four as in the interaction *between* subsystems, and the general practitioner must know about both. Balint was among the pioneers who showed that the 'medical model' of subsystem pathology was not enough for the general practitioner. We deal with 'whole persons' and need a science of whole persons as well as a science of organs. Balint also reminds us that the doctor is part of the system at level five with the patient, and that the

interactions between doctor and patient are useful diagnostic tools for the pathology of level five interactions.

Conclusion

General system theory requires that we think not only in terms of parts, bits, pieces, components, and fragments of systems but that we use concepts of interrelationships, dynamism, and interaction. As general practitioners we must be especially aware of the interactions that make up our patients and the way our patients (and ourselves) interact in higher level systems. As Marinker states: ". . . the task of general practice is . . . to make coherent and whole what modern technology has shattered." Sowerby's call for a reaffirmation of science and, implicitly, the corresponding relegation of the "social and psychological relationships of illness" to a secondary artistic discipline, sounds to me like a retreat into the scientific safety of anatomy and physiology which can only add to this disintegration.

Balint's application of psychoanalysis to general practice was a major contribution to a new synthetic approach. It was (and is) not enough to see patients only in terms of diseased organs; they must also be seen as whole persons and part of a wider net of relationships. These higher level interactions are the province of behavioural science, which is thus an important part of the objective knowledge relevant to general practice. If it has not been a true science in the past, then we must make sure it becomes one in the future.

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Addendum

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