

"The gold in the heads of scientists"

**The metaphor of business and the establishment
of the
Crown Research Institutes**

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Abstract

Business and the business world were important sources of metaphors for reform of public sectors during the 1980s. This study examines the way one such metaphor---The *Crown Research Institutes are businesses*---was deployed during reform of the state-funded science sector in New Zealand and considers the broader consequences for thinking and behaviour inside the organisations.

The study focuses on discourses from two key ritual processes, Parliamentary debates and annual reports during the establishment phase of the Crown Research Institutes (CRTs).

Using a framework for analysis developed from a wide range of studies on the nature and roles of metaphor, close readings of the selected discourses (debates on the Crown Research Institutes Bill in 1992, and Chairman's reports for the CRIB from 1992 to 1995) were undertaken under the general research question *Did the business metaphor provide a constructive framework for the new research organisations?*

Contrary to initial expectations, the base metaphor was not a significant element in the discourses around the CRTs in Parliament. A surrogate metaphor---the science dividend---emerged as a means of saving the base metaphor in a context where ideas of profit and competition appeared to be unacceptable, but there was bi-partisan support for the general approach to reform. There is some evidence that MPs were not always able to recognise the presence of metaphor.

The CRI reports presented a more diffuse picture, but as before, little overt use was made of the base metaphor. Only one CRI developed its own alternate metaphor---This *CRI is a professional practice*. The remaining eight appeared to undergo a continuing search for appropriate metaphors as a basis for persuading others and providing scenarios for organisational behaviour. It is suggested that the base metaphor has become so ingrained as to be taken literally.

The consequences for thinking about the CRIB would seem to be on the one hand that while there is deep unease about the base metaphor, there is generally no other metaphor available as a framework for exploring the problems they pose. Where on the other hand the metaphor is taken literally, misperceptions of appropriate behaviour are possible, with unexpected and undesirable consequences for behaviour, and particularly for the use of accounting information.

Preface

The impetus for this study came from an invitation to participate in the *Narrative and Metaphor across the Disciplines* conference held at the University of Auckland in 1996. I am grateful to Mike Hanne of the University's Comparative Literature department for the encouragement to work in this area.

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List of Abbreviations

AgResearch	Pastoral Agriculture Research Institute Ltd., New Zealand The New Zealand Institute for Crop and Food
Crop & Food	New Zealand Institute for Crop and Food
HortResearch	Horticulture and Food Research Institute of New Zealand
ESR	Institute of Environmental Science and Research Ltd
GNS	Institute of Geological and Nuclear Sciences Ltd
IRL	Industrial Research Limited
LCR-MW	Landcare Research New Zealand Limited-Manaaki Whenua
NIWA	National Institute of Water and Atmospheric Research Ltd., NIWATaihoru Nukurangi
NZFRI	New Zealand Forest Research Institute Ltd
NERF	New Economy Research Fund
NSOF	Non -specific Output Funding
PGSF	Public Good Science Fund
FRST	Foundation for Research, Science and Technology
MoRST	Ministry of Research, Science and Technology

Introduction

The fundamental principle that is being breached---the fundamental change that is being made---is that public hospitals are now to be run as businesses. The language can be tinkered with, that change can be papered over, and we can take out the word ``profitable"---though ``profitable" is not a dirty word. The question is whether it is an appropriate word and an appropriate concept. ...

We can become so bemused by language. There is a fundamental distinction between running something as a business and running it in a businesslike manner. The chairman of the select committee said something that was accurate as far as it went, but in a way was quite misleading. He said: ``No one complains, no one argues against hospitals being run in a businesslike manner.". Well, that is true. Nobody does argue against that. Opposition members do not; I have not heard the public argue against that.

There is a world of difference between saying that and saying that hospitals should be run as businesses.

[Caygill, 17.12.1992 NZPD Vol 532 p. 13280]

Since 1984, unfortunately, New Zealand policymakers have been people who do not understand the distinction between a model and reality, nor the distinction between a metaphor and a law of economics.

[Jesson, 1999, p. 28]

McKinley [1997] argues on a range of grounds that the Crown Company model may be inappropriate for entities such as Crown Research Institutes [CRIs]. His major concerns include the signals that such organisational forms send for behaviour, and the possible limitations on information flows. For the purposes of maintaining good governance, he argues instead for a less rigorously defined organisational form that would allow for the greater flexibility required by public sector organisations that are neither Departments nor State-Owned Enterprises.

Whereas McKinley's concern is with concrete legal structures, the debate that flared up between Alford and Gregory highlighted the core issue in a different manner, exploring metaphors appropriate to public sector work situations and organisations. Their discussion centred on the manner in which metaphors of production might affect the approach taken to the tasks of the public sector---what signals would be sent by such metaphors about the nature of the

environment, the extent of the task and appropriateness of various behaviours within and between organisations and persons, and thus on whether it could be said to be appropriate [Alford, 1993, 1996, Gregory 1995 a & b].

It is in the light of the kind of questions this work has raised that this study is undertaken. It considers one particular metaphor, namely that the various entities of the public sector are businesses, which was endemic throughout the decade of reform of the public sector that began with the election of the Fourth Labour Government in 1984. The study focuses on the metaphor of business as it was evidenced during reform of the publicly funded science institutions in the period 1992---1995.

With the importation of the idea of *business* into the public sector, a fairly precise set of associations was invoked, chief amongst them *efficiency, market forces or disciplines, competition, entrepreneurialism, and success*: such terms are frequently encountered in the descriptions of the reform years and as frequently rejected by critics of that process [cf. Scott and Gorringer 1989, State Services Commission 1990, Kelsey 1995]. Less obviously, but equally importantly, the metaphor carries associations of ownership and exclusive rights over assets [cf Pallot 1992].

The intention throughout the reform period was to induce a change in understandings of what matters, of what is valued, and the business metaphor has been a key agent in that change [Mascarenhas 1993]. The set of values and ideas associated with *business* is closely related to the efficiency group of values identified by Hood [1991] as one possible framework for organising understanding of public administration or management. (Two further sets are offered, which derive from ideas of fairness and of robustness in crisis.) What Hood's work makes clear is just how important ideas of what is valued are to approaches to management, and just how strong a shaping role they play, in terms of what is measured or assessed, and how success and failure are characterised, in directing thinking and providing key themes for narratives. The assumption appears to have been made in the reform process that the new understandings will simply replace the old ones, without struggle or modification. Work in organisational analysis however suggests that where there is a mismatch of perceptions, a variety of responses may occur, from buffering strategies to decouple core activities from those at the boundary and to defuse conflict, to rejection, to active remodelling [Ansari & Euske 1978, Berry *et al.* 1985, Meyer & Rowan 1977]. Some evidence of the potential for such strategies is emerging within the New Zealand public sector [Schick 1996, SSC 1995]

The means by which metaphor is carried is language. This may seem self-evident, but in the case of the business metaphor, we cannot afford to ignore the accompanying metaphor, *the language of business*, that is, accounting. The introduction of new forms of accounting to the public sector as part of the reform process has contributed in no small way to changes in the narratives about the activities of the sector's entities and to perceptions of the things that matter [cf. Boston *et al.* 1996, McCulloch & Ball 1992, Laking 1994].

The Crown Research Institutes: establishment and environment

The CRIs, established under the Crown Research Institutes Act of 1992, are limited liability companies under the Companies Act 1993. For the purposes of the Public Finance Act 1989 they are Crown entities, and as such are subject to the requirements of Part V of the Act. While the CRIs are corporatised and fully autonomous with respect to their own decision-making, the environment within which they operate is still heavily influenced by Government policy through the Ministry of Research, Science and Technology (MoRST) and the Foundation for Research, Science and Technology (FRST). (The former has predominantly policy-making functions, the latter purchase or funding responsibilities.¹) “While Government cannot intervene in individual funding decisions, the Minister officially instructs the Foundation on Government funding priorities.” [Devine, 1995, p. 7] The Foundation acts as purchaser, on behalf of Government, of science services through a set of clearly specified outputs. Bids for contracts to carry out research within these output areas are made by CRIs, along with other research groups, including Universities. The funds for successful bids are allocated from the Public Good Science Fund, which currently stands at \$326.9m [Estimates of Appropriations 1999—2000]. The process of specifying research projects in terms of outputs, and of competitive bidding for contracts (and thus funds) was intended to provide a “market framework driven by Government priorities” [Devine 1995 p. 6]. The overall framework predates the establishment of the CRIs by two years. Other funding is available through the Marsden Fund² (\$22.8m, GST inclusive), the New Economy Research Fund (NERF, established in 1999 with \$25m from PGSF + \$11.25m in new funding [www.frst.govt.nz/public/pgsf/nerf]) and non-specific output funding (\$26.7m, GST inclusive) [Estimates of Appropriations 1999—2000]. These provide mechanisms for funding research that falls outside the Government's priority-setting process, in recognition that the

¹ See Appendix I for a diagrammatic explanation of the New Zealand Science System, and a list of the Crown Research Institutes. See also MoRST 1992 for the initial list of Output Classes, 33 in total.

² Named for Ernest Marsden, the first head of the DSIR, from 1926—1947.

Crown may not always be able to pick the research areas most likely to be of benefit to New Zealand [Upton 1995]. At the other end of the continuum, Technology for Business Growth funds are also available for developmental work in close collaboration with business entities (currently this stands at \$18.5m [www.frst.govt.nz/public/thesource/about.htm]).

The CRIs also come under the aegis of the Crown Company Monitoring and Advisory Unit (CCMAU), a unit within Treasury established to exercise independent review of State-Owned Enterprises and other coporatised bodies on behalf of Shareholding Ministers.

The final phase of reform of the New Zealand public good science system has produced a group of organisations that operates on the boundary between the public and private sectors, having the legal status of private sector companies but charged with the task of carrying out research for the 'benefit of New Zealand' [CRIs Act 1992, S5].

The Study

McKinley [1997] identifies the importance of institutional-level signals and intra-institutional flows as important elements in achieving not only good governance but an appropriate organisational culture. Thus, this study will consider how the metaphor "the CRIs are businesses" was used in the context of two major institutional signalling devices in the public sector, debates in Parliament and the annual reporting process. It will be essential to maintain throughout the distinction between legal form (ie "company") and metaphor ("The CRI is a business").

The study begins with an exploration of the phenomenon of metaphor itself, drawing on some of the major contributions to the area from philosophy and literary theory. The following section then considers how metaphor may be used, most particularly in the arenas of social interactions and policy development. It also discusses a particular pathology of metaphor in use, denoted by Turbayne [1963] as being the victim of metaphor. From these brief discussions are drawn out the elements of a framework for discussion of the metaphor of business during the establishment phase of the CRIs.

In the body of the study, close analysis of the Parliamentary debates on the CRIs Bill, and of the Chairman's reports from the first three years of CRI activity is conducted within the framework set out in Chapter 3.

The final section draws on this analysis to suggest indicative conclusions on the nature and use of the metaphor in this case, conclusions that may also be of assistance in considering the broader

question of whether the metaphor might be considered to be appropriate, likely to be fruitful for the development of the CRIs or useful for thinking about appropriate governance and reporting regimes.

Understanding how, in this limited case, a metaphor is used provides insights into the processes and the kind of metaphor that may be fruitful in other similar contexts, or at least indicate possible traps to avoid.

Chapter I Understanding the idea of ‘a metaphor for’

We use metaphor all the time, every day. It is a natural part of our way of communicating with each other, to try to deal with situations, ideas or feelings that are perhaps complex, perhaps particularly significant or challenging, by providing a metaphor or even a series of metaphors to try to do them justice.

Common as metaphors are, and natural as our facility in using them might be, the process of making and understanding metaphor is itself not generally well understood. The central idea to be considered here is that of understanding the idea of *a metaphor for*. The phrase implies that one thing must act as or be a metaphor (whatever that might be) for something else. The problem lies in understanding how the relationship between the two things is governed, that is, whether *a metaphor for* indicates the replacing of the original (one) thing by the new (other) thing. The way in which the problem is resolved will have further implications for the way in which the extent of the relationship, its limits, may be understood. Two areas that will not be considered in this study are cognition--how do we recognise metaphor; and whether metaphor is different in different disciplines.

That metaphor is both common and complex is attested to by the long history of the debate about it. Most discussions begin with Aristotle's treatment of it in his *Poetics* [1977]. While Aristotle affirmed the importance of metaphor within poetics and rhetoric, Plato's rejection of it as mere illusion, (bearing the same relation to truth as cookery to medicine³) gave rise to a long and dominant tradition of dismissing metaphor as a contributor to thought or understanding [Dorsch, *Introduction to Aristotle* 1977, p. 17f., cf. Ricoeur 1978 p. 11]. More recently, perceptions have shifted again, so that treatments of metaphor as mere decoration are now regarded as largely missing the point. [Ricoeur 1978, Study 1, esp. pp. 41--43, also Study 3, cf. for instance Jaynes 1976 p. 48 ff.].

In this century, a common starting place for discussion of metaphor is Black's 1962 essay *Metaphor*. Ricoeur in his *Rule of Metaphor* [1978] provides considerable background to the Black essay [p. 83 ff.], and gives both useful discussion of the problems raised by his work and a much deeper discussion of metaphor, which in conjunction with the discussions by Berggren

³ In current thinking, cooking has much of the medicinal about it! EJP

[1962], Lakoff and Turner [1989] and others, will here give a strong basis for conclusions with which to advance further.

One of the big problems in dealing with metaphor is that it is fatally easy to interpret *a metaphor for* as meaning that one thing stands for another, that the image or resemblance chosen *replaces* the original item. Over time, this possible way of understanding metaphor has become known as the *substitution* theory of metaphor. Ricoeur rejects the approach on the grounds that it limits the function of metaphor to the level of a sign, a single word, where the proper level of analysis for metaphor is discourse, that is, the sentence. “The dictionary contains no metaphors; they exist only in discourse.” [Ricoeur, 1978, p. 97] Metaphorical meaning, like any other, does not arise from single words in isolation, but from words composed into sentences. It is the sentence as a whole, as any translator knows, that provides the minimum framework for determining any meaning, as complex or as straightforward as it may be. Thus Ricoeur argues, in contrast to Jakobson (who locates metaphor explicitly at the level of the individual word) that the characteristics of discourse, including specifically the creation of meaning and the duality of meaning, are essential to and consistent with the functioning of metaphor.

Indeed it is as syntagma that the metaphorical statement must be considered if it is true that the meaning effect results from a certain interaction of the words within the sentence ... ‘It is a consequence of their being set together, that words take on qualities they did not possess in themselves, which even contradict those they possess otherwise’ (Benveniste *La forma* 38). [Ricoeur 1978 p. 76]

Ricoeur elsewhere describes this ‘certain interaction’ as a ‘commerce between thoughts, that is, a transaction between contexts’. [*ibid.* p.80] This way of understanding metaphor, as an interaction between elements within a specific context, has become central to current understandings of the ways that metaphor works.

Black’s is the most well known analysis of the interactive processes of metaphor [1962, p. 38 ff]. He uses the concept pair *frame* and *focus* to indicate the two elements of a metaphor, where in his now famous example *Man is a wolf* man may equal *frame* and wolf may equal *focus*. In an earlier discussion of similar problems Richards had used the terms *tenor* and *vehicle*. Richards recognised that metaphor involves rather more than the random inclusion of two thoughts or elements in the one sentence. He sought to show that metaphor required a perceiving of the one element through the other. “The simultaneous presence of the tenor and the vehicle and their interaction engender the metaphor: consequently the tenor does not remain unaltered, as if the vehicle were nothing but wrapping and decoration” [Ricoeur 1978, p. 81, cf Richards 1965 p. 100] The metaphor is constituted only if both elements, a frame (tenor) and focus (vehicle) are

present and interdependent. Metaphorical meaning or understanding arises out of the conjoint meanings of both elements. Because perception of the presence of metaphor and of the *sense* of metaphor are at issue here, Black's terminology is particularly apposite, as it reminds us vividly that metaphor is a seeing through.

What remains unclear from Black's discussion is where the limits of this seeing through might be. Ricoeur points out that Black's introduction of patterns of association is limited to 'commonplaces' or to especially constructed patterns, otherwise undefined. The consequences for his analysis are clear in Black's own discussion: either only relatively trivial metaphors are possible (such as the man-wolf example) or metaphors become an arcane tool, accessible only to those who hold the key to the appropriate sets of associations. That this is not so in fact is evident from the other examples given by Black (eg the ship ploughed the sea).

In a later essay [1993], Black introduces a more complex approach. He suggests that what is being drawn on is a system of relationships, an "implicative complex"---a set of associated implications. This set of implications, triggered by the second subject (the frame) and "partly depending upon the context of metaphorical use", represents "current opinions shared by members of a certain speech community" [Black 1993 pp. 28—29]. Black makes no further attempt to define more exactly how the reader/listener might determine the limits of the implicative complex to be applied in each case.

Lakoff and Turner (1989) argue that metaphor draws on conceptual patterns that are available across cultural boundaries. Such patterns seem to be similar to the Jungian archetype. While there is much to admire in individual analyses in their book, their discussion continues to beg the questions of how it is that such conceptual patterns are available, and of how the limits of any particular pattern are arrived at with respect to any metaphor. Underlying their argument is rejection of the idea of interaction, on the grounds that if interaction between the two parts of a metaphor were truly the basis for metaphorical meaning, then inverse metaphors would also be observed. This is to misunderstand profoundly the interaction process that is proposed by Richards, Black and Ricoeur, and at the same time to contradict their own idea of the conceptual basis of metaphor.

Lakoff and Turner make no attempt to bridge the logical gap between the word and the concept in their analysis. Ricoeur deals with this first by establishing the sentence as the unit of analysis, not the individual word, and then by drawing on Beardsley's analysis of meaning to show that the logical absurdity of the metaphorical statement triggers a search for meaning at a secondary and

implicit level. Interaction derives from the way in which context confers meaning on all the elements in the sentence in a reflexive process. “To do justice to the way the use of metaphor disrupts the very order of connotation, Beardsley comes to claim that ‘the metaphor transforms a *property* (actual or attributed) into a *sense* [302].’ [Ricoeur, p. 97] This also gives a better account of the problem raised by Black’s discussion about commonplaces and special sets of implications.

If, as is argued above, metaphor is dependent on the nature of language itself for its meaning, then the interaction between its elements can occur only within the confines of the metaphorical statement itself. No parallel metaphor is required to ‘prove’ the interaction within any particular metaphor. It is perhaps easier to see now this works with another of Black’s examples, *the ship ploughs the sea*. One way of understanding the metaphor is to see the sea as a field and the waves as the sods of earth turned by the blade of the ship’s bow. The reflexive (tensive), interactive element of this is to understand the ship as in control of the element--the sea--as if it were a plough controlling (tilling) the soil.

An alternative reading is possible, depending on the understanding of *plough* to mean to move heavily and roughly: while the wave-as-turned-sod idea remains, the perception of the ship is of something rather less in control than in the first reading. Only the wider context of the sentence would indicate which reading is the more apposite.

An inverse metaphor, in which the sea ploughs the ship, is a nonsense. While the grammatical precondition for metaphor to occur is present (seas do not plough), there is no secondary level of meaning on which to draw for alternative understandings, as there is with the original metaphor. There, in either reading, it is not only the perception of the ship as plough that is present, but also of the sea as the object of the ship’s action. Perception of both elements is altered by the processes of metaphor. It is clearer in a metaphor of this kind where action is involved, and much less so where the verb *to be* acts as a sign of some kind of equivalence

The question must also be asked as to how under Lakoff and Turner’s approach new metaphors are possible. If all metaphors are dependent on pre-existing and generally accessible concept patterns, then only metaphors that draw on such patterns would be possible. The new and potentially shocking metaphor depends to some extent at least on breaking down the status quo, but it is then not clear how the new meanings required could be established.

Berggren’s discussion [1962-1963] of a tensive or tensional theory of metaphor is helpful in this respect as it reaffirms the complexity of the phenomenon. Tension is indicative of conflict, of

strain, of potential unlikeness, all of which are part of metaphor. One is aware that man *qua homo sapiens* is not a wolf (*canis lupus*), nor is he like one in many respects at all. Thinking about the possible likeness to a wolf may be particularly illuminating within some specific discourse. That illumination depends on participants in the dialogue undertaking the necessary search for meaning that is triggered by the ‘semantic collision’ of the primary meaning [Ricoeur 1978 p. 97]. Berggren calls this search ‘construing’ the metaphor, interpreting the two parts each in the light of the other [ibid, p. 242].

To construe life as a play or a dream is not only to organize or interpret life in different ways, but also to give plays and dreams a significance that they might otherwise not have. ... Yet at the same time, if the initial difference between the two referents were not simultaneously preserved, even while the referents are being transformed into closer alignment, the metaphorical characteristics of the construing process would be lost. [Berggren, 1962-1963, p. 243]

If the tension between the two elements of the metaphor were not maintained, either the insight provided would be lost or the statement would be reduced to a logical absurdity. Elsewhere Berggren refers to the maintenance of tension as maintaining stereoscopic vision [e.g. p. 456, p. 464].

The process of making sense of a metaphor depends in the end on the fact that sentences, like words, rarely occur in isolation. They are minimum units within a wider context. For sentences that context may be a literary work, a conversation or a series of reports. The broader context provides a resource for developing an understanding of the potential range of meaning for any one metaphor. To the extent that such a context draws on still wider frames of reference, cultural, historical, political or literary, they too will form part of the available meanings. (That is, they will form a much richer source of meaning than the conceptual patterns proposed by Lakoff and Turner.)

While the context may be constructed by the author/speaker, the sense of the metaphor is construed by the reader/listener.

...Accordingly, metaphor is a semantic event that takes place at the point where several semantic fields intersect. It is because of this construction that all the words, taken together, make sense. Then, and only then, the metaphorical twist is at once an event and a meaning, an event that means or signifies an emergent meaning created by language.[Ricoeur pp. 98—99]

The substitution approach to metaphor has its uses, as it reinforces, if negatively, the power that is released by the confrontation of unlikeness in metaphor. If metaphor were a matter of

substitution, no search for the likeness being invoked, or for the limits of that likeness, would be instituted.

Jakobson's invocation of the Majorcan storyteller's *was/was not* is helpful here as it reminds us that metaphoricity requires the concurrence of like- and unlikeness, a recognition that while the points of likeness may be pursued, it will be against a backdrop of unlikeness [cf. Ricoeur 1978, p. 224, N. 371, cf again pp. 255--256].⁴ The problem remains that of knowing how far the likeness should be taken. None of the solutions proposed so far provides a complete guide. While Black has difficulty providing any clearer criteria for discerning the patterns of association that a metaphor draws on [cf here Ricoeur p. 88 ff], Lakoff and Turner evade the clear cultural differences in concepts that may arise even at the archetypal level. (Consider for instance the metaphor 'a dragon of a woman', which for Western readers conveys an idea of a fierce, firebreathing, aggressive and perhaps even acquisitive person. For readers from East Asia, such a person may be a bringer of good fortune, powerful and benign.)

It would seem to me that these two solutions represent the endpoints in a hierarchy of sources for associations. To try to limit metaphor to one or the other is to impose unreasonable limitations on both maker and unraveller of a metaphor. The extent to which any maker of metaphor uses the arcane will depend as often as not on the audience, actual or potential, of the discourse. Since "[there] is no grammatical feature that distinguishes metaphorical attribution from literal attribution" [Ricoeur 1978, p. 252], the context of the discourse within which the metaphor is used is the prime indicator of the lengths to which a search for associations should be taken. It is both the task and the privilege of the reader/listener to undertake the search, to test the boundaries of possible associations and to extend his/her knowledge of possibilities. In many ways the search for the significance of metaphor is a paradigm for the search for meaning in any discourse, where the reader/listener construes not only the text, but the absences in the text [cf. Ricoeur 1978, p. 98, cf. p. 94]. In both, effort is required, but for metaphor, that effort is particularly focused on one element of the discourse.

Extended metaphor, repetition within a new context or in conjunction with other metaphors are all means of indicating just how the metaphor is to be construed. The opening *terzain* of Dante's *Inferno* for instance, establishes two metaphors:

⁴ By duality of reference Ricoeur means the capacity of discourse to be self-referential and to refer to an external reality simultaneously. (Cf Ricoeur 1978 p. 74, also p. 224.) Later in the same work he writes of the "inescapably paradoxical character surrounding a metaphorical concept of truth. The paradox consists in the fact that there is no other way to do justice to the motion of metaphorical truth than to include the critical incision of the (literal) 'is not' within the ontological vehemence of the (metaphorical) 'is'. In doing so the thesis merely draws the most extreme consequence of the theory of tension." [Ricoeur 1978, p. 255]

Nel mezzo del cammin di nostra vita
mi ritrovai per una selva oscura
che la via diritta era smarrita
Inferno I-3⁵

The metaphors are those of *life is a journey* and of the *dark wood of difficulty*. In the following lines of the canto, references to the narrow way, to fear, to stumbling and to hills and valleys provide indications of how the two are to be construed. The road becomes by this means the dominant metaphor of the entire *Divine Comedy*, whilst the dark wood recurs as the place where the unchancy may happen throughout the *Inferno*, only to be transformed into the pleasant garden of the *Paradiso*. Both metaphors draw on patterns of association extending back into Greek and Latin myth, Judaeo-Christian theology and the archetypes represented in folktales and *Märchen*, patterns that are drawn on progressively through the work as the metaphors recur. Each recurrence recalls the initial context and requires acknowledgement and reassessment of the range of allowable associations. For many of us now it is a difficult matter to appreciate the many nuances that are brought to these two central metaphors (to say nothing of the many more specific metaphors used of individuals and circumstances in the narrative) without an extensive critical apparatus. Things that Dante could expect most recipients to construe with ease are no longer available to us, except perhaps at the broadest and most superficial levels.

Dante, working within the highly stylised conventions of late medieval poetry, could draw with confidence on a common pool of ideas and associations, without feeling driven to search for original and startling metaphors. The drive for the new and shocking comes later, in the Baroque, and more emphatically in the nineteenth centuries. Critical to his poetry is the elaboration of well-understood metaphor through new contexts. What is lost in the translation above is that Dante (the narrator) finds himself in a dark wood--yet again: the journey is marked by a certain repetition, as what in later works becomes a linear journey is depicted here as circular.⁶

In less highly structured and stylised discourse, the process of construing metaphor is less straightforward and may require a greater effort of search along with a more critical awareness of the presence of metaphor. If discourse is about understanding and communication [cf Jaynes, 1976], then it may perhaps be assumed that unless otherwise indicated, through structures or other devices, the range of associations to be drawn on should be limited to those commonly available to readers/listeners of a particular historical and cultural space. The problem with this

⁵ *Midway this way of life we're bound upon/I woke to find myself in a dark wood/with the right road wholly lost and gone.* [Trs D L Sayers]

is that many words have both positive and negative connotations, and it may not always be a simple matter to determine which aspects are to be drawn on. *Businessman*, for example, may have connotations of integrity or unscrupulousness, regularity or volatility, conservatism or entrepreneurialism. Only the context will indicate how the metaphor (*he is a real businessman in his relationships*, for instance) is to be construed, in which light and to which limits. From the Dante example above, it becomes clear very rapidly that the metaphors are to be construed broadly and in terms of struggle, uncertainty and the theology of sin and salvation.

Metaphor is a complex phenomenon within human discourse, which takes its impetus from the operation of language itself. Indeed, Jaynes has argued that “it [metaphor] is the very constitutive ground of language. ... The grand and vigorous function of metaphor is the generation of new language as it is needed, as human culture becomes more and more complex.” [1976, pp. 48, 49] It goes beyond the simple substitution of one word for another. It draws on the full potential of language that derives from the endless possibilities for meaning through the nuance of context. Within the flexibility of the sentence, metaphor constitutes a particular unit of inseparable and mutually dependent parts that together provide the opportunities for extensive meaning, as it requires that the reader/listener to search for the wider implications of the tensions inherent in the metaphor. Without this tension, no search would be made for meaning beyond the immediate context as required.

The boundaries within which the search is made are not clearly defined. Berggren’s term, *construing*, is particularly helpful, as it implies a search for possible and legitimate meanings within a specific context. Such a search is limited only by the sensitivity of the person *construing* to the possibilities of the text. Metaphor is thus a powerful tool for communicating, but also a real challenge to readers and auditors.

⁶ The concept of dead metaphor [Hesse 1966] continues to haunt discussion of differences between the use of metaphor in various disciplines in ways that suggest the superficial understandings each has of the other: see for instance Bicchieri [1988], cf. McCloskey [1994], p. 45 f..

Chapter II Roles for metaphor

In the previous chapter, it was noted in passing that metaphor is fundamental to understanding and perception, especially in areas that are complex or intangible. In the present chapter, this aspect of metaphor will be examined in more detail. Of particular interest is the question whether metaphor serves as a support only, or whether it may take on more assertive roles.

Black's [1962] analysis of the nature of metaphor, discussed in some detail already, goes beyond consideration of the internal workings of metaphor, as it were, to explore the consequences of metaphor for the development of ideas. Again his discussion is somewhat circumscribed, but it is useful nonetheless. For him, the role of metaphor lies in shaping perception. That is, attention is directed to those elements of likeness highlighted by the way the metaphor is construed. If this were no more than a process of selecting appropriate associations, the metaphor would serve no more than a decorative or confirmatory function. Black's argument is that the process is more actively one of filtering information or organising perceptions.

Such an argument suggests that metaphor may be fundamental to our processes of thought. In the light of the discussions in the preceding chapter, this is not so surprising: if metaphor is fundamental to our ways of expressing ideas, often in ways that push the boundaries of language and create new usages [cf Ricoeur 1978 p. 97, Jaynes 1976 pp. 50—52], then it follows that it will be essential to the processes underlying language [cf here also Pinker 1994, esp. p. 55 ff.].

Black's context is the natural sciences, where the problem is to find explanations for phenomena that already exist. His concern is thus with metaphor as a tool for explaining. Jaynes notes that such explanations are both reductive and diachronically conditional: where once metaphors for understanding thunderstorms relied on familiar associations of the divine and of battle, more recent explanations "reduce the storm to various supposed experiences with friction, sparks, vacuums, and the imagination of bulgeous banks of burly air smashing together to make the noise." [Jaynes 1976, p. 52]

In a later essay Black discusses what he terms generative or creative metaphor, considering whether "some metaphors are what might be called 'cognitive instruments', indispensable for perceiving connections that, once perceived, are *then* truly present." [Black 1993, p. 37] This goes beyond the merely explanatory, to suggest a constructive role for metaphor, but one limited to the establishment of new connections, that is, new ideas about already existing phenomena. If the constructive action is to be understood in any more real way, then it would seem that Black is

arguing for a direct effect of metaphor on reality. Given his general awareness of the distinction between the literal and the metaphorical, and of the importance of metaphor for thought, this latter interpretation appears unlikely. The possibility does however highlight a potential problem for metaphor in use, to which I will return later.

Miller in his discussion of the role of metaphor in political knowledge argues that metaphor “discloses the meaning or reality of political things not by constituting them, however, but by manifesting their intelligible structure.” [Miller, 1979, p. 162]. Like Ricoeur, Miller holds to the view that metaphor is not trapped in the kind of linguistic self-referentiality that rendered discourse so sterile in the hands of the deconstructionists [Ricoeur 1978 pp. 224 ff, cf. p. 227], nor is its power to reveal limited to the institution of new concepts with which reality may be pursued. Metaphor in this view has “not ... only organized reality in a different way, but also made manifest a way of being of things which is brought to language thanks to semantic innovation [...] It would seem that the enigma of metaphorical discourse is that it ‘invents’ in both senses of the word: what it creates, it discovers, and what it finds, it invents.” [Ricoeur 1978, p. 239]

Central to Miller’s argument is the suggestion that much of what is interesting to the political scientist is unobservable, in the sense of being not perceptible to the senses. Observed political behaviour is only the outward expression of much more complex inward thoughts and states of mind [Miller 1979 p. 163]. Metaphor is then a way of expressing the unobservable or unfamiliar in terms of the sensible and the more familiar. “While political inquiry can often move beyond its metaphorical beginnings, it may be that we are unable to think about the most comprehensive questions concerning men except in terms of metaphor. When Plato comes to speak in the Republic of man’s relationship to the political community and to the whole of being, he develops a great metaphor---the allegory of the light that culminates in the parable of the cave.” [Miller 1979 p. 168]⁷

This is not to suggest that the physical scientist never requires metaphor to render the invisible visible. Bohr’s use of the solar system as a metaphor for atomic structure is only one of many possible examples. It provides a way of thinking about something that both explains and gives rise to further questions, such as “how like is atomic structure to the solar system?”. To this extent Hesse [1966] is right that the role of metaphor in the sciences may be to provide the framework for a research programme. The problem, to which I will return later, is that there is

⁷ Miller’s terminology is notably imprecise here---allegory is quite distinct from metaphor, as parable is from them both.

real potential for forgetting that the programme is one of testing the limits of the likeness, or at least of testing possible likenesses.

Her comparisons with literary metaphor lead her to the conclusion that because the latter do not spark questions in the same way, they are dead [cf. Hesse 1966, p. 168 ff.]. This is to fail to recognise that in literature the role of metaphor is at its most complex, as it contributes to the network of connections that constitutes the coherence of the constructed (fictive) world, while also drawing on the similarity of that world to the one in which the reader/listener exists. It is in literature that we see most starkly the manner in which metaphor makes the imperceptible visible, if only to the mind's eye. At this remove it may be argued that such metaphors encourage us, allow us, to develop our understanding of the human condition to the fullest extent.

Metaphor according to this view is a means of allowing us to come to a more complex understanding of ourselves and our world. In this way it is clearly part of thought in the sense we of the Western world have come to expect it to have, new, original and challenging thought that pushes the boundaries. Indeed, Berggren concludes that “all truly creative and non-mythic thought, whether in the arts, the sciences, religion or metaphysics, must be invariably and irreducibly metaphorical.” [Berggren, 1962—1963, p. 472]

So basic is metaphor to creative thought that Ortega Y Gasset went so far as to define it cosmologically as ‘an instrument necessary for the act of creation, which God forgetfully left ... in the inside of one of his creatures, as an absentminded surgeon sews up one of his instruments in the belly of his patient.’ [Sapir 1977, p. 32]

Metaphor is however also instrumental in constructing the reality within which such thought may occur. It should now be clear that one of the most fundamental roles for metaphor is as the carrier of belief systems. The metaphors of Christ the Word and of the word made flesh, for instance, are as powerful an example as any that are acted out in ritual and in life practice all over the world. More immediately, and perhaps more starkly apparent, are the metaphors in use amongst many tribal peoples to express their relationships to each other, the earth and to time. While they are not unassailable, such metaphors act to maintain the status quo, and to provide a structure within which interaction can occur [cf. Crocker 1977, p. 65]. In this context the role of metaphor is distinct from that in the sciences and literature, which may be designated as persuasive. Fernandez [1972] uses the term ‘performative’ to describe this other role.

As he shows in a series of imaginative articles, metaphor may become a means by which social actions are enabled. Metaphor may make for sufficient certainty within a social context to allow

people to act, even in crisis, conflict or necessary daily ritual. In this case metaphor represents the status quo, a stabilising influence within or around a social grouping.

The context for Fernandez' analysis is that of religious ritual, where performance is precursive, a means of changing feelings that will then permit changes in action. The movement from disaffection and alienation Fernandez observes in the *Bwiti* cult in the Gabon Republic is made possible by the ritual use of metaphors of "trading teams", being "of one clan", the "child of man", and "of one heart" that are both apt and able "in performance [to] accomplish those transformations of experience which is the prime function of religion." [Fernandez 1977, p. 109] The effect of the metaphors lies, Fernandez argues, in their being "images in the sense of plans of behaviour" [1972, p 55]. They provide scenarios through which the cult enacts central elements of its beliefs. They are not the belief itself, but an "organising force in the performance of ... rituals". [*ibid*]. The ritual aspect of the actions Fernandez describes remind us that the metaphor remains at a level removed from actuality. Metaphor in this role goes beyond the organisation of thinking, conceptualising as a part of problem-solving, to providing a source of patterns of behaviour. That is, the metaphor has consequences not only for understanding but for the construction of a social reality. The roles are linked, but nonetheless quite distinct.

The performative role of metaphor is clear also in the processes described by Dent [1991] as a railway company shifts from one metaphor to another, developing a new culture with attendant rituals and behaviours along the way. He stresses the length of time it took to accomplish this change, but also the very real consequences for action in the organisation: ritual and metaphor do not serve in this case to buffer the internal organisation from an inimical institutional environment. Instead they facilitate internal change to a culture with a quite different dynamic and focus. What he notes however is that the shift is carried out in the context of broader institutional changes, expressed through the expectations and dissatisfactions of Government which was "intolerant of (what it saw as) managerial incompetence" [1991, p. 724], but also drawing on the perspectives of "thinking railwaymen". Dent's study focuses on changes within the organisation consequent on the changes in the context, and so does not consider the metaphor *per se* but only the results of its application.

Crocker's [1977] analysis of a metaphor that appears to have broad significance for some Bororo tribes in South America is a useful reminder that an element of caution is appropriate when interpreting metaphor in social roles. The metaphor *We are macaws* appears on the face of it to be a totemic identification of Bororo men with the parrot. Painstaking analysis on the basis of

extensive fieldwork led Crocker to the conclusion that the statement is not totemistic in any way, but rather a metaphor for the dualistic nature of male existence within a matrilineal society. The macaw is at once a pampered pet and the carrier of a scarce resource. “Like a macaw, he [the Bororo male] is perpetually a child of collective mothers ... To put it another way, the feathers of macaws and the bodies of men are the raw materials for social transactions ... In metaphorically identifying themselves with red macaws, then, the Bororo do not seek either to disparage or to adorn themselves, but to express the irony of their masculine condition.” [Crocker 1977, p. 191, 192].

The macaw metaphor appears to be much more all-embracing than it in fact and usage is. It seems to be a necessary outlet for a sense of ambivalence and entrapment for the initiated male section of the corporate group, rather than providing for constructive scenarios for action [p 187 ff.]. While the metaphor clearly still has a role in maintaining the stability of the group, the more important thing about it is that it encapsulates only a part of Bororo existence. By its very partiality it reminds that metaphor in general is exclusive as well as inclusive. Fernandez concludes from his study of religious metaphor that “the metaphor does not simply excite associations, but imposes a schema upon them---a metaphor is a hypothesis which (*sic!*) makes some things in the world relevant and all other things quite irrelevant.” [1977, p. 127].

The studies by Crocker and Fernandez imply also that metaphor, or at least the choice of metaphor, is not value-free. The embeddedness of metaphor in belief systems means that the choice of metaphor reflects either maintenance of the system or a challenge of some kind. In either situation, the metaphor carries with it the values of the belief system. Even at such a simple level as the kind of name-calling indulged in by politicians, metaphors carry values of denigration or enhancement. Using the example of a US Senator calling the Attorney-General a jellyfish, Fernandez shows for instance, that there is a range of equally possible metaphors available from the marine context that could either build on this strategy of denigrating the actions of the Attorney-General (by choosing the parallel metaphor) or of enhancing them with the choice of Attorney-General as dolphin.

The choice to include or exclude some things in the world is a choice to give one group of perceptions, one range of strategies, preference over another. In the world of literature, several sets of such choices may coexist and conflict, as part of the intentionality of the author. In science, such choices reflect choices about what will be most fruitful to understanding and to further work, within a broader set of understandings about the nature of the world.

In the context of a rapidly changing, pluralistic society, in which the conflicts of interest are ever more intense, the role of metaphor also becomes more complex. Within the context of social policy formulation, Schön [1979] argues that metaphor becomes a means not only of generating possible solutions but of framing the problem to be resolved. The example he gives is that of slums and urban renewal. Two different stories about slums, encapsulated in two different metaphors, give quite different slants on the issue, and to some extent predetermine the possible solutions. Where the framing metaphor is that of *blight*, the slum is perceived as a diseased or decaying element that must be pruned out, and preventive measures must be taken to guard against re-infection. If however the framing metaphor is that of *natural community*, the elements of slum life that are drawn into the foreground are those of lively processes of interaction and communication, and of family. Solutions here will be aimed at strengthening and preserving such elements within their natural environment [Schön 1979, pp. 261--264]. Both metaphors reflect broader perceptions of the nature of the society, what is acceptable, and the role of those in policy-making and implementation.

Schön's description of generative metaphor emphasises above all the element of choice in the use of metaphor for understanding problems [*ibid*, p. 268ff.]. He stops short of considering the political or ideological implications of such choices, while recognising also that they will necessarily spark off a set of strategies or scenarios for action that is delimited by the range of permissible associations. In the policy-making context, the baggage that metaphors may carry with them becomes especially weighty in the light of the problem flagged earlier in discussion of Black's treatment.

It is not simply that one may be unaware of the implications of one choice over another, but that one may lose sight of the fact that the metaphor is exactly that, a metaphor, the bringing together in a tensive and interactive relationship of two unlikes, neither of which is prejudiced over the other. Even when the metaphor is in the form of an equation, "this is that", the "that"-element never takes the place of the "this". If it did, the metaphor would be destroyed. It is worth restating here to that the "is" indicates a very partial equation: "with respect to" is always implicit. Thus the ship, while its motion through the waves may have elements in common with that of a plough through soil, nonetheless remains a ship, with all its consequent physical characteristics, including flotation. The Bororo tribesmen's assertion of identity with macaws remains true only with respect to their social position and attendant behaviours, not to their species or anatomy. In the blues singer's lament, "Love's a hand-me-down broom", the

uselessness of the broom serves to enhance our understanding of the state of mind of the singer: the broom itself does not appear centre stage.⁸

Restatement in this way highlights the multiplicity of ways in which brooms are not love, men are not macaws and ships are not ploughs. This element of is-notness, so essential to the nature of metaphor, becomes even more critical when considering behaviours and actions than when dealing with understandings and concepts. Thus, to return to the example furnished by Schachter's study, a possible consequence of failure to respect the boundaries of metaphor could be that types of behaviour that were excluded under the scenarios from the metaphor will be perceived to be sanctioned or even required.⁹ To succumb to metaphor is to lose much of its power to enlighten and to provide structures for thinking.

This same note of caution is sounded in two other studies in the arena of organisational studies and public administration reform, more specifically by Morgan in his extensive exploration of *Images in organization* [1986] and Schachter in her comparative study of administrative reform in the USA, *Reinventing government, reinventing ourselves* [1997].

Morgan's theme is the way in which metaphor can be used to analyse organisations—to this extent he follows Schön [1979]—and he shows through examples ranging from the now traditional machine/organism duality to those of psychic prison or the brain how metaphor may help to expand or reorient understanding of any organisation. Essential to his discussion of each metaphor is an assessment of its strengths and limitations, as a reminder that each image is only a frame. As such, each one highlights particular aspects of organisational actuality, while hiding or distracting attention from others. Implicit in the assessment is the recognition that to forget the status of the image would be to negate the whole purpose of the exercise. Furthermore, to come to believe that there may be one 'true' metaphor would be to misperceive the complexity and ambiguity of organisations [Morgan 1986, pp. 12-13, cf. p. 17]. As Morgan stresses, it is the very ambiguous, even paradoxical nature of organisations that makes metaphor such an appropriate mode in which to think about them.

These aspects of metaphor are well understood by Schachter [1997], who explores two metaphors that have been used at various times to frame thinking about reform of public administration, the *citizen as owner* metaphor that was central to much of the work of the Bureau of Municipal Research (BMR) in the US in the early twentieth century, and the *citizen as customer* metaphor

⁸ *Black Coffee*, Webster & Burke

⁹ The saga of WINZ (Work & Income New Zealand) in 1999 is a case in point: the use of public funds to stage extravagant departmental events was widely perceived not to be appropriate public service behaviour.

that is at the heart of the more recent work by Osborne and Gaebler on *Reinventing Government*. Schachter shows that while the latter highlights issues of efficiency in organisations, the former focuses on efficient citizenship [1997, p. 60 ff.]. For her, this capacity of metaphor to direct or deflect attention is both part of their power and part of the problem of using them. She notes for instance “A metaphor that equates citizens with customers gives one perspective from which to gauge society’s needs for performance improvement. Shifting the metaphor can point the way to a focus on overlooked aspects of reality and the consideration of fresh alternatives. A new figure of speech is likely to spark new assumptions about public governance.”[1997, p. 9] At the same time “[the] point of exploring the model is not to sell it in toto to [an audience] but rather to show a different insight on the relationship between citizens and administrators ... “ [op. cit. p. 14]. That is, no one metaphor can be expected to provide adequate insight in a field as complex as public administration.

At the same time she recognises the exclusionary aspect of metaphor, what is not part of its pattern of associations. So for instance, “[w]hen ownership is used as a political metaphor, no heed is paid to its pecuniary implications. The bureau writers understood that people do not buy American citizenship or sell it at a profit. The metaphor is clearly intended to relate only to the aspect of ultimate control.”[op. cit., p. 56] Either metaphor becomes problematic if its boundaries are not respected, and key differences between public and private sectors, which should be preserved, are glossed over [op. cit., p. 55].

Much of the fascination in Schachter’s study lies in her assessment of the ways that the metaphor of citizen as owner, despite its intellectual and political strengths, contributed to the downfall of the BMR, largely because it was inimical to the positions of key financial supporters. The process of organisational restructuring was used in this case to “[bury] the efficient citizenship concept in public discourse so that a strong, vibrant citizen-owner model tuned to modern vocabulary is not available to confront the customer model ... [op. cit. p. 54]. This fate reflects both the value-laden nature of the choice of metaphor and the potential it may have, not to carry the *status quo*, but to put it in question.

In principle, metaphorical thinking must always retain an awareness of the boundaries of the metaphor. That this awareness may be lost, even by those most experienced in mining metaphors and testing their limits, namely natural scientists, forms the burden of Turbayne’s [1963] discussion of metaphor. Berggren [1962—1963, pp. 464 ff.]¹⁰ contends that Turbayne himself

¹⁰ Cf. here also Ricoeur’s critique [1978, pp. 251 ff.]

becomes enmeshed to some extent in the mythification he discerns in the work of others. If nothing else, his criticism highlights the very difficulty that Turbayne explores.

Turbayne's basic argument in *The myth of metaphor*, that use of metaphor can become pathological, is based on analysis of the way metaphors have been used to explain phenomena in the natural world. Focusing in particular on Descartes and Newton, he contends that both confound "certain devices of procedure ... with elements in the process" [Turbayne, 1963, p. 54], that is, the means by which natural phenomena are explained, notably mathematics, comes to be the explanation. "Because lines and angles are used to enormous advantage in optical demonstrations, and have been used so constantly since Euclid's time, we must not therefore succumb to the tendency to think that explanation by means of lines and angles exhausts optical explanation." [Turbayne, 1963, p.49]

In Turbayne's view there are two aspects to what he terms *victimisation by metaphor*, one the confusion of means of study or analysis with the processes of what is being studied, and the other the conviction that the view obtained by the perspective chosen is the only possible view. In essence he argues that such victims of metaphor forget the partiality of metaphorical statements, and take them as full equivalence statements.

If we are victimised, then we confuse devices of procedure with the actual process of nature, and thus unknowingly insinuate metaphysics. If we are not aware [of the presence of metaphor], then, like the duped citizens of the city-state of Oz, who, owing to their green spectacles, thought everything was green, we add qualities that are the production of invention and decision, not of discovery. ... Becoming aware of the presence of hidden metaphors in science, it dawns on us that there are other ways of viewing the world besides those that we inherit from the great sort-crossers of the past, who, by their genius, hold us enthralled in just those attitudes that appealed to them. [Turbayne, 1963, p. 56]

The corollary of the awareness Turbayne argues for is that one becomes "aware that there are no proper sorts into which the facts must be allocated, but only better pictures, better metaphors; and also aware that even to adopt a metaphor is to alter one's attitude to the facts ... "[Turbayne, 1963, p. 217]. Despite the power of metaphor to aid in thinking and understanding, using it requires one constantly to be alert to the tendency to over-extend the metaphor, to become a metaphysician *malgré soi*. That said, Turbayne's project aims in essence to release us from the tyranny of specific metaphors, to allow us to use metaphor constructively and freely. This also implies that a different range of tests for appropriateness is required: not only do we need to consider the aptness of the associations the metaphor invokes, we must become aware as well of our expectations or purpose in employing that metaphor, given the light and shade it will cast.

Aptness is an essential criterion for both persuasive and performative roles of metaphor. If metaphors have, as has been argued here, both of these roles, then for them to be effective in either, they must have the capacity to affect either thinking or action. For this effect to occur, links must be made via the interactive elements of the metaphor to the interests and preoccupations of those involved. Fernandez' 1972 study led him to the conclusion that

In fact, the truly apt metaphors, in the religious context at least, are those that when acted upon combine within themselves some satisfactory representation of both social experience as well as primary experience. ... A fundamental transformation is thus accomplished by metaphor: the socialization of primary experience on the one hand and the rendering of social experience primordially relevant on the other. [p. 127]

The tensive, interactive pattern of metaphor is thus enacted in the relationship between two unlike levels of experience, the individual and spiritual on the one hand, and the collective and social on the other. An apt metaphor provides constructive, if not creative, paths for such relationships. Given the partial nature of metaphor, concern for the limitations even of apt metaphor becomes even more critical, especially where the metaphor is part of a process of reform rather than of maintaining a *status quo*.

Turbayne's arguments support the points already made here, that metaphor frames problems as much as it illuminates them. By showing the potential for pathology---taking the metaphor for the unadorned truth [Turbayne, 1963, p. 27]---he demonstrates also that more than one metaphor may be required to help us towards understanding, or at the very least that the search for better metaphors should perhaps be undertaken with more energy. In this respect his approach contradicts the unquestioning elaboration proposed by Hesse, and the paradigm structure of enquiry observed by Kuhn.

Turbayne's choice of the Wizard of Oz and his citizens as exemplars of mythification in action provides the basis for a useful coda to the current section. While the Wizard's metaphor is an explanation for the physical character of their environment (everything is green), the citizens respond to it in social terms. The Wizard, as the one with the explanation, is accepted as ruler, and a whole social system and economy is founded on the metaphor. In effect it seems to provide the same kind of meshing of individual and corporate life experience as was described by Fernandez and Crocker.

The context for such metaphors is ritual rather than the practicalities of daily life. We are reminded again that metaphor does not cause action directly, but suggests approaches, scenarios that may be feasible or desirable within its context. The enactment of such scenarios is then a further, separate stage. It might be supposed that the ritual context might make the mistaking of

metaphor for actuality less likely. The confusions that have from time to time attached themselves to the bread and wine of the Christian Eucharist are evidence that this is not so. Where the nature of ritual or myth is not easily discerned, discerning the metaphor becomes that much more difficult.

It will now be evident that metaphor's role is not limited to the worlds of science or literature. If as was argued earlier metaphor is essential to our speaking and thinking, it must also be part of that part of our existence in which much of our speech and thought is enacted, in the social world. The roles there are the ones of persuading us towards a particular view of the world or its problems, and of helping us to perceive how we may behave, through scenarios or through framings of the problems before us.

This being so, it would seem to be both a feasible and an appropriate project to explore the manner in which the metaphor of business was implicated in or contributed towards establishment of a new element of the institutional science system in New Zealand, the Crown Research Institutes.¹¹

¹¹ Appendix II gives details of the science system in 1995 and at present.

Chapter III Research Design

The foregoing discussion of metaphor, its functioning and roles, provides some elements of a framework for any analysis of a particular metaphor. In summary, these elements relate to the level of analysis, the boundaries of the metaphor, the roles it performs and possible pathologies.

The proper level of analysis for metaphor, following Ricoeur [1978], is discourse, with the minimum unit of analysis being the sentence and not individual words.

The meaning of any metaphor arises out of the tension between the two elements that go to make it up. It follows that the search for meanings requires assessment of the likeness that is being drawn on through the conjunction of tenor and vehicle. At the same time, it is essential to recognise what is *not* included in the parameters of likeness.

Metaphor is fundamental to our processes of thinking. We use metaphor to help us understand new phenomena or the intangible, the unseeable. We also use it to provide a framework for problems, either to allow for fresh perspectives on them, or to set up some kind of certainty within which to work. Ideally, both kinds of understanding foster creativity in thinking further about the matter that is of interest.

In social contexts, metaphor, as an integral part of key rituals, is likely to be an important source of scenarios or strategies for behaviours or for appropriate actions. While it is easier to see metaphor as a carrier of values in this context, the dual nature of metaphor, always carrying exclusion along with inclusion, means that values are implicit in any choice of metaphor, in any context.

Both the duality inherent in metaphor and the fact that metaphors are chosen, not givens, raise the possibility of pathologies such as the inability to recognise that a metaphor is being used, and the failure to acknowledge the metaphor as one of only many possibilities: in either case, the metaphor comes to stand for actuality, with detrimental consequences.

In the current study, these elements provide a strategy for consideration of the business metaphor as it was used in two discourses peculiarly characteristic of the institutional frameworks in which State-funded research is to be carried out, namely Parliamentary debates and the narratives of annual reports.

Indicative framework

In assessing the case of the business metaphor with respect to the Crown Research Institutes, it would seem to be clear that a first step must be to clarify as far as possible the patterns of association connected with the metaphor. The initial assumption will be that it will be possible to identify a single clear grouping of associations around the metaphor that carries through the Parliamentary debates and is affirmed in the narratives of CRI annual reports as a constructive trope for expressing understandings about the fledgling organisations.

Given the concerns about the aptness of key metaphors in public sector reform that were noted in the introductory chapter, care must also be taken not to overlook either alternative patterns of association or specific exclusions from associations that arise, especially in the context of Parliamentary debate.

It might also be expected that evidence would emerge from the debates of just how appropriate the metaphor is as a frame for the problems of structuring state-funded research in New Zealand. Evidence for this will be the extent to which the metaphor seems to provide a story about the new organisations that can be drawn on in the debates and the reports as promising the kinds of solutions that are considered desirable.

In the alternative, different metaphors entirely may be put forward, which permit different framings of the problem. One would expect to find references to any such alternative metaphors in speeches by Opposition members, or more fleetingly perhaps in those of Government members who use them to highlight the effectiveness of the preferred metaphor. In the CRI reports, alternatives may perhaps show up in narratives or in mission statements.

Having established the parameters of the metaphor under discussion, I turn to consideration of the roles the metaphor has in the two institutional processes involved, namely the creation of new organisations by means of statute, and the monitoring of such organisations by means of the annual reporting process. The study focuses on these two as the exemplary institutional phases that can confer legitimacy on the metaphor, confirming it as apt, that is, as both persuasive and the source of appropriate scenarios for behaviour. These sections of the study consider the metaphor *per se*.

As was shown earlier, in dealing with Turbayne's discussion of the using of metaphor, the level of awareness amongst those using the metaphor of business should also be evaluated. Questions to consider here are who, if anyone, is aware of the basis of debates or reporting in metaphor, and whether there is evidence either of failure to detect a metaphor or of inability to perceive the

partial nature of the description the metaphor provides? Above all, attention should be given to the consequences, possible or actual, of either pathology amongst MPs or annual report writers, for the reasons elucidated by Turbayne and touched on also by Schön. If the level of awareness of the metaphorical nature of the idea “business” is low, then there will be less likelihood either that the metaphor itself will be tested for aptness, or that possible alternatives, either concurrent or replacement, will be offered in either discourse. In either case, the potential for creative thinking about the framework being established for State-funded science may be curtailed.

The study

This study provides a close analysis of the metaphor of business in the institutional discourses most directly associated with the establishment of the CRIs in the New Zealand public sector between 1994 and 1997. The material to be used is contained in the official record of Parliamentary proceedings (NZPD), and in the annual reports from the first three years of operation of the CRIs. These discourses represent the appropriate level, given the focus of the study on institutional processes. As the epitome of their respective processes they give the purest expression to expectations of the institutional environment and the organisations’ responses to them.

Close analysis of the metaphor requires in the first place establishment of a framework of interpretation. Through careful reading of the two sets of discourses, the range of usages of the base metaphor, that of business, and of ancillary or alternative metaphors will be discerned, as will the patterns of association linked with them.

Analytical strategies in this kind of work include identification of specific occurrences of the metaphor and of sections of discourse which seem to allude to them. Scrutiny of the contexts of specific and allusive usage allows the reader to discern positive or negative overtones and additional elements that may attach to the metaphors.

Once a framework for interpretation of the metaphor is established, a secondary phase of analysis is possible. In this secondary phase an assessment can be made of the balance between the metaphor of primary interest and other metaphors that may occur. From there, discussion of the roles of the metaphors, and of the level of awareness of metaphor amongst discourse participants will be possible.

Protocols of readings will be kept, to allow for reassessment of ideas and for reiterative readings where new possibilities or reinterpretations seem to be appropriate.

The material to be analysed consists of the official records of Parliamentary debates on the Crown Research Institutes Bill contained in the *New Zealand Parliamentary Debates* [NZPD] Volumes 523 and 525, being the records of debates held on April 7, 1992 (Introduction), June 2, 1992 (Report of Education and Science Committee), June 4, 1992 (Second Reading) and June 11, 1992 (Third Reading). The Chairman's reports for the CRIs are contained in the annual reports supplied to Parliament under the Crown Research Institutes Act 1992 and the Public Finance Act 1989.¹²

At the heart of the analysis is the question "Did the business metaphor provide a constructive framework for the new research organisations?"

¹² See Appendix III for examples of reports and extracts from the debates.

Chapter IV The Debates on the Crown Research Institutes Bill, 1992

In his speech introducing the Crown Research Institutes Bill the Minister for Research, Science and Technology commented

“The purpose of a Crown research institute is to undertake research, and the Crown has the expectation that, unlike state-owned enterprises, whose sole measure of performance is the generation of revenue dividends, finance dividends with Crown research institutes will be low—ordinarily nil. The dividend expected is the assurance that key scientific skills will be maintained and further developed within the wide range and scope of scientific activity undertaken by Crown research institutes so that science and technology will be utilized to advance social and economic growth according to the principles of sustainable resource management.” (Upton, 7 April 1992, NZPD Vol 523, p. 7628)

The essential elements of the debate on the Crown Research Institutes Bill, which ran through until early June, 1992, are encapsulated in this comment. The debates themselves were remarkable for the level of agreement on the basis of the reforms to the science system to which the Crown Research Institutes Bill would give effect, agreement that was apparent not just through the parade of Opposition MPs speaking in support of the Bill, but more startlingly still, through the dearth of Government speakers to it.

Speaker after Opposition speaker returned to the issue highlighted by the Minister, that the value of the Crown Research Institutes would lie in their contribution to knowledge, skills and capacity within the new Institutes and to the overall wealth of the country, rather than in revenue flows to the Crown.

The debate never progressed beyond reiteration of the need for assurance that this contribution would ordinarily (to use the Minister’s word) be the return required of Crown Research Institutes to consideration of why the concern was so great and whether there was perhaps something in the proposed reforms that gave rise to such concerns. Nor is there any attempt to disentangle the organizational form from the purpose of the Institutes. Had either of these steps been taken, it is possible that a rather more genuine debate may have ensued. The question for us here is why such a development did not happen.

The metaphor of business: patterns of association

The Minister's reference to a science dividend is the dominant element in the pattern of association delimiting the business metaphor within these debates. The issue of a science dividend recurred throughout the debates, as for example on, April 7, 1992: "That is really about scientific skills and the input of that technology into the economic and social economies of NZ. It is not about making a profit; it is about getting good value for the dollars invested" (Grant, NZPD Vol 523, p. 7639). In this case the idea is linked further to providing "structural stability" in the Institutes and security through longer-term funding, to permit long-run programmes to be carried through. (NZPD Vol 523, p. 7640)

Similarly, on June 2, during debate of the Select Committee report on the Bill, it was remarked that any dividend from a Crown Research Institute would be in terms of the skills base of the Institutes, "one that has increased the intellectual horsepower within a Crown research institute as it goes through its business and as it builds up its repertoire" (Hodgson, NZPD Vol 525, p. 8442).

Maurice Williamson, opening the second reading debate on June 4, noted that

To reflect the overarching philosophy of the science reforms, Crown research institutes will be expected to operate as profit centres rather than cost centres. However, profit is not the main motivator of the management of Crown research institutes. The dividend expected will be defined in terms of benefit to New Zealand – namely, research leading to more efficient use of resources and an increase in national productivity. In short, the dividend will actually be more science. (NZPD Vol 525, p. 8575)

That is, the "pay-off" from the Crown's investment will be that "economically and socially important dividend" (ibid).

Somewhat later in the debate the distinction appears again, but its point is blurred. "Shareholder ministers have powers to ensure that Crown research institutes are developed as successful commercial enterprises, especially in relation to dividends" (p 8577) and then again

I point out that the concept of science dividend is not new. It has been the practice for some years for the science departments (ie DSIR, MAF, FRI etc) to pay dividends on both public and private sector income. ... The ability to take a dividend is an important mechanism whereby shareholder Ministers can influence the opposition of Crown research institutes.

“However, government policy remains that dividends will ordinarily be nil or exceedingly low because the primary purpose of the Crown research institutes is to undertake research – the economic and social benefits being the fundamental dividends to the Crown as owner. Dividends that accrue to the Crown will be a source of investment for the Public Good Science Fund” (Williamson, NZPD Vol 525, p. 8577).

The speaker here shifts between the two levels of utterance – the metaphorical and the literal – without any indication of awareness of the metaphorical level or of the implications for the legislation under debate. What begins to emerge from the repeated contrast of metaphorical and literal dividend is that part of the purpose of the structures being established is to influence the thinking of those employed within them. The potential for conflict between metaphorical and literal dividends, which goes beyond the difference in knowledge to a difference in the focus of effort, when translated into actual work programmes, remains as yet unremarked.

Equally, the distinction between literal dividends accruing to the Crown (that is, to a specified accounting entity), and metaphorical dividends which may be said to accrue to the Crown only, indirectly raises questions about the nature of ownership as part of the metaphorical construct. If the Crown is not itself the direct recipient of the benefits of the activity of the Crown Research Institutes – that is, the economic and social benefits – then within the metaphor the nature of the relationship is rather one of trusteeship. Another way to think about this would be to consider that the Crown here takes on a representative function for New Zealand society at large. Again, *owner*, with its connotations of exclusive rights, does not seem quite to be an appropriate term (cf here p. 8578 “The government and the country will get more science for its money.”)

The essential element here is the absence of any indication that the speaker is aware of the metaphor he is using – or of when he is using it!

Later still in the same debate, the following exchange occurred between the Opposition spokesman for Research, Science and Technology and the Minister of Justice:

PETE HODGSON: In other words, it (the Opposition) believes that the dividend that the Crown research institutes will pay to the New Zealand taxpayers is the non-monetary acquisition of intellectual horsepower, or ideas, or skills or wisdom. The dividend would normally not be in money but in human resources. The “divvy”, if one likes, is excellence.

Hon D.A.M. Graham: How does one measure that?

PETE HODGSON: One does not measure it. The Minister of Justice now gives me cause for concern because he has asked how that can be measured . It cannot be measured; it is intangible, and that is the beauty of science. That is why the “divvy” ought ordinarily to be zero. (NZPD, Vol 525, p. 8581)

The exchange adds a new dimension to those already linked to the ‘dividend’ associations, namely a definition of performance for the Crown Research Institutes that is intangible, unquantifiable, and non-monetary but that nonetheless represents future resources, resources that were identified by the following speaker as “research itself and (the) advantage for NZ (that) emerges from the investment in scientific research.” The return on investment as it were is in knowledge (Austin, NZPD Vol 525, p. 8584). Elsewhere these resources were referred to as the “gold in the heads of scientists [which] is wanted by everybody” [Maharey, NZPD Vol 525, p. 8587]. The concern with measurement reflects the emphasis within the New Zealand public management model on managerial accountability for identifiable results.

Mid-way through a speech attacking the Opposition generally, one of the few Government speakers in the debate affirmed the dividend association while giving it a new twist. “The main dividend in the reforms [will be] the flow of information into the economy and into society.” (Ryall, NZPD Vol 525, p. 8591) As so often with Government speakers, the idea is set off against the Crown’s power to request financial dividends. There is no awareness of the implications of the distinction between financial and science dividends, nor, again, any consideration of the consequences for the entities the legislation will establish.

The final (Opposition) speaker in the second reading debate drew the issue of dividends together with the conflict of purpose implicit in the Bill.

In any event, clearly the major dividend that the Crown research institutes will produce is the extension of knowledge and the extension of useful applied science in this country. That should be the major factor. It would be highly unfortunate if the shareholder, who happens to be the Minister of Finance, ever took it into his or her head that the purpose of the Crown research institutes should primarily be to generate revenue for the Crown that should not be their prime function. (Blincoe, NZPD Vol 525, p. 8602).

What is notable about this utterance is that it represents no real advance on the position set out by the Minister for Research, Science and Technology in his introductory speech. Nonetheless, the

reference to *useful applied science* does highlight the problem of the CRIs, that it remains unclear whether the focus of their effort should be on applying science themselves, or facilitating its application in other, private sector, entities.

It might be said that in allowing the debate about dividends to be restricted to the issue of whether or not a dividend policy should be specified in the Bill, the Opposition lost an important opportunity to debate more fully the rationale for choosing the structure of the limited liability company, and aligning the new entities with the SOE model. That this was of concern to some members will be shown later. At this point it suffices to note again the lack of any indication that Members are aware of the metaphor involved in the science dividend.

By the third reading of the Bill the science dividend had become a principal issue with the sole government speaker (the Associate Minister for Research, Science, and Technology) reiterating both the point of view that the purpose of the Crown Research Institutes should be clear from the conjunction of Clauses 16 (a dividend if any may be declared) and 5 (research to be carried out for the benefit of NZ), and that “The Government’s policy intention is clear: it does not expect a revenue stream from Crown research institutes; it expects a different sort of dividend – that is, first-class science.” (Williamson, NZPD Vol 525, p. 8802)

The provisions of SS 5 and 16 however recognise an additional expectation – or rather hope – that the projects carried out in the Crown Research Institutes would prove in some instances at least to be commercially successful. There is thus tension between the stated policy objective of a (metaphorical) science dividend and the hope for a more concrete return on assets.

Rather than providing an opportunity for reflection on the appropriateness of the chosen policy instruments in this case, the metaphorical science dividend allows for the continued separation of policy aim and policy instrument in a splendid example of doublethink. In some senses it becomes a proxy for the generic metaphor of business, with the consequence that matters that might otherwise have contributed to a broadening of debate and to a genuine critique of the policy of establishing Crown Research Institutes as businesses are largely set aside.

It may be unrealistic to expect such critiques to emerge in set piece debates. In this case, where the Opposition is broadly in agreement with the Government approach, it was possibly even less likely that any deep questioning of policy would occur. (The Select Committee process and the Committee stage in the House do allow for the introduction of outside voices and more extensive

discussion.) Apart from one extended critique,¹³ late in the second reading debate, however, no such dissent becomes apparent.

Nonetheless, an essential function of Parliamentary debates is to persuade, if not Parliamentary opponents, then the wider audience of voters. It may be said that in the end the Government was the winner by default in the debate, as it felt it was unnecessary to put forward speakers since the Opposition was doing such a good job supporting the Bill. The unease with the focus of the Bill, namely that the “tenor right through the legislation is the financial management of the Crown research institutes, as opposed to their real purpose, which is the provision of ‘public good’ science” (Austin, NZPD Vol 525, p. 8803) that continued to be expressed in the closing stages of the Bill’s passage, was channelled into attempts to specify within the legislation the Government’s thinking on an appropriate level of payout. The metaphor effectively becomes a straitjacket for thinking rather than a way of challenging ideas, and perhaps opening up for discussion some fundamental issues that in fact underlie the whole concern with the science dividend.

What is never really drawn out of the metaphor is that returns on human and intellectual capital are qualitatively different from those on financial capital. The possible consequences of treating one as equivalent to the other are highlighted in the suggestion that the House take

another look at the Bill to see whether we can put into it something that will guarantee that the day-to-day logic of the people who run these organizations is about science and not about cash-flow.

...We have to organise science in a way that respects that what it is trying to do is to search for answers to the unknown.

That cannot be done by organising it along the lines of a normal business. (Maharey, 4 June, 1992, NZPD Vol 525, p. 8589)

The intellectual capital of the CRIs ---that gold in the heads of scientists---will not be represented on the balance sheet, as it does not fit the criteria for the recognition of assets set out in the accounting standards (in particular the Statement of Concepts [ICANZ SC 7.7—7.9]) and is not subject to the same rules either of ownership or usage as physical capital. The characteristics that distinguish a ‘normal’ business from science are the focus on science, not a direct increase in wealth, and the nature of the task, which is neither well understood nor predictable in its result. The problematic nature of the management control situation reflects back on that of the overall

¹³ From Jim Anderton, NewLabour, NZPD Vol 525, pp. 8596 ff..

governance of the new entities: what holds in small may also hold at the entity level. The shareholding Ministers will not be indifferent to the nature and scope of the CRIs' activities, as they have consequences for more than the life of the entities themselves, that is, they have broader policy aims that go beyond provision of cash to the owner.¹⁴

The dividend metaphor focuses attention on a specifically capitalist aspect of the wider business metaphor, namely the earning of a return for payment to shareholder. At the same time as attention is deflected from monetary earning/capital to human/intellectual capital, it is also deflected from consideration about how the new organizations will be run. The role of the metaphor is primarily persuasive, rather than performative, reflecting the separation of ownership and purchase interests that by this time was firmly entrenched in New Zealand Public Sector thinking. The consequence of such thinking is the tendency to consider staffing and staff development as operational matters outside the Minister's responsibility. With the benefit of hindsight and Schick's 1996 report it may be suggested that the distinction is not as firm as might have been made out. Ironically, most interest in the financial management reforms has been paid to purchaser concerns, that is, the use of resources, to the possible neglect of ownership concerns, that is capacity, [Schick 1996, Chapters 4 & 5], which from the tenor of the debate is the major part of the contribution that Crown Research Institutes are intended to make.

The cogency of considering the metaphorical patterns of association of the business metaphor is highlighted by the conflicts identified within the Bill itself between the requirements to be profitable and to exhibit a sense of social responsibility (a conflict present in such legislation since that establishing the SOEs in 1986) (Austin, Maharey, NZPD Vol 525, p. 8584 esp., cf. 8588-89). This conflict was noted specifically in one of the few generally critical speeches in the whole debate, namely that of the New Labour member Jim Anderton, who spoke towards the end of the second reading debate. He drew attention to the problems Electricorp¹⁵ was having maintaining electricity supply in the winter of 1992, and to the use of corporatisation as a stage on the way to privatisation, and then argued that "By putting public services---and basic research must be included in that---on to a business footing, the Bill is quite likely to crush scientific innovation and imagination. ... The objectives of financial efficiency may well be achieved, but

¹⁴ Compare also other comments along the same lines, such as "... the logic that is internal to the Bill at present ... could very easily mean that we have the people who ran the institutes on a day-to-day basis saying "What do I do Monday morning? I worry about my cash flow rather than the science." (Maharey, 4 June, 1992, NZPD Vol 525, p. 8589) Aside from the point that cash flow may be a good thing to worry about, the concern is clear – financial concerns may displace the proper tasks of Crown Research; also Tapsell, [7 April, 1992, NZPD Vol 523, p. 7637] "There will be a temptation to leave the laboratory and take to the cocktail circuit [to obtain contracts]."

¹⁵ State-owned generator and supplier of electricity. Subsequently renamed ECNZ.

at the expense of encouraging and supporting genuine research.” (Anderton, 4 June, 1992, NZPD Vol 525, p. 8599)

The conflict between objectives was evident to many submissioners on the Bill [NZPD Vol 525, p. 8584], and it was implicit in much of the debate and discussion that had accompanied its development, especially in the distinction made between appropriable and non-appropriable science [Bollard et al, 1987]. The one requires research that will be publicly available on a common rights basis, while the other requires science that can be packaged and marketed on an exclusive private property rights basis. The one produces a return that accrues to the owners of the research entity in the broadest sense (ie the people of NZ) whereas the latter accrues to the owner narrowly defined as the Crown and its shareholder Ministers (cf NZPD Vol 525, p. 8595).

One possible resolution of the conflict might be to see the two sides as ends on a continuum rather than as single point, as for instance in the following argument:

In the midst of this bipolar contraction sit Crown research institutes with their new company structures. Should a subsidiary company partly owned by a Crown research institute, and perhaps partly owned by someone else, choose to move an idea along the research and development spectrum towards the market, the company structure allows it to do that.. [Hodgson, 4 June, 1992, NZPD Vol 525, p. 8580]

This is however a solution at the literal level, rather than a resolution of the conceptual conflicts about the nature and role of scientific endeavour that the science dividend reveals.

Thus far the ideas clustering around the science dividend, the set of associations with the metaphor, have had to do with the kind of dividend this might be. In his final comment on the Bill, the Associate Minister for Research, Science and Technology brought in a time element:

Dividends from the new science system will, of their essence, not be short-term. Science is about long-term investments. The new structure will make sure that those dividends do eventuate, but stability is vital if people are to be able to plan and individuals are to be able to sort out their careers and priorities. (Williamson, 11 June, 1992, NZPD Vol 525, p. 8803)

At the same time as the Minister identifies the metaphorical dividend as one that eventuates only in the long term, he links the idea with the need for stability. Within the context of the debate, such stability refers not to funding, but to stability of structure, that is, from freedom from further

reform and restructuring. Funding remained an unstable element in the system, as was highlighted by speakers in the second reading debate (eg NZPD Vol 525, p. 8599, cf. p. 8444), with at that stage annual bidding for research contracts envisaged. As such, it constituted another area in which disjunction is evident between literal and metaphorical thinking about the Crown Research Institutes, over and above the more obvious disjunction between short-term decisions about appropriation of profit and long-term perceptions of returns on the science investment.

While speakers clearly understood that literal dividends would arise from a decision by the Directors of a CRI (although not necessarily, as S 15(b) of the Act¹⁶ gives the shareholder ministers the power to call for a dividend to appropriate profits), no such process is attached to the metaphor 'science dividend'. It was perceived as following naturally from the activity of scientists and to accrue to NZ society without any intervention on the part of shareholder Ministers or Government. This broader understanding might seem to infiltrate the literal level in statements such as the following (Maharey, 11 June, 1992, NZPD Vol 525, p. 8811) "We want to make sure that every dollar that ought to go into science goes into it; that any dividend that is returned goes back into the Public Good Science Fund [ie not into the consolidated account] and is put to work for science..." This suggests that the overriding concept is not the separate existence of 10 individual Crown Research Institutes but the activity of science. At that level the dividends take on the character of retained earnings (that is of value retained and reinvested¹⁷) and not paid out to shareholders. This emphasises the distinction between the narrower (shareholder Minister + Crown Research Institutes) entity and the broader, less bounded entity (science + New Zealand society), but the dividend referred to is nonetheless quite distinct from the science dividend.

The science dividend is the dominant element in the patterns of association surrounding the business metaphor. This base metaphor makes fleeting appearances, as in the discussion quoted earlier of "normal business", whose attributes appear to be those of efficiency, accountability and predictability. By contrast, the business that will provide a science dividend may also be efficient and accountable, but its primary characteristic is that the task environment is unpredictable, in terms of technology, results and relations across boundaries.

The use of the science dividend roots the debate firmly within the wider business context, as dividends are an indicator for a whole range of other associations with corporate business

¹⁶ Cf. also S 16 Public Finance Act 1989

structures and practice. In effect the science dividend becomes a proxy for the base metaphor of business, resting on a presumptive understanding of what the associations of that metaphor will be.

The science dividend itself does not accrue to the putative owners of the entities, the shareholding ministers, but to a much more diffuse grouping, broadly denoted as society or economy. Diffuseness is also a critical characteristic of the science dividend itself, as it may be knowledge, skill, access or capacity.

Other incipient elements of a pattern of associations with the dominant metaphor – Crown research institutes are businesses – emerged from time to time from the debates, but without developing the same kind of thematic significance that the science dividend element did. They contribute nonetheless to the overall picture of just what business might signify in this context.

Perhaps the most enlightening element in this pattern, enlightening in terms of the way the new organizations were intended to function, is one that arises out of rejection of “the old way of doing things”. For instance, it was argued that “The move away from bureaucratic control should enable the institutes to operate with greater clarity of objectives and focus of endeavour, which in turn should enable them to compete effectively in the national and international science and technology market place.” (Upton, 7 April, 1992, NZPD Vol 523, p. 7628)

The point is picked up again shortly after, with a slightly different twist:

“The greatest deficiency of those structures (ie those existing in 1992), which have served NZ well in the past, is their inability to interface with the private sector... That is not necessarily the fault of the people who work within them; it is more that they are constrained by the Public Finance Act 1989, which limits their ability to interface properly with the private sector.

“In creating Crown research institutes the Bill is trying to convert the science sector into one that is commercially friendly and that can interface much better with the private sector. That does not mean that Crown research institutes will not be in the business of doing science that is in the public good. Rather, other such science will be able to be interfaced much more clearly with the needs of industry.” (Smith, 7 April, 1992, NZPD Vol 523, pp. 7632-7633)

¹⁷(Cf earlier NZPD Vol 525, p. 8802, also p. 8580 Hodgson “under the cover of darkness Treasury swiped about \$10 million from the Public Good Science Fund”).

In these comments the perception is established of organizations shucking off their dull bureaucratic suits, and appearing in a guise that is more appropriate to the world of private sector entities. Critical to this element of the pattern, the interface, is the idea that two otherwise incompatible systems will be reformed, to allow them to co-operate. In this example, all the reforming is being done by the Crown research institute side, yet the primary task and focus of Crown research institutes – its business, science for the public good – remains unchanged. Thus the image, *interface*, suggests cosmetic change, the kind of mimicry termed by Di Maggio and Powell [1991] institutional isomorphism, in which organisations take on the appearance of other entities central to their environment while remaining inviolate at the core.

One should note here that the Crown research institutes do remain subject to the Public Finance Act 1989 as they are Crown Agencies under Schedule 4 of the Act and thus subject to the requirements of Part V. Under Part V SS 16 and 17 they are required to provide extensive reporting, including Statements of Corporate Intent. At most they gain the freedom to raise debt, to spin off subsidiaries and to descend into bankruptcy. It is noted at various stages that the Crown research institutes are also not wholly outside the purview of the State Services Commission (CRI Act S 8 and 9) [cf for instance NZPD Vol 525, p. 8585].

The element recurs in the third reading. In the later occurrence the Crown research institutes are referred to as “being freed from the shackles of bureaucracy and the Public Finance Act.” (Williamson, NZPD Vol 525, p. 8801) This goes beyond mere mimicry of surrounding terrain. This is the language of revolution and release from enslavement. It suggests that the new entities will be more than mere chameleons and that they will not be the stuff and directionless entities so dear to us from *Glide Time* and *Yes Minister*. The metaphor here is “These are not bureaucracies” in the negative, non-Weberian¹⁸ sense of stifling rule-bound time-serving. The implication is thus that the new Crown research institute will be fresh, innovative and open.

Related to the element of the interfacing organisation is that of the lean and mean organisation (NZPD Vol 523, p. 7635 and again p. 7636). There is little accompanying detail from which to determine just how the phrase should be construed – of the available alternatives it seems likely that organisations that are disciplined, competitive and determined is what is meant here (it could equally well mean organisations starved of necessary nourishment, snarling and half-wild). This is supported by the argument quoted earlier that entities freed from bureaucratic control would be

¹⁸ For Weber, there was nothing pejorative in the term ‘bureaucracy’. It indicated an organisation typified by rules, where rules allowed for efficient use of resources [cf Albrow 1970, p. 61 ff.].

more effective competitors. (NZPD Vol 523, p. 7628.¹⁹) In the same paragraph as the second use of the phrase, it is suggested that the Crown research institutes will be more focused and less inclined to compete with other entities over the same research topics (this does resonate with the scavenging associations above), and perhaps more inclined to share information. It is perhaps ironic that such competition is rejected as inappropriate for the old bureaucratic structures.

Comment [E1]: but what about the image of consulting engineers?

It is fundamental, if less overtly so, in the new structures, which require competition for funds from a contestable pool, the Public Good Science Fund. (Here again the reading of lean and mean scavenging is at least in part an appropriate one.) The issue is transferred by the next speaker in the debate to a more polite context, namely that of the cocktail circuit, (NZPD Vol 523, p. 7637) but the basic point remains the same: the new entities will be competitors for circumscribed resources, and under competitive conditions open sharing of information will not occur (NZPD Vol 523, p.7641 cf. p. 7639).

This is in contrast to the first occurrence of the idea of competition where the focus was a science and technology marketplace external to the CRIs. While it is argued that the new entities will be more clearly focused – with the expectation of greater effectiveness – the emphasis elsewhere on their role in carrying on public good science would seem to imply that such a marketplace is not their proper sphere of activity, public goods by definition being withdrawn from any kind of marketplace. Although at one point this competition is expected to be external to the science system itself, at others it remains internal: where the one is competitive at the end of a production process, the other represents competition for resources at the outset of the process.

The common denominator in this rather odd conjunction of images of bureaucracy and competition is the need to compete for research funding. Competition for resources is a very different matter from competition between products in a market.

Nowhere are the distinctions drawn out in such a way as to make clear the implications for the new entities or for the thinking behind them.

Alternative metaphors

Whereas the image of the interfacing organisation implies some kind of necessary distance or distinction from organisations in the private sector, the lean, mean organisation would seem to

¹⁹Cf. Williamson, 4 June, 1992, NZPD Vol 525, p. 8575 “a robust and contestable science system geared to provide the nation with science and technology services vital to [the] country’s sustainable development.” Note that the contestable system derives from the FoRST legislation and the establishment of the PGSF. The Crown Research Institutes are the means of providing entities that will compete for the funds administered by the Foundation .

imply a significant level of commonality with private sector organisations. As noted above, this latter image is also linked to ideas of competition.

It is here that a further image from the debates becomes of particular relevance. While competition in a marketplace implies some kind of concrete production process with physical goods, an image that has itself been the subject of some scholarly debate (Gregory 1995 a & b, cf. Alford 1993, 1996), the idea of 'infrastructure' moves clearly away from the factory to the base conditions without which no production can occur. Thus, "the Bill is part of the infrastructure. It is the base on which we want to rest industry and all its other activities. We do not want those people to be concerned about and have as their top priority making sure that the asset is making a return to the State in cash terms. Science simply does not work like that." (Maharey, 4 June, 1992, NZPD Vol 525, p. 8589)

Rather than representing an element in the pattern of association surrounding the base metaphor, this image represents an incipient alternative. The idea of infrastructure is applied to the whole nature and purpose of the new entities – a base, rather than interfacing, a prior phase representing essential capacity, rather than equivalent or even competing organisation. As the image is presented, it is made quite clear, above all, that thinking about the new entities in this way will not only obviate the problem of dividends that had so largely dominated the debate, but it will also be appropriate to the tasks of science. Capacity, it may be recalled, was an essential element of the science dividend, so that this new metaphor might be seen to link up with and provide a focus for those concerns.

Despite a later claim that "infrastructure – as we now call it" – was held to be an essential part of policies for the future success of the nation (Maharey, 11 June, 1992, NZPD Vol 525, p. 8809), the metaphor remains a potential alternative used by one speaker only. It was not picked up and developed by others with anything like the same tenacity as the science dividend.

The distinctive nature of the science task was however an underlying theme reflecting other concerns, as for instance, later in the speech just cited "I have said before in the House that science is not something that can be treated as an ordinary business. People who do science need the stability to be able to make mistakes, to work in areas that are unknown, which may therefore become dead-ends. They need to be able to act in a way that cannot be afforded in a normal business practice." [Maharey, 11 June, 1992, NZPD Vol 525, p. 8810] The activity of science is set against the images of ordinary business and normal business practice, on the grounds of their involvement in activities that might be entitled non-production processes, characterised as they

are by errors, the unknown and the closing-off of possibilities. The planned unpredictability of the activity is at odds with the nature of better understood production processes that result in definable marketable goods or services.²⁰

The theme of the uncertainty surrounding the ‘doing’ of science had been discussed more extensively in the second reading debates, where the need to establish structures appropriate to the level of uncertainty that necessarily accompanies research was highlighted in the following manner.

That cannot be done by organising it along the lines of a normal business. There is nothing wrong with being efficient, nothing wrong with being accountable, nothing wrong with making sure that what we have here is value for money, but it should be remembered that science cannot be done in the way ordinary businesses can be organised. Ordinary businesses can predict reasonably well what they are going to do – they do not work in the unknown. However scientists do, and the organisations that we deliver to them must respect their functions. [Maharey, 4 June, 1992, NZPD Vol 525, p. 8589]

The argument suggests an expectation that the kinds of work that Crown Research Institute scientists will engage will lie at the pure, strategic, blue skies end of the R and D continuum, an expectation that ties in with the emphasis laid throughout the debates on the public good nature at the task given to the new entities. Providing an adequate task environment is set as at least equivalent to if not prior to the three other values mentioned in the quotation above. All three were core values in the public sector reform process. The diverging expectations for the CRIs noted earlier are evident here again. The implication is namely that the benefit to New Zealand is more likely to come from research than from development.

This represents another incipient alternative metaphor, of the kind “Crown Research Institutes are not ordinary businesses.” By implication, if not in practice, it is linked to the science dividend image: if the return from these entities is not a standard monetary dividend, then it may be tentatively concluded that the entities are not to be thought of as engaged in standard, revenue-earning activity.

Comment [E2]: PTO for Hodgson/Math???

²⁰ (Cf here comments [NZPD Vol 525, p. 8806] about the possibility that research will lead to a cul-de-sac, and that scientists may need time to get out again.)

Summary

A number of points may be drawn out from the foregoing analysis of the appearance of the metaphor of business in the debates on the Crown Research Institutes Bill:

Firstly, as noted earlier, the base metaphor itself does not appear. There is no specific usage of statements of the type “the Crown Research Institutes are businesses.” Instead, a proxy for the metaphor emerges, the science dividend. From this association comes the broad idea, offered by members from both sides of the House, that the contribution of the new entities is to be understood as one of contribution in the broadest possible sense to the well-being of society as a whole. Associated with this are images of the scientists/researchers working for the Crown Research Institutes as resources, capacity that must be utilised if there is to be growth and development. The beneficiary of the employment of these resources is emphatically not the individual entity or even the Crown, but society. While the terminology is that of the commercial world, the understandings evolved are quite clearly not.

That this is so is evident from the second-tier associations of the kind “intellectual capital,” and the links to long-term outcomes and stability. At the same time the association “these are not bureaucracies” closes off an alternative way of thinking about the Crown Research Institutes: not only is the traditional *Glide Time* image rejected, but the rejection of the fundamental legislation of Financial Management Reform²¹ seems to put them outside the bounds of modern Public Sector organizations as well.

It might have been expected that key items in the pattern of association with the metaphor “The Crown research institutes are businesses” would have been of a kind to emphasize efficiency and competitiveness. Such associations are instead notable by their absence, apart from the single reference to lean, mean organisations noted above. Competitiveness itself appears rather more frequently, but in respect of resources, rather than for a share of what the Crown Research Institutes provide.

Rather than highlighting the expected efficiency benefits of reforms to the science structures, such other associations as occur look at the manner in which the new organisations will operate in their context. The interfacing organisation association highlights the unlikeness of the new Crown Research Institutes to most private sector organizations, while acknowledging the need for interaction, whilst the infrastructure image shifts the entities to an entirely different level of operation, prior to that of active production.

²¹ All of the fundamental public sector reform legislation is rejected at some point in the debates.

Finally, an association emerges of “not ordinary businesses”, which stresses concerns with processes internal to the organizations, namely those of the science task. As the negative of the base metaphor, the association might perhaps have become the focus for much of the concern with conflicting objectives and appropriate roles for CRIs that has been evident throughout the debates. This does not occur. There is no extended development of this association or of elements linked to it. In conjunction with the proxy association of the science dividend however, it leaves a powerful record of the underlying uncertainty about what the new organisations are about.

Debates, Persuasion and Performance: The Roles of Metaphors

One of the characteristics of the ritual of Parliamentary debate is the attempt by each side of the House to persuade the other of the rightness of its point of view. The debates are also a public rehearsing of the significant arguments for and against a given piece of legislation and its elements, through which the public may be persuaded of the competence or otherwise of the various parties.

In this already highly charged environment the persuasive role of metaphors identified earlier gains even greater salience (it may also be that ability to recognize metaphors becomes even more important), as parties seek to establish mental landscapes in which their approach to problems will appear the most attractive and effective.

In the framework proposed for this research, two indicators for the persuasiveness of the metaphor were suggested: the extent to which it provided a story about the new organizations that could be drawn on in the debates; and the presence of other metaphors that allow for different framings of the problem.

As has been noted earlier in this section, the debates became more and more one-sided as the Bill progressed through its stages. By the third reading, only one Government speaker, and that an Associate Minister, was put up to speak to the Bill, in comparison to the four speaking for the largest opposition party. In part this may be attributed to broad agreement between the two (but not from the smallest (third) party) on the general policy approach to the issues presented by the State-funded research institution. This bi-partisan agreement is acknowledged by the sponsoring Minister in his introductory speech and it is referred to frequently by speakers throughout the debates (NZPD Vol 523, p. 7627 cf. pp. 7640, Vol 525, p. 8578). That so few Government MPs spoke was sufficiently unusual however for Opposition speakers to refer to it in their speeches

(NZPD Vol 525, p. 8807, cf. p. 8809). It may also be a function of the very large majority held by the Government at that time. It does however mean that the debates are not held in the more traditional environment of for and against that accompanies other measures, even on the same day!

The only significant attack on the basic policy approach came towards the end of the second reading debate with Anderton's rejection (NZPD Vol 525, p. 8596 ff) of the whole policy approach, on the grounds that the generally poor state of the science system would not be improved by simply repackaging conflicts inherent in the goals and tasks laid on the new entities. He concluded by contrasting 'research' and the "business of research – which is what this Bill is about." (NZPD Vol 525, p. 8600) The key point of his speech was that the focus of the Bill was misplaced. The phrase 'business of research' indicates a perception that the whole purpose of the Bill is to provide for wholesale commercialisation of the State-funded research effort and could thus be interpreted as a failure to recognise the metaphor.

The general agreement on policy directions between the other two parties meant that there was little likelihood that significant alternative stories or framings would be presented. As has already been seen however, the Bill did not pass through all stages quite **unquestioned**. One role of the science dividend image in the debates is to highlight concerns about conflicts, inherent in the Bill, between the duty to carry out research and that to remain financially viable. Essentially this is about determining what success might represent for the CRIs. When the issue of success did emerge explicitly, in the exchange about measurability noted earlier, it was only for the incompatibility of positions to be highlighted still further.

Framing success as a "science dividend" story is a response to another rather more overt story that might be summed up as "success is whatever the Minister deems it to be at the time." More specifically, the two stories encapsulate different understandings of the roles of the new entities – the one sees them as part of a wider intellectual and communal estate, while to the other they are entities owned by the Crown and providing it with a return.

At the margins of the debate there is evidence of a number of feasible alternative stories that could have been told for the CRIs. Such stories reflect real concern with aspects of the core story about CRIs as the source of a science dividend for the nation. In effect they suggest that the usefulness of the base metaphor is fairly restricted. The science dividend metaphor sets clear limits on developing any association of the type "CRIs are a goldmine for the Crown". (The

Comment [E3]: The repeated stress on the science dividend proves not only to be a proxy for the base metaphor, it serves in very subtle ways to negate and undermine it. For while the term dividend is clearly commercial and capitalist in its association, many other associations relate to the general welfare of society with the metaphor I have termed the science dividend.

“not-a-normal-business” image delimits still more strictly the kinds of stories that might be used for management control purposes.)

Another aspect of the science dividend image is that it reflects uncertainty about the base metaphor itself. “The Crown Research Institutes are businesses, whose return will be in the form of a science dividend” is of itself a coherent metaphor. Within the context of these debates, it serves to counter more pragmatic concerns, to attempt to persuade listeners of the need to think metaphorically about the new entities, given that they will be limited liability companies with attendant rights with respect to claiming surpluses.

Within the context of public sector reform in New Zealand, based as it was firmly in perceptions that private sector business provided apt models, the science dividend metaphor takes on a different aspect. It says that there is a need for clear distinction between the legal structures of the Crown Research Institutes and the ways they are thought of.

It is possible to say under this scenario “we want the Crown Research Institutes to be successful businesses, but success will be shown by the magnitude of science dividend.” Or to put it another way, the emphasis on the science dividend is a way of rejecting, that is excluding, other patterns of association that would provide a more financially-oriented measure of success, and that would be more closely aligned with the legal and literal structures of the Crown Research Institutes.

The exclusive role of the science dividend metaphor precludes the development of a constructive framing or story around it, that might have linked more tightly with the other incipient metaphor – ‘interface’ and ‘infrastructure’, and in so doing might have provided a challenge to the base business metaphor. The science dividend metaphor allows for exclusion while saving the base metaphor.

It is for this reason that the absence of strong supporting patterns of association emphasising efficiency and effectiveness – businesslikeness, unwastefulness – as desirable characteristics of the new entities is so surprising. Because the reform of the science sector came relatively late in the piece, it might be supposed that such elements would be taken for granted. Where there is such unease with a central aspect of the base metaphor, however, a correspondingly greater emphasis on preferable characteristics might be expected.

Most of the speeches on the CRIs Bill are given by the Opposition, and they are the predominant user of the metaphors and associations discussed here. Of them all, only the science dividend is picked up by the Governments speakers – in itself an indication of its role as saviour of the base

metaphor. Only the lean mean organization metaphor and the exclusionary release from bureaucracy image are originated by a speaker from the Treasury benches.

Performative role

The unease with the base metaphor becomes even more apparent if the performative role of metaphor is considered. The two scenarios for behaviour that are linked to the metaphor (moving out of the lab onto the cocktail circuit, and coming to work on Monday to focus on research not cash flow) that were noted previously are, like the science dividend metaphor, examples of rejection, exclusions of behaviours that might be suggested by the metaphor but that are not held to be appropriate.

The point was made more explicitly during the debate on the Select Committee report:

The Minister of Science has said that the dividend will be small, or zero – and that is appropriate, because we want people to behave commercially but we know that in fact there is no money to be made in “public good” research. This research has to be funded by the Government because it is not intrinsically commercial, and therefore it is not appropriate that the institutes be driven completely by the commercial ethic to make a big dividend. (Matthewson, 2 June, 1992, NZPD Vol 525, p. 8444)

This statement highlights the dilemma faced by speakers who use the science dividend metaphor: how to present scenarios for action that encourage commercial behaviour (whatever that might be) while discouraging commercial thinking.

It also highlights the fine line that speakers walk throughout the debate between the metaphorical and the literal nature of the entities to be established by the Bill. (Perhaps the most positive scenario is given in the expectation that Crown Research Institutes should be profit centres, not cost centres. (NZPD Vol 525, p. 8575) At the organizational level, the Crown Research Institutes are portrayed as subdivisions of a larger enterprise, perceived as having responsibility for earning revenue and using resources efficiently. Immediately following this however is the denial, noted elsewhere already, that profit should be a main motivator to management.

Another scenario, presented first by speakers for the Government, is that of not behaving like bureaucrats, either legalistic or be-cardiganned. Potential scenarios in this context would be those of entrepreneurial behaviours. Such positive scenarios are not developed in the debates. The ‘not-bureaucrats’ element remains an exclusionary one, used only briefly, to reject

behaviours that rely on rule books or that are constructed far from the public's eye. Appropriate behaviour for scientists was also explored, primarily through the alternative metaphors. In scenarios deriving from the infrastructure image, activity is focused on exploring the unknown, "trying to produce ideas and... trying to come up with something new" (Maharey, 4 June, 1992, NZPD Vol 525, p. 8589), as prior phases to commercial activity. The images exclude fully commercial behaviours, such as buying and selling.

Potential positive scenarios for behaviour may also be discerned around the image of the interfacing organization. They are scenarios of bridge building, of active establishment of links between private and public sector entities, of sharing practice and understanding (NZPD Vol 523, p. 7632-33). A similar perception is apparent in the point of view quoted during the second reading debate. The Minister was quoted there as saying in a radio interview that the institutes

are companies set up under the Companies Act. My (the Minister's) personal vision of them is that they are going to look much more like a consulting firm of architects or engineers...They will be very much attuned to carrying out contract work, rather than simply getting a bucket of money under appropriations and spending it." (Maharey, 4, June, 1992, NZPD Vol 525, p. 8589)

For the Crown Research Institutes or consultancies, interfacing with the private sector would be a matter of applying existing expertise (its primary resource) to problems prescribed by private sector companies (among others). The scenario thus has a similar basis to that earlier rejected in the image of the cocktail circuit, namely that of touting for business. It would leave little room for the search for new or better understanding. It is also a scenario that carries overtones of cooperation and partnership to solve problems.

Comment [E4]: (NB this follows on from the discussion of ordinary business and research – in the unknown)

Awareness of metaphor

One further question that needs to be considered is whether the speakers in the debates can be said to be aware of metaphors. There is some evidence from the way in which ideas from metaphors are expanded on and related to the new entities that speakers are not aware of metaphor, and thus in some danger of confusing them with actuality. In one striking case the science dividend is taken quite literally to mean returns to the Crown of surplus earned by science departments. It is limited only to potential returns to the shareholders. They may come from scientific activity and be returned to fund further research, but that is the only way the speaker conceives of the science dividend. The broader social and economic associations attached to the

science dividend by most other speakers are wholly set aside. The potential implications of this failure to recognise metaphor are profound: not only would the focus of effort would be on revenue-raising activity, but the horizon of the CRIs would be limited to the confines of the Crown estate. Rather than looking outward and maintaining porous boundaries, the CRIs would look inwards, focusing on financial information and on increasing the value of the Public Good Science Fund.

The whole of the debate over the science dividend is distinguished by this kind of inability to distinguish between the metaphorical science dividend and the literal right to require payment of a dividend. So for instance the Government Member's demand to know how one might measure the benefits of the science dividend quoted above (p 3) and the insistence by a number of speakers that paying dividends and having the right to receive them is a normal characteristic of a business, reflect a failure to distinguish the metaphor as a way of framing thinking about the new entities from the practicalities of their legal structure and governance.

That there should be this distinction is evident from the outset [NZPD Vol 523, p. 7628, cf. p. 7630] Rejection of the SOEs model, and the insistence that revenue and profits are not to be thought of as the main aim of Crown Research Institutes are indicators that legal structure is to be understood as separate from the role of the entities. That the metaphor goes largely unrecognised in no way detracts from this actuality. This is an issue that will be discussed more extensively below.

Ongoing attempts by Opposition MPs to insert a limitation on Ministerial power to call for a dividend is suggestive here too. It is Opposition speakers who primarily attempt to frame the debate about the Crown Research Institutes in terms of the science dividend metaphor. However, even repeated reassurances to that effect do not convince them that the metaphor will prove either persuasive nor an adequate scenario for behaviour in the longer term and the Crown Research Institutes will not become sources of revenue. That is, the phrase "the Crown Research Institutes are businesses" will be taken literally.

Much of this debate is precisely about how the Crown Research Institutes are to be understood within a context dominated by metaphors of production and expectations that private sector models may easily be transferred to the public sector. The lack of response or defence on the part of Government speakers suggests overall that there was little understanding of the depth of concern inherent in the struggle for alternative metaphors, or for metaphors that would permit

expression of that concern within the constraints imposed by the Opposition on itself through its bipartisan stance.

Conclusion

The role of the business metaphor in the debates on the Crown Research Institutes Bill emerges as an oddly negative one, as much of the detail of usage surrounding it is negative and exclusionary. Above all, and despite the high level of agreement between the parties, it does not provide a single, strong, coordinating story. Usage is fragmented and fragmentary, and a number of alternatives emerge, although none goes on to present an entirely plausible other image.

The metaphor becomes the medium for registering concern about the efficacy of the chosen instruments for giving effect to science policy while saving the broad context within which it is framed. In the main, scenarios for behaviour are exclusionary and attempts are made to persuade Government away from the chosen course, with the image of the science dividend serving as the main conduit for this effort.

The general cast of the debates is thrown into greater relief by the increasing rarity of Government speakers presenting the story of the Crown Research Institutes as they wish it to be seen.

On this reading, a curiously ambivalent picture of the new entities and their purposes emerges, a picture which provides an intriguing and challenging prologue to study of the stories and scenarios presented by the Crown Research Institutes over their first 3 years of operations.

Chapter 5 The Crown Research Institute Reports

Introduction

The focus of this work is the ways in which the business metaphor was used within key rituals of establishment for the Crown Research Institutes (CRIs). In the preceding chapter the roles of the metaphor on the processes of Parliamentary debate were examined. Here attention is turned to the guises in which the metaphor appears in the Mission Statements and Chairman's Reports of the CRIs for the first three years after their establishment. These also represent important rituals of accountability and of conformity with institutional expectations.

As with the debates in the House, both Mission Statement and Chairman's Report represent key utterances for the organisations, the distillation of views, concerns, aspirations and expectations within the organisation as well as a positioning of the organisation in the face of the expectations and requirements of the institute's environment. They are utterances at the boundary of the organisation and as such are uniquely fitted to give the kinds of perspective appropriate to a study of this kind.

Among the roles of Parliamentary debate is that of setting out the parameters for later interpretation of legislation. Part of the task in this section of the study will be to consider how these parameters are reflected in the narratives of the CRIs, remembering that the debates evinced uncertainty about the appropriateness of the metaphor itself and there seemed to be some ambivalence about the scenarios for behaviour provided by the metaphor.

As in the preceding section, analysis will focus on the patterns of association developed around the metaphor, and any alternative metaphor that may become apparent. This will be largely a matter of considering the kinds of language used – is there much that is drawn from the business world? and of what kind is it? – and the kinds of stories that are being told in the reports. The reports for each CRI will be considered as a group, and then attention will shift to assessment of the ways the metaphor is used and developed across all CRIs, to try to establish whether there are common trends and experiences over the three year period.

As before, consideration will then be given to the persuasive and performative roles of metaphor, followed by assessment of awareness of metaphor amongst the CRIs' Chairmen.

The nine CRIs are:

Horticulture and Food Research Institute of New Zealand
Institute of Environmental Science and Research Ltd.
Institute of Geological and Nuclear Sciences Ltd.
Industrial Research Limited
Landcare Research New Zealand Limited-Manaaki Whenua
National Institute of Water and Atmospheric Research Ltd., NIWA—Taihoro Nukurangi
New Zealand Forest Research Institute Ltd.
Pastoral Agriculture Research Institute Ltd., New Zealand
The New Zealand Institute for Crop and Food Research Ltd.

Patterns of Association

The three groups of associations that stood out in debates on the Crown Research Institutes Bill were those of the science dividend, professional consultancies or partnership and infrastructure with the lean, mean organisation also present. Two negative associations, *not a bureaucracy* and *not a normal business*, also occurred.

Science Dividend

In the reports of the nine Crown Research Institutes studied²², the science dividend association is notable for its absence. There is no specific reference to a science dividend, by any of the reporting Chairmen. More general references to benefits to New Zealand occur more frequently, as for instance in GNS92/93, where the idea is present in the Mission Statement: “undertaking world class research that maximises the benefit of its science output to the people of New Zealand”. It is reiterated later in the same report, in a comment that the long-term objective of the CRI must be to maximise the scientific outputs of the business from the resources, both financial and human, that are available, and to ensure that the benefits of this research accrue to New Zealand. In the 1993 report the focus shifts to maximising both the benefit to New Zealand and the return on shareholders’ investment. The shift is significant, as it acknowledges a dual objective. The same language is used for both, although they are quite different in kind. Similar words are used in the 1994 report, but where the 1993 report joined the two objectives with ‘and’,

²² See Appendix 1 for abbreviations used in this section and for a description of the way in which the CRIs were made up. Only 9 CRIs remain. The tenth, the New Zealand Institute for Social Research and Development Ltd, was wound up after the first year.

making them equivalent, by 1994 the conjunction has changed to 'while' ('benefit to New Zealand while maximising return on shareholder investment'), and the science return has become subordinate. In all three reports it was noted that any such return will be in the long-term, so that strategic planning was essential. The strong future emphasis is underlined by the repetition in the two later reports of the Institute's recognition "of the importance of its research to the economic future of New Zealand". (GNS 93/94, 94/95).

For Crop & Food it seemed in 1992 that the objective of the shareholder was that "opportunities be created for science to contribute to the well-being of New Zealand in general and our clients in particular". The 1993 report took a more specific attitude to the benefits New Zealand received from science, arguing that its work had added value to the private sector and "contributed to the well-being of the industries that Crop & Food serves."²³

AgResearch demonstrates an intriguing development in its understanding of its role over the three years reviewed here. The 1992 report contains a Mission Statement and statement of goals, neither of which makes explicit reference to benefits to New Zealand. By 1993, a business purpose has been added: "Agriculture Research develops, accesses and manages intellectual property based on pastoral sciences and biotechnologies for the benefit of New Zealand". The Mission and Business Purpose Statements are retained in 1994, and are further supported by the vision statement "To enhance New Zealand's international competitiveness through innovation in pastoral sciences and technologies".

These statements are attempts to clarify the ways in which AgResearch contributes to the well-being of New Zealand, identifying the sectors it works in, the tasks and the particular resource in the business purpose statement, and the specific way in which these will benefit New Zealand in the statement of vision. The choice of terms under the business purpose suggests care was taken to avoid any implication of activity on AgResearch's own behalf, rather there are strong suggestions of two other roles – collaboration and infrastructure.

For the NZFRI the aim is much simpler, the pursuit of excellence, albeit in a number of tasks, for the benefit of New Zealand. Those tasks include research, innovation and transfer, in the sector forestry and forest products. The manner in which any of this will benefit New Zealand is left undefined.

The potential benefits to New Zealand are hinted at only in the reports of IRL, in statements such as "The fundamental importance of science and industry research to the economic development

²³ The echoes of the infrastructure association here are picked up again later in this same report as in that of the full year.

of the countries of South East Asia [was] highlighted during the New Zealand Science and Technology Ministerial Mission and South East Asia in April 1993, (IRL 92/93) or suggestions in the 93/94 report that innovation will help maintain overall competitiveness. They are not however linked to any specific assertion that such activity will be of benefit to New Zealand as a whole, although the industrial sector may benefit.

LCR-MW presents a highly differentiated view of its purpose, through Mission Statements, through changes to its name and through the development of a 'Guiding Philosophy'. Nowhere is the explicit link to benefit to New Zealand made. Rather, as with AgResearch, the links remain implicit. The new name chosen for this CRI, 'Manaaki Whenua' "clearly identifies our purpose of linking excellence in environmental sciences with recognition of the cultural and spiritual significance of land to all New Zealanders both Maori and Pakeha" (MW 92/93).

The breadth of this linkage is explained more fully in the fall year, with the elevation of the phrase "Manaaki Whenua – Manaaki Tangata" and a "fundamental ethos" for the CRI: its role in the task of balancing land against people is seen as providing the "baseline information against which changes can be measured". Maintaining indigenous ecosystems and primary production systems is vital to our social, cultural and economic property (LCR-MW 93/94).

From these utterances, it would seem that LCR-MW locates itself quite differently in relation to the entity that will benefit from its work than all the other CRIs. It is a mediator and beyond that its role is defined by the meanings of *manaaki* – to cherish, conserve or sustain, in a context where prosperity is recognised as economic, but also as cultural and spiritual in kind. The CRI identifies itself as part of this prosperity, endogenous, rather than exogenous, pushing it forward, as the other CRIs do.

The 'science dividend' was a potential metaphor for the CRI Chairmen. All of them refer in some way to non-payment of a financial dividend to the shareholder – either they "do not recommend" a payment, or "a dividend was not required". Such statements provided potential to contrast the 'science dividend' the government or the nation would receive.

The 'benefit to New Zealand' term derives from the Crown Research Institutes Act 1992 5(a), which sets this out as the primary objective of the CRIs, without further explanation. In most of the occurrences noted here, the benefit is linked if indirectly to economic wellbeing or development, or to competitiveness as an implicit (again) prerequisite for these things. At the two extremes, as it were, are the attempt by GNS to harness accounting language such as "accrue" or maximising the "scientific output" in order to bring two conflicting objectives into

balance, and the choice of Manaaki Whenua to give preference to a language of cherishing and sustaining.²⁴

Partnership (professional practice)

Explicit use of the image of a professional practice to describe aspects of the CRI is limited to the 94/95 report of Manaaki Whenua, in which the Chairman refers to the entity as “a highly respected science research ‘practice’ from which the community seeks advice”. The durability of such practices depended, he noted, on the calibre of their people. The Guiding Philosophy for LCR-MW underlines this with the adoption of the roles of information providers and knowledge brokers. (MW Landcare 93/94, 94/95). For this CRI the image appeared to provide an adequate and appropriate way of describing its role and relationship with external parties: note that it is communities with whom the partners deal, and at the former’s initiative. The 1994/95 AgResearch report alludes to the provision of “professional services to clients”, echoing the LCR-MW description, if only faintly. It is not developed into a major statement of understanding as in the other’s case.

The terms partner and partnership are still very present in the reports, but on a very different basis. Many of the CRIs are portrayed as partners with or collaborators in science and research. The range of possible partners is very wide ranging from research activities overseas to individual clients in New Zealand to whole industry sectors.

IRL for instance takes this idea as the theme for its Mission Statement for the Partners with industry in science “Research and Development”. In 1994/95 this becomes “Innovation for business in a changing world”, but the emphasis on the need for close collaboration remains: “Through research partnerships, Industrial Research assists companies to position themselves at the leading edge of their market; “The fact that we are working in partnership with some of the significant players in the electronics exporting business. To encourage even greater and closer contact with industry in the future, IRL has recently sought to better align its own structure and its main sector foci.” (IRL 94/95). This latter development reflects clearly understandings expressed in the 92/93 report that the aims of the science reforms were to bring the CRIs and industry closer, that there would be better matching of research to needs. (IRL 92/93).

²⁴It is worth noting in this context that in the 94/95 annual report the Chief Executive refers to the *whanau* of LCR-MW.

The earliest report from NZFRI also indicates a perception that the partnership is with industry, rather than with others in the same entity and that the purpose of such joint effort is to meet challenges together. Collaboration with the forestry industry remains a key theme through the two next reports, with more specific emphasis in the later ones on international cooperation and on staff transfers between Institutes and Industry.

Most of the CRIs regard collaboration with other research institutes, including Universities to be central to their survival. Particularly important relations are noted, such as ESR's, 1992/93 collaboration with leading Australian scientists and NIWA's 93/94 Distinguished Visiting Scientist Programme. The willingness of companies to enter into long-term partnerships was felt by NZFRI to be one of the immediate positive spinoffs of the new regime (NZFRI 92/93) while LCR-MW argued in 93/94 that "effective coordinated research will, in our view increase science output and realise the full potential of environmental research". For HortResearch in 1992 such cooperation was perceived to be the only way of making progress in a particularly difficult area – while for Crop & Food they are part of solving problems for clients through the application of research to the problems that clients face. This is at a far remove from the provision of partnership expertise on a consultancy basis at a relatively high level of problem definition, as the partnerships are said to depend upon "timely cost-effective research which has measurable effects." (Crop & Food 94/95). Later in the same report however the Chair of Crop & Food argued that New Zealand business people were beginning to recognise that to be effective such research must take time and cannot yield overnight success (Crop & Food 94/95). For HortResearch the relationship seems to be a symbiotic one; as the 93/94 report suggests, the CRI must grow if the host industry is to grow. In the full year it is suggested that such growth will rely on two-way cooperation and communication.

The two ways of thinking about partnerships have quite different consequences for science and for conceiving the entities within which science will be done. At times it becomes a little uncertain who is client and who the initiator.

NIWA after its restructuring represented a rather different model in which the emphasis lay on fostering wide-ranging and flexible collaboration across disciplines within the entity. There is little evidence that this approach is linked to any perception of the CRI as a professional practice, as for LCR-MW, or as a partner with industry, as with IRL and HortResearch. (NIWA 94/95).

Infrastructure

Much of the discussion of partnership – collaboration - is also closely allied to perceptions that the work carried out by the CRIs would underpin export growth (Crop & Food 93/94) or industries (Crop & Food 94/95) or provide support for international competitiveness (HortResearch). AgResearch expresses its mission as the provision of “innovative solutions and opportunities”²⁵ to the industries deriving from pastoral livestock. (AgResearch 92/93 and ff.).

All of these suggest that the work of the CRIs is more in the nature of infrastructure, a precursor, a necessary underlying condition for commercial activity. The emphasis placed by AgResearch on maintaining core competencies and enhancing capability in 92/93 indicates that capacity is at least as important an issue for the CRI as the actual completion of research programmes. The issue disappears in 93/94, under a flood of financial information, to resurface in a slightly different form in 94/95, as concern with the need to leverage our science capabilities, maximising intellectual property opportunities and business and client management skills. The upgrading of staff is an essential component in enhancing our capability in these areas. The focus has narrowed to ensuring that the entity’s capacity to further its own ends rather than acting for the broader benefit of the nation. The latter is still present in Mission Statements, etc, but within the text of the reports the concern with survival of the organisation also becomes apparent.

ESR is more explicit: “Of critical importance to the Institute and as part of the public health restructuring, ESR is working on our national health clients, the Ministry of Health and the Public Health Commission, to define the national capability required to be maintained in science services for the health sector. Clarification of these requirements will ensure that the essential core of high level expertise necessary to respond to issues as they arise is maintained and that the long term service specifications are established and acted upon.” [ESR 93/94]

For NIWA, GNS and LCR-MW (all entities focused on the natural environment), the task is presented as provision of a scientific basis for other activity. Thus GNS 92/93 is said “to conduct research and development services which provide a scientific base for everything from location and effective management of mineral and energy resources to application of nuclear sciences to the needs of other sciences, industry, the environment and health. (GNS 92/93). NIWA gives the issue central importance, by placing it in its Mission Statement “providing a scientific basis for the sustainable management of New Zealand’s atmospheric marine and freshwater systems and

²⁵ From 94/95 the words ‘and profitable’ are added.

association resources. LCR-MW makes reference, as noted earlier, to the importance of baseline data against which to assess the possible consequences of new or different uses of land (LCR-MW 93/94).

In that same report however, the Chairman argues strongly the case for supporting fundamental research, and work on environmental protection “as well as that which leads directly to economic growth”. This is consistent with the intention of the CRI itself to focus on strategic and applied research at a policy orientation. We will support this with basic research that provides high quality information and fundamental knowledge on the current state of our resources and on environmental processes and research. (LCR -MW 93/94 Guiding Philosophy).

This concern with a scientific basis of a slightly different kind is reflected in the 93/94 and 94/95 reports from IRL. Two facets of the basis that are emphasised are the long term nature of such research and the fact that increased understanding may be an important precursor for finding actual productive applications.

Thus a number of different ideas attach to the metaphor of infrastructure. They range from the most predictable, underpinning of technology industries, through the idea of essential capability and capacity to the more complex provision of a scientific base. Two at least of the CRIs perceive their task to be the provision of scientific infrastructure to other scientists, providing them with material for further developmental work. For all of these associations, the idea of partnership, or of collaboration is also present, whether it be with industries, clients or other scientists. Equally important is that these roles are conceived to be for the long-term.

The three sets of associations discussed here prove to be central elements in the CRIs’ presentation of themselves in the Mission Statements and Chairman’s Reports from 92-95. They are not the only ones that are used, although they prove to be important aids to understanding how the CRIs understanding of their roles develop.

The metaphor of business, which was of such minor importance during the debates discussed in the previous chapter, reemerges in these reports, in a variety of guises.

The metaphor of business

In the previous chapter two elements of association were identified that may serve to delimit the range of occurrences of the metaphor of business in the annual reports. They were the idea “not a normal business” and “not a bureaucracy”. That is, at the very least the CRIs may use association of bureaucracy as a contrast with their new situation. On the other hand normal

business may provide some outer limit on the other side, given also that the science dividend image served to indicate the continuance of some form of public good purpose for the CRIs .

The latter, ‘a normal business’, proves to be a significant orientation point for only one of the new entities. As was noted earlier, GNS’s Chairman noted in two reports (93/94 and 94/95) that management faced a number of demands that were “not common in a normal business environment”, demands that arose from the actual processes of managing science and its transfer to industry.

LCR-MW’s Chairman implies a difference from normal business in the 94-95 comment that the CRI’s principal business is not trading in commodities but producing quality research on land resources. This reflects clearly the understanding expressed in the first Chairman’s report that “Landcare Research is an independent, environmental research organisation that focuses on sustainable management of land. As well as understanding fundamental issues such as managing natural eco-systems and preserving bio-diversity, we also address economic, social and cultural implications of using land-based resources.” The emphasis on understanding the fundamental nature of the questions addressed and the broad basis of its inquiries, forms a clear contrast to any concept of normal business. At the same time however, the Chairman comments that “the discipline and rigour demanded by science has been equally essential to establishing our company as a sound commercial entity”. (LCR-MW 92/93). The two statements together encapsulated the problematic highlighted by the association “not a normal business” but here it is not acknowledged in any direct way.

While a similar implication of difference from normal business is present in the IRL 94/95 report’s discussion of the problems associated with achieving an appropriate balance between fundamental and commercially applicable science, the more specific conclusion is not drawn.

Integration, it is clear also from the reports, was not a problem for IRL only. NIWA’s Chairman moves from discussion of an “understanding of our business” to “better understanding of our company and our markets in 93/94 to depiction of NIWA as a commercial science enterprise” and a “commercial science business in 1994/95 from achieving a better focus on its business” (that is on the range of tasks required). In 92/93 the directorate has moved to seeing close project management as a key to control over the business – that is, the entity *per se*.

For ESR the issue was one of integrating “modern business philosophic with a culture of scientific excellence.” (ESR 92/93) That such integration was not easily achieved can be inferred from the decision to change the Institute name, to reflect a more business like approach. (ESR

93/94) Unfortunately, no further discussion of what such an approach might include is given. On the continuum between ‘normal business’ and ‘not a bureaucracy’ lie a number of other statements about the CRIs and business that are suggestive of understandings and that may also be of relevance to the later consideration of the recognition of metaphor.

A number of the reports make reference to “the business” or “a business of this kind”. Crop & Food 93/94 for instance refers to “a business where the most important part of our capital is people” – in the following year it is asserted that “A business of this nature can only succeed – the extent that we are prepared and able to meet the needs of our customers both in the private and public sector”. It is also noted that it is becoming a “trans-Tasman business”. ESR, which elsewhere has used the business terminology in terms of activity, also exhibits, in the 94/95 report, a perception of itself as a business: “While the business continues to face major competitive threats, the Board expects to achieve improved levels of profitability in the coming year as the Institute begins to see increases in revenue from new services and clients and further productivity gains in many areas of its business.”

Others more consistently refer to the entities as “the company”, so for instance, HortResearch and IRL in all three reports. This focus on the specific legal status of the entities permits a more differentiated view of the tasks and roles they have – IRL’s reports are particularly noteworthy for their balancing of science and business concerns. HortResearch tends to be more concerned with the robustness and viability of the company, the efficiency and effectiveness with which it is run and its prospects in tandem with the industry.

Several of the reports also make reference to a shift to a commercial environment (Crop & Food 93/94, HortResearch 93/94). NZFRI 92/93 includes reference to the business and culture transition required to operate successfully as a research-based company. This shift is marked still further by the references to intellectual property (eg. NZFRI 93/94, AgResearch 93/94) which confer the status of tradable commodity governed by private property rights on the work performed within the CRI. Repeated references to competitive markets (eg ESR 93/94), 94/95, NIWA 93/94, LCR-MW 93/94) have a similar effect. By implication, the idea of a shift rejects the previous regime, the bureaucracy, without naming it the bureaucracy.

The demarcation between the old and the new contexts is by and large subtle and elliptical. That a transfer from the one to the other has taken place is very clear in all the reports. What is also clear is the major change in thinking that is required of all who have been involved. Image is perhaps best seen as always present in the background, as a necessary contrast to the new regime.

Such a change in thinking is very likely to need metaphor as a vital part of the search for understanding a reassurance and as a source of ideas of how to behave. From the analysis of reports thus far it would seem that while there are limits and flickers of the presence of metaphor, no dominant image, or pattern of associations emerges, rather a very fragmented picture can be deciphered, which, if nothing else, reflects the very real uncertainty surrounding the establishment of the CRIs, and the very different environments and challenges each of them faced.

In the case of the reports, no single association emerges as a proxy for the metaphor of business. As was noted, the association that so dominated Parliament's deliberation over the Bill is singularly absent. The potential alternatives identified in the previous chapter, such as partnerships or infrastructure, are used, but only by some of the CRIs and not in any way that provides a coherent basis for either persuasion or performance. (LCR-MW is perhaps an exception here.)

Attempts are nonetheless made to construct some kind of story or image, as was seen from the development of NIWA's new 'article of faith', LCR-MW's development of an extensive guiding philosophy and to AgResearch's ongoing search for adequate expressions of its role to name the most obvious ones. The common element in all of them is the problems faced in combining research culture with commercial practice. The disjunction, the conflict that was so apparent in the science dividend metaphor has not dissipated, but the absence of any dominant metaphor suggests that the CRIs have not received any clear signal about their role and purpose.

It may be argued that the CRIs needed to differentiate themselves in the new institutes environment, both from each other and from their former status. Certainly each organisation needed to develop its own culture and processes. That they all came into being under one overarching statute nevertheless indicates a commonality of purpose for which a single metaphor could have been found.

It is perhaps useful at this point to recall the question, put by an opposing member on the science dividend, as to how any science dividend might be measured. What is sought is some indication of performance, not so much in the sense of activity, but of achievement. The reports make repeated reference to the kinds of performance that represent success and they in turn represent a possible source of metaphors for thinking about, framing the problematic nature of the CRIs. That said however, no consistent picture emerges of definitive ways of measuring success. Even within CRIs, the balance of emphasis on science, commercial measures, or other matters, may

shift markedly. For some entities, establishing adequate structures came to be such a dominant concern that much of the report is devoted to the issue, as was the case with NIWA.

AgResearch in each of its three reports gives quite a different view of the entity, with the broad overview given in 92/93 narrowing to a purely financial one in 93/94 and widening to include scientific excellence and relevance and the need for strategic repositioning in 94/95. Even so, the 94/95 report gives significant space to individual financial items.

The diverse descriptions of success cluster around financial measures and scientific indicators. The financial measures include both profit and comparison of actual with budgeted results. The former, along with analysis of the sourcing of revenue is an indicator of success in appealing to commercial markets and spawning commercial products; the latter relates to the fulfillment of contracts and perhaps more importantly, success in obtaining PGSF or NSOF grants. Comments on the latter frequently include suggestions that improving levels of grant funding are an indicator of the quality of bids or the quality of the science they represent. (eg ESR 93/94, IRL 93/94, HortResearch 94/95, NZFRI in all three years, NIWA 94/95).

Quality of science, or excellence in science, proves to be a key indicator for the other element of success. It is indicated by recognition of the standard of the work done: world class, world leadership. Thus ESR aims for world leadership, GNS aim for world class science, AgResearch aims for excellence and relevance to clients, LCR-MW intends to provide quality science (93/94) and for HortResearch it is becoming a “fundamental premise”. Less emphasis is placed on the concrete measures or indicators for such excellence: number of papers published and the extent of collaboration offered to the Institute (eg. HortResearch, ESR 93/94, NZFRI 94/95). Again, the quality of the work done is affirmed by the funding from the PGSF (IRL 93/94, ESR 93/94, NZFRI all years, IRL 93/94). The funding process and the ability to generate business combine as key indicators of success.

Crop & Food indicates at the outset of its 94/95 report that cultural measure might also be relevant, but the issue is nowhere developed. GNS (93/94) hints that sensitivity to communities’ interests may be of relevance to it, but again without giving any more definite means of assessment. LCR-MW comes closest with its philosophy of cherishing and sustainability and its recognition of the cultural attachment of peoples to land. Within the Chairman’s Reports however, there are no suggestions of how success in the area might be assessed.

Progress towards objectives is another way of seeing this issue of success. For AgResearch it proves to be an important theme but repeated in different ways in each report; so that the picture

of progress is somewhat blurred – the aim in 92/93 of being “an outward looking, market-aligned research organisation” is stricter by 94/95 to development “as a financially viable organisation”. IRL 92/93 reported significant scientific progress – in 94/95 progress was about achieving strategies. LCR-MW recorded progress in developing its major resource, the capacities of its staff in 94/95, whereas in 93/94 the focus was on ‘consistent progress in delivering quality ... science.’ The progress indicator tends to focus on the intermediate, the processual and the becoming, all of which emphasises the time-scale on which many projects must be conducted. The Crop & Food comment (94/95) that success cannot be overnight as well as the IRL (93/94) argument about necessary lead times noted earlier are important reminders that the phases for reporting for scientific, financial and accountancy purposes may be out of synch.

Another important element in the picture of success must be the ordering of the annual reports and the overall balance between research, financial and envisioning aspects. As was noted above, one AgResearch (93/94) is totally dominated by financial information. Most reports strive for a balance between all three, with IRL’s reports doing so most explicitly. In 92/93 IRL links the two equally, early in the report, financial information takes a back seat to more general concerns in 93/94, and in 94/95 it is subordinate to science information; “while the past year has been successful for Industrial Research Limited (IRL) in terms of its commercial revenue, I am pleased to note that it has also been highly successful in terms of its science output...” as measured by papers submitted for publication. The construction of the sentence clearly asserts the seniority of science output. The reports by NIWA handle the matter by giving financial information along with other measures in tabular form, as well as giving discussion, whereas LCR-MW almost totally ignores financial information. Priority of financial information over reporting on research is given by NIWA 93/94 and 94/95, Ag- Research in all years, GNS in all years, Crop & Food in 93/94 and 94/95 and NZFRI in 92/93 and 93/94 (almost 94/95). Financial information comes at the end of the reports from ESR in all three years. Finally HortResearch reports take a very integrated approach, with financial information included as part of a general section on achievements, and in second place to research, and in 94/95 to related information in gaining PGSF funding. That said however, the 93/94 report gives more space to financial than to research matters and the 94/95 report includes only financial information under the heading ‘Performance’.

Over and above the specific research and financial commentary, the reports, as might be expected, concentrate on what were called the envisioning aspects – the manner in which each

entity is being fitted to face the environments in which it operates. While collaboration with other research entities, national and international, is an important element in this process, the most significant is that of fit with commercial sectors. The restructuring of AgResearch and of NIWA was undertaken to this end, and HortResearch established Link Teams within the entity to facilitate relations with the private sector. NZFRI undertook development of business and communication skills to this end. GNS and LCR-MW are exceptions to this process, retaining structures that focus on areas of expertise on the basis of science disciplines. LCR-MW 94/95 notes specifically that “the organisation has a structure that encourages (the production of quality research on land resources) and accommodates the entire range of specialist teams and specialist equipment.

Interim Summary

From this lengthy explanation of the Chairman’s reports for the nine CRIs over the last three years of operation it has become clear that the uncertainty about their nature and role is the major legacy of the established process. The grounds for such assessment are to be found as much in the absence of any coherent metaphor that is employed across the Institutes as in the presence of conflicting stories.

The closest that any of the CRIs come to an integrated perception of its role is LCR-MW’s description of itself as a professional practice. In all other respects also, LCR-MW is the farthest removed from use of associations with the business metaphor. Its reports are directed to staff as much as to outside users.

NIWA represents a much more complex case, as it appears to take an approach similar to that of LCR-MW, an approach grounded in research and sustainability and expressed in its slogan *Taihoru Nukurangi* – “Where the water meets the sky”. It is a slogan that emphasises in one image the combination of disciplines to be found in NIWA, and a focus on the far horizon. In its overall concerns and language use however it exhibits much greater involvement with the business models.

AgResearch, it was noted, showed through its accretion of goals, objectives and visions, a very real uncertainty about its position, an uncertainty reflected still further in the shifts in the focus of the Chairman’s reports discussed just above. GNS on the other hand produced reports that differed very little in format from year to year, and that show repetition of whole sentences and

paragraphs from one year to the next---this suggests that the report is not seen as of particular importance²⁶.

The science dividend image that was of such importance as a proxy for the business metaphor in the debates is used nowhere in the Chairmen's reports. No other proxy emerges as equally significant. Of the two alternatives, partnership and infrastructure, the latter makes an occasional appearance, but not in any way that constitutes a framing metaphor. The partnership metaphor, which was used in the Parliamentary debates as an alternative to the general business metaphor, becomes in the CRIs a quite different idea: the partnership is seen as with industry sectors or other entities, as a partnership endeavour, rather than as members of a professional practice (the exception here being of course LCR-MW).

The term business is used quite widely: consideration of just what such usage might signify will be held over to discussion of the recognition of metaphor.

The exploration of ideas of success or measure of performance did not yield any clear metaphor either. Instead, it tended to reinforce the picture of uncertainty in the face of conflicting objectives, with some slight tendency towards financial over scientific information.

One of the motivating ideas of this study has been the centrality of metaphor to processes of thinking and understanding, of framing problems and of providing contents for developing understanding. The absence of framing metaphors in a context in which there is such a clear need for them, as evidenced by the search for adequate slogans and Mission Statements if nothing else, indicates more starkly than anything else the difficulties faced by the CRIs in establishing themselves on the foundation of the Crown Research Institute Act.

The consequences of such an aporia for the two roles filled by metaphor in social contexts of this kind – persuading and providing scenarios for behaviour – are likely to be equally profound.

Persuasive role

One of the key questions to consider here is who must be persuaded. In the context of annual reporting, which is the context here, such persuasion is generally directed, at a minimum, at existing and potential shareholders. For the CRIs, the situation is more complex. While the primary addressee of the reports will be the shareholder Ministers, the reports must also aim to persuade potential and future collaborators and clients and staff. Over and above this, the reports

²⁶ I am indebted to Alan MacGregor for this point.

are subject to scrutiny by Parliamentary select committee. (The task of persuasion is thus a multi-faceted one, reflecting the quality of the CRI mandate.)

Perhaps such complexity would make the search for a single metaphor an impossible one. The nature of metaphor however is such that it is ideally suited to complex and even ambiguous contexts. The absence of any coherent metaphor in most cases makes the task of persuasion, of convincing report users of the validity of the year's achievements and experience very difficult. Many of the reports read as fragmented accounts of discussions that are occurring at different levels within and around the organisation. Even those that attempt to take a more holistic view, such as IRL and HortResearch seem to be persuading from a defensive position, rather than one of coherence and strength.

LCR-MW remains an exception to this line of argument. The three reports examined for this study show a clear progression towards adoption of a metaphor and framework of thinking that is understood to be appropriate to the entity and its tasks, and that will permit it to report on its work in a coherent manner.

Metaphor – professional practice -- philosophy and slogan together provide a firm basis for confident reporting. The absence of financial information from the Chairman's reports, and the fact that they are directed as much to staff as to external users suggests that the metaphor provides an integrated framework that resolves the conflict apparent elsewhere in a constructive way. Linked with the idea of *manaaki* – cherish, sustain -- which is used in the entity's name and its slogan, the metaphor of professional practice draws on strong traditions of caring and integrity as a basis from which to explain and interpret.

It may be argued that it is unreasonable to expect the CRIs to settle on one single metaphor as appropriate to all of their experience. There are two ways to counter this point. One is to recognise that their experience proved sufficiently similar to warrant the establishment, in 1992, of a Crown Research Institutes Association as a lobbyist on points of common interest. On this basis, a common metaphor, such as the science dividend, could well have been taken up.

It should also be pointed out that the argument here has not been that there must be a common metaphor, rather that no common metaphor emerges. This acknowledges above all that the business metaphor, even in its saving form of the science dividend, was not able to make the transfer from institutional processes of thinking about establishment to the actual practice of setting organisations up. In addition, it recognises that common experience was not sufficiently powerful to give rise to a single metaphor.

In the absence of any framing metaphor, the task of persuasion becomes more difficult and fragmented, exacerbating still further an already complex shareholder.

Performative role

The performative role of metaphor, it may be recalled, serves to provide scenarios for appropriate behaviour. In the context of large organisation, the most likely context for the usefulness of such scenarios is that of control, of providing stories that help members of the organisation to understand their own roles and the ways in which they should act.

The process recorded in the NIWA reports is clearly of this kind. Both slogans and NIWA *Taihoru Nukurangi* emphasis unity amidst difference, in a seamless way that is reflected in the structuring of the organisation in flexible teams rather than rigid hierarchies. That the process was less straightforward than the LCR-MW one appears to have been is suggested by the abruptness of the shift from 92/93 to the next year and by the instability of the Directorate membership. The acknowledgement in the third report that staff morale had been lifted by the new approach is also indicative of problems within the entity, as is the fact that the report was provided jointly by Chairman and CEO.

The recurrent emphasis in other reports and the importance of staff calibre and creativity to the viability of the CRIs suggests a recognition that staff need to know what represents appropriate behaviour in a CRI as opposed to a bureaucracy or a normal business. This is perhaps one of the most powerful aspects of the metaphor adapted by LCR-MW, that partners in professional practice work from positions of independent expertise, and have responsibilities for the work practice and morale of subordinates or junior partners.

The Mission Statements and slogans of the remaining CRIs are pragmatic statements about self-expectation with the possible exception of IRL's "Partners with business" slogan (which survived only two years before being transferred into "Innovation for business in a changing world"). ESR's "Protecting people and their environment through science" while similarly short and catchy, is still of the pragmatic kind.

The references noted earlier to the transitions that needed to be made during the establishment phase of the CRIs suggest strongly that new scenarios for behaviour were required. The background presence of the image "not bureaucracies" was clearly not adequate in this regard as it closed off possible behaviours without setting out positive new scenarios.

Perhaps the only positive source of scenarios for behaviour is the emphasis on quality and excellence, to a world standard. In trying to establish the new kind of culture seemingly demanded by the change to CRI status, a focus on excellence alone would not seem to provide points of difference from the culture of the former science organisation, which might also have been expected to carry out research of a high standard.

Here too, the general picture remains one of uncertainty in the face of conflicting objectives.

Recognition of metaphor

In the case of the CRIs, the ability to recognise metaphor has two aspects – one, as for the debates in the House, whether those using metaphor recognise it for what it is and avoid mistaking it for statements about actuality. The other, and in the light of the discussion so far probably the more important, is the ability to recognise metaphor at all, and to recognise its usefulness in the kinds of circumstance in which all the nascent CRIs found themselves.

A number of usages of the kind “this CRI is a business” have already been recorded (cf. above p. 60). In these few cases there is no indication that the usage is intended as metaphorical. For one or two users at least therefore it may be said that the potential is there to lose the distance, the critical perspective that may be derived from metaphor.

In the case of one CRI, the point may be made even more strongly – the reports of AgResearch were predominately focused on financial information, which suggests that the mistaking of metaphor for factual utterance had gone beyond the occasional usage to a dominant pattern. If this is so, then the conflict of objectives may have become even more acute and the struggle to find appropriate modes of action more critical.

The second aspect of metaphor recognition is of relevance here, because it seems that in many cases the search for ways of structuring the problematics of “what is a Crown Research Institute” did not include any attempt to find metaphors. It is possible that the process of isomorphic mimesis may have acted as a proxy, but nonetheless it remains surprising that in entities where metaphor is part of the stock-in-trade, so little use was made of it as a means of providing some kind of certainty in a highly uncertain situation. It is of course also possible that using the tried and trusted mode of metaphorical thinking may itself have been seen to be wholly inappropriate in the new, commercialised environment of the CRIs.

In summary then, it may be said that the Chairman's reports from the CRIs in their first three years of operation represent a very diverse picture with respect to metaphor. Some general conclusions may be drawn, such as the overall avoidance of the business metaphor per se, or of any proxy. Perhaps more important is the point just made, that overall little use is made of metaphor as a way of providing frameworks for persuasion or scenarios for behaviour. In fact, the absence of metaphor, except in one or two particular cases, is perhaps the most surprising aspect of the reports.

The conflict between commercial and research mandates is clear to see, a conflict that is reflected in time scales, resources employed and the results of activity. This is perhaps most clearly highlighted in the distinction regularly made between commercial revenue and PGSF funding.

Only in one case, that of LCR-MW, is an alternative metaphor drawn on in any consequential way. The metaphor of a professional practice provides the basis for a persuasive philosophy and for scenarios for behaviour. The interests of those outside the entity and of those who work for it are integrated through the metaphor and its accompanying associations of caring and integrity.

The absence of metaphor suggests two things for the CRIs, one that there was no clear transmission of an institutional metaphor to frame their developing understanding of the roles of the CRIs, and the other, that the business metaphor had become so pervasive as to be taken wholly for granted as a background element as to be unrecognised and unquestioned, that is, it was so entirely mistaken for actuality as to be not worth commenting on. If this is the case, then the CRIs were acting very much in the same way as the citizens of the Emerald City of Oz. Clearly these are two quite contradictory conclusions. The LCR-MW experience suggests that the latter is not wholly the case, as do the few rejections of the statues of 'normal business'. Nonetheless the discussion here does provide some support for both points: the CRIs did begin operations in an institutional framework devoid of any clear framing metaphor that would assist them to resolve the conflicts in their task, and they begin to reach for understandings of their role against a background metaphor of business that went largely unrecognised.

Chapter VI Conclusions

The question central to this study has been “Did the business metaphor provide a constructive framework for the new research organisation?” In trying to answer the question, the study has focussed on the two most symbolic institutional processes involved in the establishment of the Crown Research Institutes, the Parliamentary debates of 1992, and the Chairman’s reports for the 9 Crown Research Institutes for the period July 1992 – June 1995. The question was raised in the context of critiques of the metaphor as part of a cluster including a production metaphor that have had an important role in the New Zealand public sector reforms of the last decade.

The original expectation, that the business metaphor would have a strong presence as persuader and as source of patterns of behaviour was by and large not borne out by analysis of either debates as Chairmen’s reports. In the debates in Parliament the metaphor was ‘saved’ by substitution of a surrogate metaphor, that of a ‘science dividend’, which permitted continued use of the same basic framing metaphor without confronting the conflicts about aims for the new organisations, as would have been necessary if some other framing metaphor had been substituted.

Two such possible alternatives did emerge, but neither was developed to the extent necessary to replace the science dividend/business metaphor as a contextual metaphor, or even to provide a focus for debate on concerns about the efficacy of establishing the Crown Research Institutes as an adapted form of State-Owned Enterprise.

The picture that emerges from the Chairmen’s reports for the first three years of Crown Research Institutes operation is thus, and perhaps understandably, somewhat confused. There seems to be no clear transmission of a framing metaphor from one institutional context to the other, so that each Crown Research Institute engages in its own search for a defining metaphor, with more or less success. The science dividend metaphor, which had the potential in this context to reconcile the contradictory pressures on the Crown Research Institutes, is not taken up at all.

The science dividend metaphor could also have allowed the Crown Research Institutes to depict themselves as part of a broader research effort, and not as separate and independent entities. This may in fact be the key to why it was not used, as the Crown Research Institutes sought to differentiate themselves as part of the scenario “not bureaucracy”. This separatist focus is strengthened by the one metaphor that did apply to several organisations, namely the partnership metaphor. The metaphor is used to characterise new relationships developed with particular

sectoral interests. The overarching role of Crown Research Institutes as custodians of research to the benefit of New Zealand was later taken up by a new player in the institutional field, the Association of Crown Research Institutes. The metaphor is in clear contrast to the professional practice metaphor employed by LCR-MW, which includes an association of ‘partners’ as members of a practice.

All of these points raise intriguing consequences for accounting and indeed for accountancy. It remains very unclear just how success is to be understood for these entities, and more broadly still, just how “benefit to New Zealand” might be assessed. A science dividend (like the peace dividend of the Post Cold-War period) should be detectable through a shift in the use of resources in the economy, if not immediately to new products, at least to increased Research and Development activity. Such shifts would be attributable in many cases only to the Crown Research Institutes as a group.

Another indicator, more clearly related to individual Crown Research Institutes, could be the increased value added to commodities or the increased range of products available. Such indicators may not themselves represent the kind of science dividend sought by the legislators - namely an overall increase in benefit – it may represent a shift of focus within the Research and Development community from long term strategic to short term applied and developmental work. Of itself, the CRIs regime does not assist with assessments of success.

At the level of individual entities, the absence of any clear concept of success creates a vacuum, or at least a default to criteria of financial viability and profitability, as the commonly used measures for entities with the legal status of company. There is then the potential to strongly prejudice accounting information over other kinds as the main interpreter of the organisation by default. Such a position is likely to be very problematic, for reasons that are well known, most obviously because of the distinction between accounting periodisation and the long period before completion of many projects, and because much of the resource base does not and cannot appear in the balance sheet. As far as accounting and accountancy are concerned the Crown Research Institutes represent a significant challenge to the systems established under the Public Finance Act 1989 and the Crown Research Institutes Act 1992, a challenge that does not seem to have been mitigated by framing of the problem by an appropriate metaphor.

Whether the metaphor of business was appropriate in the context of establishment of the Crown Research Institutes seems at best moot, at worst very dubious. That there is no outright rejection despite real doubts about it seems to have been the result of commitment on both sides of the

House (third parties excepted!) to the broad framework of State Sector reform discussed in the introduction to the study. Neither at that level, nor at this more specific one, is there any question of appropriateness, despite the clear uncertainty about the extent of the metaphor's applicability.

It could be argued that once established under the Act, the Crown Research Institutes simply had to make the best they could of the situation, and that they were in no position to make large scale changes. While that is certainly so, their newly independent status made it far more possible to define their own problematic, as the case of LCR-MW once again demonstrates.

While no clear evidence can be found of transmission of a metaphor from one institutional setting to the other, the overarching metaphor's presence remains as part of the wider context of public sector reform. Considered in this light, the findings of the study suggest a rather different set of conclusions.

If the metaphor of business is omnipresent, as it were, part of the context, then it would seem that it had become taken for granted, part of public sector mythology. This would explain the absence of any consequential search for framing metaphors that was so apparent for many of the CRIs, and the absence of definitive indicators of success.

Having been 'saved' by its surrogate, the science dividend metaphor, during the Parliamentary process, the business metaphor remains as an unquestioned background to the endeavours of the new CRIs. Being unquestioned, its boundaries became undefined, and there is the real possibility that the new entities were unable to distinguish desirable from undesirable elements in the manner identified by Schachter [1997].

Above all however, the unquestioned status of the business metaphor means that it loses any potential it may have had to stimulate creative and constructive thinking about the CRIs. Their legal status merges with the metaphor, which then becomes a straitjacket, rather than a source of propositions about the organisations. There is no longer any space for additional metaphors that could reflect different aspects of organisational realities.

The consequences for the CRIs of this interpretation would be that the language of business would come to predominate over that of science at the "core interpretive scheme" [Erenstrom 1999, p. 13], and that its measures would be those of success, almost by default. Given the quite different time frames on which accounting and science often operate, this would give rise to real concerns about which activity drives the programmes of the CRIs, and in the long term, about their capacity to do science that benefits anyone outside a narrow range of clients.

Future research may therefore focus on the relative importance of accounting information in decision-making within CRIs, at the Board level and also at the level of programme leaders. The role of FRST as funder may also be examined here, as it may act as mediator against any such predominance of accounting information. It may also act to reinforce that predominance, depending on the nature of the context it establishes through narratives around the funding process.

What the study suggests above all is that with the Crown Research Institutes, the metaphor of business was reaching the limits of appropriateness.

There is a number of directions that future research in the area could take. The most obvious is that alluded to above, namely analysis of policy and working papers and speeches, to bring in other levels of organisation experience to provide a broader cross-sectional view of the establishment phase. Given the suggestion that some doubt seems to have been cast on the choice of policy instrument, examination of processes of policy development could aim especially at finding out whether those involved showed explicit awareness of the presence of metaphor. The Chairmen's reports and the parliamentary debates together represent part of the broader accountability framework within which the Crown Research Institutes operate. This study forms the basis for careful interrogation of that framework, to explore the roles that accounting information may play in ensuring that the Crown Research Institutes, now outside the core State Sector, continue to be held to account. More detailed studies of individual Crown Research Institutes, that examine whether intra-organisational metaphors develop, could also be undertaken, with the aim in particular of establishing whether such development is prompted by shifts in environment or personnel, or as part of an ongoing approach to developing a coherent talk environment. Another possibility for building directly on the work undertaken here is to explore whether the disjunction, the conflicts of objectives, observed through this study of metaphor impinge in specific ways on control systems within the organisations, or whether, in the case of LCR-MW, the metaphor chosen acts as an integrative mechanism even at lower levels of organisation control.

The study is limited by its focus on the debates and chairman's reports to the extent that they represent the apex of much debate and experience at other levels. (They are highly formalised records.) For all that, they have a strongly representative function that highlights the most pressing concerns of those participating.

A further limitation is that which must attach to all studies of this kind, that it is dependent on the expectations and interpretation of the writer. Anecdotal evidence of behaviour and perceptions that have developed within the Crown Research Institutes does tend to validate the conclusions drawn here.

Further study of a wider range of documents, and drawing on the experience of others through interviews would allow for some triangulation. At this point it is perhaps appropriate to note the experience of hospitals, which underwent transformation under the accounting of legislation predicated on the same basis as the Crown Research Institutes Act that is, the Health and Disability Services Act 1993. That Act was amended in 1995 explicitly to remove the designation 'Crown Health Enterprise' that had been applied to hospitals (Health and Disability Services Amendment Act 1998 S3). Subsequent amendment in 2000 will remove other parts of the institutional superstructure that were parallel to the FRST/MRST split.

This study of the manner in which a particular metaphor was implicated in the establishment of a new element of the institutional framework for science in New Zealand is not easily generalisable. Nonetheless it does provide a reminder that metaphors are frequently part of such processes of change. Their presence may be taken for granted, they may be interpreted as statements of literal fact, they may be hedged about in such a way as to make them seem harmless, but they infiltrate thinking and behaviour all the same.

If nothing else, this study argues that awareness of the metaphors in use is critical to ensuring that intended outcomes have some chance of occurring, and that dysfunctional behaviour is not sanctioned by default.

The study makes no value judgement about the metaphor that was an essential part of the New Zealand public management reforms. Rather, it argues that as the reforms proceeded, the metaphor of business increasingly became part of the problematic itself, in part because of its very importance to them and in part because any conscious and coherent interpretation that had adhered to it became silted over. As it was brought to bear on more complex areas of the public sector, at the very boundaries between public and private, and as the political spectrum shifted, the metaphor itself became part of the debate, only to be rescued by the evolution of a proxy metaphor of much narrower scope.

For entities such as the CRIs, situated at the boundaries between sectors and in task and environmental contexts characterised by high uncertainty, the consequences of the handling of the metaphor of business as interpreted here are that it does not seem likely to have provided a

sufficiently complex and critical rhetoric to have been constructive for thinking and acting in the longer term.

As no strong alternative metaphor arose out of the institutional processes themselves, the potential of metaphor to contribute constructively was restricted.

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Appendix 1

Crown Research Institutes

AgResearch Pastoral Agriculture Research Institute Ltd., New Zealand

Crop & Food The New Zealand Institute for Crop and Food Research Ltd.

HortResearch Horticulture and Food Research Institute of New Zealand

ESR Institute of Environmental Science and Research Ltd.

GNS Institute of Geological and Nuclear Sciences Ltd.

IRL Industrial Research Limited

LCR-MW Landcare Research New Zealand Limited-Manaaki Whenua

NIWA National Institute of Water and Atmospheric Research Ltd., NIWA—Taihoro Nukurangi

NZFRI New Zealand Forest Research Institute td.

Appendix II

From: Pearce, A.: Contracting in the science sector: a research provider's view. **Public Sector** 18, 4, 1995, p 11.

Appendix III

In this appendix are contained copies of the Second Reading debate on the Crown Research Institutes Bill, 4 June, 1992, the Chairman's reports for Landcare Research---Manaaki Whenua for each of the years discussed in the study (and the CRIs Guiding Philosophy), and selected reports from each of the other CRIs.