EDITORIAL

PARADIGM LOST?

The editorial in volume 4 (Thomson, 2004) asked the question whether actuarial science is really a science. In doing so it discussed the way in which the actuarial profession defines its intellectual discipline within the paradigm of a ‘science’. This editorial further explores the paradigm and perspectives of actuarial science.

For the purposes of this editorial, the notion of a ‘paradigm’ is adequately introduced in Thomson (op. cit.). ‘Perspective’ may here be taken to mean the proportions in which a phenomenon is perceived by a person, as expressed in terms of the symbols chosen to describe it. Inevitably, a perspective emphasises certain aspects of the phenomenon at the expense of others, and different people have different perspectives. Our perspectives are particularly influenced by our beliefs, interests, values and norms. In an intellectual discipline, the perspectives of its participants are grounded in its paradigm, which is reinforced by a common identity. Burrell & Morgan (1979) emphasise the role of a paradigm in establishing a “commonality of perspective which binds the work of a group of theorists together in such a way that they can be usefully regarded as [operating] within the bounds of the same problematic.”

The notion of a perspective owes some prominence in philosophy to the writings of Teichmüller, Nietzsche and Ortega. Nietzsche rejected the possibility of any absolute knowledge that could transcend all perspectives. On the other hand, he affirmed that a substantial degree of comprehension could be attained by viewing things from a multiplicity of perspectives. (Schacht, 1995) To Ortega:

“... something is real only insofar as it is rooted in ‘my life’... Because every life is the result of an interaction between self and circumstances, every self has a unique perspective. Truth, then, is perspectival... and no perspective is false except one that claims exclusivity.” (Gracia, 1995)

Social control

An understanding of the roles of paradigm and perspectives in a body of knowledge such as actuarial science must, however, take cognisance not only of the individual’s self and circumstances, but also in the social institutions that govern or influence the formation of that knowledge. Foucault’s findings are that:

“Bodies of knowledge are not autonomous intellectual structures that happen to be employed as... instruments of power. Rather,... they are tied to systems of social control.”

(Gutting, 1995)

In practice, the profession’s ‘control’ may be tenuous; ‘influence’ may be a better word. However, the ‘system’ contemplated by Foucault does not necessarily reside entirely within a particular body. The system on which the actuarial profession exercises its
influence and therefore indirectly contributes to social control comprises the network of professional and business relationships within which it operates. The income of actuaries depends, therefore, not only on actuaries’ investments in their own individual human capital, but also in their collaborative investment in social capital.

The actuarial profession exercises this influence in a number of ways. Within its professional bodies, it exercises influence—and indeed a measure of control—over its members through each of the strands identified by Bellis (2000): the cognitive, the normative and the organisational. The professional bodies examine students in the cognitive strand, thus forcing them to acquire and articulate knowledge formulated from the perspective of the profession. It issues guidance notes instructing members, with various degrees of compulsion, as to how they should apply their knowledge in practice. It provides organisational benefits ranging from monopolistic controls of actuarial services to opportunities for social and intellectual engagement with fellow actuaries, and it provides organisational constraints to ensure compliance with its normative strand through a disciplinary process that may lead to the withdrawal of its benefits from a non-compliant member. In this issue, Lowther & McMillan (2006) explore how these strands can be used to structure a curriculum for lifelong professionalisation learning in actuarial science so as to reinforce this control.

Beyond the organisation, it seeks to exercise influence through the advice it gives to its clients, through the decisions that members make as employed actuaries or as directors of companies, and, on occasion, through position papers, submissions to government and participation in meetings between government, the private sector and civil society in general. Less formally, the members of the profession largely belong to a uniform class, a gendered subset of the bourgeoisie, which participates, either actively or passively, in the advancement of the interests of that class. The ‘actuary’ label may also function as an identity—like those of gender, race and sexual orientation—around which its owners can mobilise for the purposes of advancing their interests.

If the paradigm and perspectives of a profession are to fulfil their function of assisting its participation in social control, they must be bounded and coherent.

**Boundedness**

The requirement of boundedness has two components: first, we cannot claim to incorporate all professions and all sciences, otherwise we shall end up being none; and secondly, we need to focus on particular fields of application, otherwise we shall not be perceived as experts in any. The first component relates to methodological knowledge, the second to contextual understanding.

Being at the top of an intellectual food-chain, actuarial science has some problems with the methodological requirement: actuaries must have some exposure to economics, mathematics, statistics and demography, and all its methodological knowledge is derived from those disciplines. The paradigm and perspectives of such a synthetic discipline must themselves be a synthesis of those of its components. For example, we must be able to assume that stochastic properties apply to financial and demographic variables, otherwise we cannot quantitatively address problems of risk. There are three major problems with
this assumption. First, we must make ex-ante assumptions. To derive such assumptions from historical information, we must accept the ‘rational expectations hypothesis’—that ex-ante assumptions are not biased. If they are biased, we have no basis for making such assumptions ourselves. If they are not, we cannot explain the equity risk-premium puzzle. In fact, the reference to a ‘rational’ expectations hypothesis is misleading; there is no reason to suppose that rational market participants’ expectations will be unbiased. All we need to assume is that they are uncertain about the future. The second problem is that, if we wish to use historical observations of a particular stochastic process as the basis of a model for decision-making, we have a sample of only one observation. There is no sound reason why any of the parameters in any of our models should remain unchanged over any future period; indeed, it is safer to assume that they will change. And if there are any stochastic elements in our models that have been independent in the past, there is no sound reason why they should continue to be independent in the future. The only way in which we can justify the use of models is to argue that, in order to be ‘rational’ (or whatever other desirable adjective we wish to use for this argument), a decision must be based on experience—a paradigm with feet of clay. The third problem relates to the concept of a ‘real-world’ process governing returns on equities or the term structure of interest rates. For any given utility function, there is a family of distributions of the outcome of an investment that will yield the current price. Conversely, for every given distribution of the outcome there is a family of utility functions that will yield the current price. There is no way of telling which distribution represents the ‘real world’. Apart from the problem of parameterising an immutable ‘real-world’ process, the very concept of such a process is a chimera.

The contextual requirement is also a problem. Historically, the profession has largely confined itself to the ‘traditional’ fields of life assurance and occupational pension funds. But the dwindling demand for actuaries, particularly in the latter field, and the increasing supply of actuaries, have led to the exploration of ‘wider fields’ (with its connotations of relative distance of the new and relative imprisonment in the old) and ‘actuarial frontiers’ (with its connotation of colonial opportunism). As we move into these frontiers, we bring to them our actuarial perspectives. We define their problems in terms of financial soundness, equity, risk mitigation and other value-loaded concepts that we have come to accept unquestioningly as fundamental. I made that mistake with burial societies, but thanks to the insights of a collaborating sociologist, I discovered that, to a burial society, reciprocity may be more important than, and not necessarily dependent on, financial soundness (Thomson & Posel, 2002). Similarly, while Carroll et al. (unpublished) acknowledge that attempting to quantify the goods and services of the ecosystem may “miss the big picture and [put such attempts] in danger of becoming nothing but an expression of human preference and losing other non-human-centred values,” they dismiss the ethical issue, arguing that decisions are effectively being made that trade off monetary values against the exploitation of the environment, and these values therefore need to be determined. They recommend that actuaries get involved in valuations, even though the methods they outline entirely “miss the big picture” to which they refer. Reductionism may invariably be recognised by the tell-tale statement “It’s nothing
but…” Here we find ourselves saying that a burial society is “nothing but a financial institution” or the environment is “nothing but an economic resource”. Alternatively, perhaps, we are saying, “If it moves, PV it.” When we venture outside of our context, we bring with us the perspectives we have learned within our traditional fields. The colonialist connotation of ‘actuarial frontiers’ may therefore be all too apt.

Yet it remains true that our boundedness is fluid. We need to be open to the methods of other disciplines, and to new methods of our own. We need to be open to new contexts, and changes in, or redefinitions of, our existing context, which may necessitate new thinking. The financial, social and environmental effects of the activities in which we and our clients are involved needs to be understood in all their multidimensional complexity.

Coherence

The paradigm and perspectives must not only be bounded, they must also be coherent. Ideally they must work within the framework of an ideology that is inherently consistent and entirely defensible in terms of the language it uses to describe the world, or at least those aspects of the world that are functionally relevant. The ideology of the capitalist class is ideal for this purpose, namely that:

“the laws of the competitive market are natural and impersonal, that the workers in a competitive market are paid all that they can be paid, and that the institutions of private property in the means of production are natural and justified.” (Sterba, 1995)

Not only does this ideology serve the interests of actuaries as members of the capitalist class, it also gives meaning to their work: to the determination of capital values, to considerations of equity between stakeholders in property and to the quantification and management of their risks. The consumers of their services consciously or unconsciously buy in to this ideology, thus serving to normalise it and reinforce it in the minds of actuaries. But there are problems, too, with the coherence of this ideology. Just as the rich perceive that socialism has failed, so the poor perceive that capitalism has failed: it does not need the poor, either as employees or as consumers. As a community of the rich, it is only to our own class that our paradigm and our perspectives must be coherent, but that coherence is clearly meaningful only from our own perspective.

The Achilles’ heel of the actuarial paradigm is arguably its dual appeal to subjectivity and objectivity—a subject that was discussed in Thomson (2004). In particular, the profession’s love–hate relationship with the market appears to undermine the coherence of its paradigm. In some contexts actuaries take the market as final arbiter of values, and in other contexts, we appeal to the superiority of our ‘professional judgement’. In some of the pronouncements of actuaries—and even in some of the core reading for the examinations of the Faculty and Institute of Actuaries—the market comes across as God (i.e. as Ultimate Arbiter, Invisible Hand, Source of Livelihood, Omniscient and Perfect in Knowledge of Information, Object of Unquestioning Submission). This perspective arguably derives from our intellectual dependence on the economics of the market. In other pronouncements, our perception of the market comes across as a gendered view of the feminine: to be penetrated, exploited and belittled in favour of own unquestioned superiority. This
perspective arguably derives from our need to earn an income from our profession, and our consequent need to appeal to our own professional judgement and expertise. It also presumably derives from our gendered self-image. A sociologist would have a field day unpacking the meanings given to the notion of the ‘market’ in the discourse and praxis of the actuarial profession. Yet what is the market? Does it really exist? Is it not a construct of our minds whose sole meaning is to help us make sense of chaos?

**Drawbacks**

While our paradigm and our perspectives must be bounded and coherent for the exercise of social control, this requirement has two drawbacks: first, it insulates its adherents from other paradigms and perspectives, and secondly, it can have no objective validity.

One of the threads that run through the Morris Review¹, particularly the chapter on education and continuing professional development, is the insularity of the profession. It has had “insufficient contact with other professions and too narrow a professional training, and has been slow to adopt new approaches and techniques.” This, Morris states, “has resulted in useful inputs from the disciplines of economics, statistics and demography, to name only some, having less impact than they should.” So bounded has our metanarrative become that, to revert to the metaphor of the food-chain, we have cut our discipline off from the sources of its sustenance.

There is a deeper problem, though, in depending on our paradigm and perspectives for the purpose of exercising social control or influencing a system of social control. There is no basis outside of our own shared experience for the validity of our intellectual discipline. That shared experience constitutes what Lyotard (1984) refers to as our ‘metanarrative’. Here, following that author, we define a ‘metanarrative’ to be ‘philosophical stories which legitimate all other stories’ (Cahoone, 2003). The postmodern critique insists on ‘incredulity toward metanarratives’ (Lyotard, op. cit.). “Most people,” says Lyotard, “have lost nostalgia for the lost narrative.” (ibid.) From the postmodern perspective:

“Any alleged comprehensive, coherent outlook is at best no more than a temporarily useful fiction masking chaos, at worst an oppressive fiction masking relationships of power, violence, and subordination.” (Tarnas, 1991: 401)

Somewhere between these extremes lies the metanarrative of actuarial science. The task of the philosopher of a science is to ‘deconstruct’ its metanarrative, that is:

“[to demonstrate its] incompleteness or incoherence… using concepts and principles of argument whose meaning and use is legitimated only by that philosophical position.” (Wheeler, 1995).

The dependence of a profession on its own metanarrative for the purpose of exercising social control or influencing a system of social control is thus an exercise in self-delusion.

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Parts of the actuarial metanarrative have been explored—and deconstructed—by various authors (e.g. Redington, 1983), but a comprehensive exercise in deconstruction remains to be done.

**Strengths of the actuarial paradigm**

In deconstructing metanarratives, postmodernists “either ignore paradigm boundaries as mere modernist conventions or deconstruct paradigms in order to expose oppressed oppositions (Schultz & Hatch, 1996). It is safe to say, however, that this will not mean the end of actuarial science as a science.

In the first place, the discipline has a robustness in its emphasis on its role as a search for sound criteria for decision-making rather than a search for truth (Thomson, op. cit.). It is against science as search for truth that much of the argument of postmodernism is directed. While this does not necessarily protect actuarial science entirely from the postmodern critique, there are aspects of that critique that are not applicable to it.

Secondly, while it may relativise the validity of actuarial science, it will not entirely invalidate it. This is because it will remain valid within what Miller & Fox (2001) refer to as the ‘epistemic community’: in this case, the actuarial profession. Those authors argue that, while the absence of a grand narrative precludes any grand truth, it does not preclude the achievement of meaning. That meaning, however, will necessarily be peculiar to that community and to those stakeholders in its sphere of social influence and control who recognise that meaning. Actuarial advice will therefore be reduced to an offering from a particular paradigm and a particular perspective, along with competing advice from other paradigms and perspectives. Actuaries will have no objective basis for arguing that our paradigm and our perspectives are any better than others.

Thirdly, it may be expected that the profession will develop both through internal integration and external adaptation in order to ensure its organisational survival (Schein, 1992).

One of the strengths of a paradigm is that it can accommodate new perspectives—even from another apparently incommensurable (or at least partially incommensurable) paradigm—without necessitating a paradigm shift. Various strategies for the use of more than one paradigm have been proposed. A ‘sequential’ strategy involves the use of insights from one paradigm in the application of another. A ‘parallel’ strategy involves the application of different paradigms on equal terms. A ‘bridging’ strategy involves the identification of ‘transition zones’ between paradigms in which they are not completely incommensurable, and the application, within these zones, of ‘second-order theoretical concepts’. An ‘interplay’ strategy involves ‘the simultaneous recognition of both contrasts and connections between paradigms’. Schultz & Hatch (op. cit.)

On the other hand, Burrell & Morgan (op. cit.: 397) argue that the theorists of a particular paradigm need to “ground their perspective in the philosophical tradition from which it derives… rather than taking the tenets of a competing paradigm as critical points of reference.”

In this editorial, passing reference has been made to a number of other perspectives: those of economics, statistics, demography, African philosophy, the environment,
Marxism, feminism, consumers and the poor. Some of these perspectives may enrich the paradigm of actuarial science and give it broader validity. Others might necessitate a paradigm shift, which may or may not be acceptable to the profession. All of them—and others—are worth considering as challenges to the hegemony of the actuarial profession in its traditional fields and to its colonial aspirations in actuarial frontiers.

Some conclusions
Whether postmodernism is itself a paradigm is debatable. Schultz & Hatch (op. cit.) suggest that it is more a ‘critical movement’. Certainly, however, it does have its own perspectives. While it has no metanarrative, it does have one absolute, namely critical consciousness, “which,” as Tarnas (op. cit.: 402) points out, “by deconstructing all, seems compelled by its own logic to do so to itself as well.” The humility that the postmodern mind demands of every other scientific project, it must equally demand of itself: its own perspective—and indeed the perspective of this editorial—has no basis for validity outside of itself.

Miller & Fox (op. cit.) report that some authors have charged that deconstruction is an act of cynicism, while others show that this is not necessarily true. What the postmodern approach does offer is that, by making the ordinary extraordinary, we shall ‘see it with a fresh vision’ (Cooper & Burrell, 1988: 101):

“We must break the habits of routine thought and see the world as though for the first time.”

REFERENCES
Bellis, C.S. (2000). Professions in Society, BAJ 6(2)