

POETRY-MAKING AND POLICY-MAKING

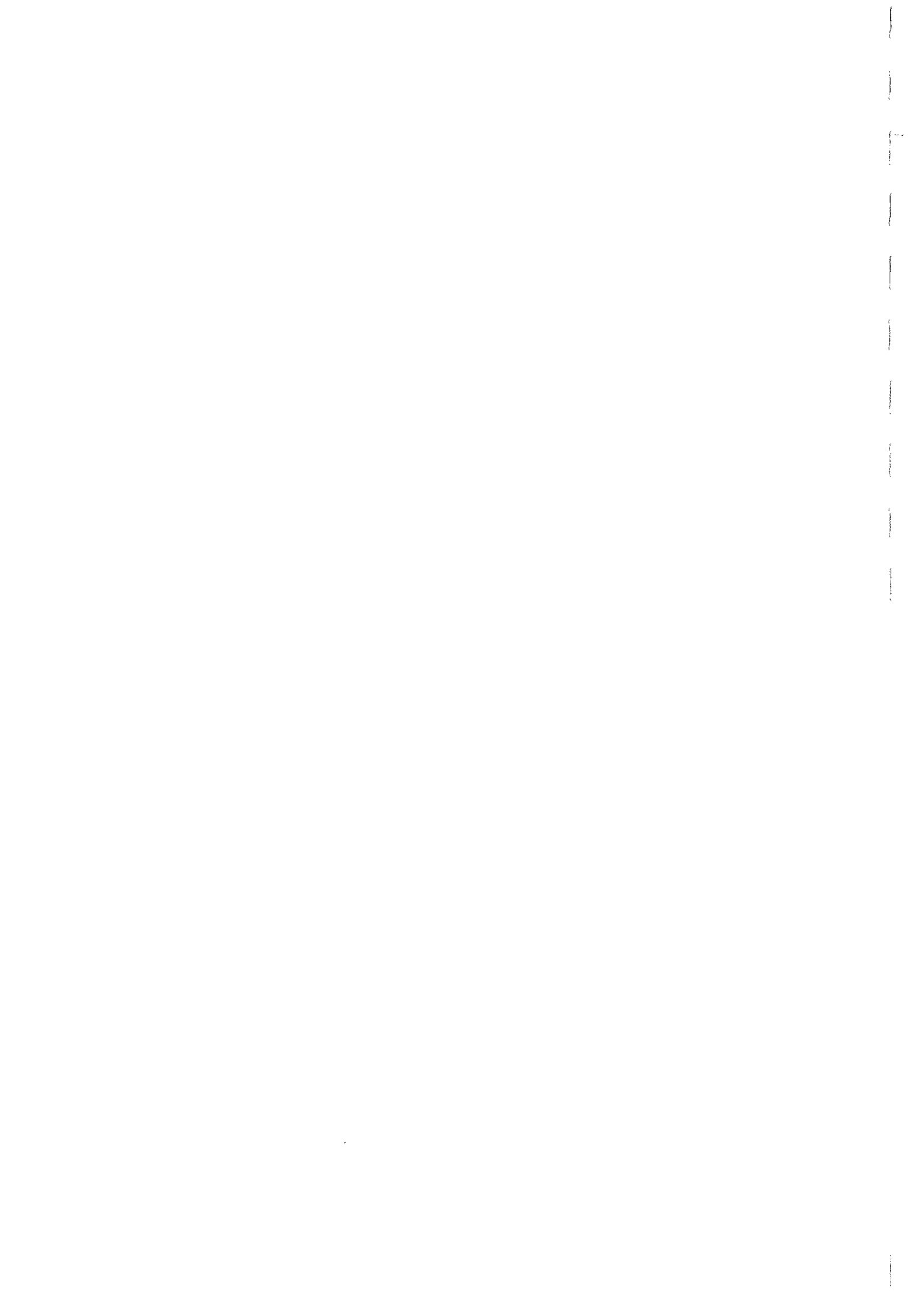
PART I

Possibilities of a Marriage between Beauty and the Beast

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1. MARRIAGE PROSPECTS

The theme here is the future relationship between poetry (including rhythm) and policy making (including management) in their various forms. This might even include the possible role of technology in reconciling them in more meaningful and fruitful ways. Exploring the relationship between such seemingly opposed concerns calls for continuing dialogue between imaginative musing and the constraints of experience.

(a) Similarities between poetry-making and policy-making

There are few useful guidelines for such dialogue. There are however many who would declare it to be impossible, meaningless, or even destructive of the principles that such disciplines respectively embody. Such people have had many opportunities to make their point and by so doing may well have imposed unfortunate constraints on the emergence of new approaches to meaningful social organization. As ever, we are faced with the challenge of facilitating a marriage between the Sleeping Beauty and the Raging Beast -- however inappropriate such a marriage may appear.

In their own ways, both poetry and policy-making are uniquely concerned with transformation in the present moment -- namely with the transformative moment that patterns the subsequent flow of experience. For poetry, the focus is on the transformation of the aesthetic experience through imagination, with all that implies for the emergence of novel, subtle and complex forms of understanding and coherence. In the world of policy-making, it is the transformation of power relationships and the use of collective energy, namely the emergence of novel forms of social coherence in practice. In this sense policy-making may be understood as the shadow of poetry. In such an encounter between Quality and Quantity, both are however "manipulative" of meaning in the best and worst senses.

There is another similarity in that both are also "unprincipled" in the best and worst senses of the term. Both are prepared to sacrifice much, using whatever resources seem appropriate, in order to achieve this transformative process. In this respect both endeavour to break through or transcend conventional patterns that constrain the emergence of the new as noted by information scientist Kathleen Forsythe (1987), herself a poet. For management, the "bottom line" may be "getting things done", often with an objective limited to profit. For poetry it is associated with some sense of "getting it right" or "goodness of fit", whether or not the relevance is purely whimsical for many.

(b) Viability of a marriage

If marriage can be used as one metaphor in looking for a new relationship between poetry and management, then there is need to reflect the spectrum of understandings of marriage at the end of the 20th century. The appropriateness of arranged marriages in certain cultures should not be forgotten. Whilst the aesthetic dimensions of marriage remain as subjectively important as ever, if not more important, the brutal reality of unfulfilling relationships must also be objectively acknowledged. There is a need for a high degree of frankness about the weaknesses of both management and of poetry as prospective partners in a future relationship capable of sustaining its own magic. And, as with marriage, there is a truth to the recognition down the ages of the problematic and paradoxical nature of any fruitful relationship between such opposites. Therein lies its charm, its powerful attraction, and the tantalizing promise of transformation.

One might start by acknowledging the strengths of each in relation to the other -- their essential complementarity. But in so doing there is a need to cut through that which is non-essential to that relationship -- however valid it may be to the world of one partner or the other in isolation. The key is to discover what is holding each back in the development of a more

fruitful relationship beyond its own domain of choice. In the sense that both poetry and management tend to be highly impatient with traditions and constraints which do not serve them, such impatience can usefully be applied in looking at what they might each bring to any form of marriage -- and at what they might well leave behind.

Can each potential partner really be of relevance beyond its conventional domain? There is a suspicion that any failure in this respect may have much to do with the excesses of each as an instrument of insight articulation. What then might be the nature of the bridge between the delightful musings of the one and the boring operational preoccupations of the other? In what follows, apologies may indeed be due here for failing to respect the niceties of each where it appears that a larger cause could usefully be served.

(c) Urgency

This paper could easily take the form of a conventional study of such issues. There is sufficient material to make the theme both original and academically acceptable. However there is a strong case for treating the possibility of any such marriage in a much more urgent mode that tends to be quite distasteful to those of purely academic inclinations. The world appears to be in dire straits and those in power have had remarkable opportunities to demonstrate their impotence, their incompetence and above all their lack of imagination. The academic world has had equally remarkable opportunities to demonstrate its inability to generate insights that transcend the petty squabbles of individual disciplines and Nobel egos that might be expected to be a source of some degree of wisdom. As noted by policy scientist Yehzkel Dror: *"To meet urgent policy-making requirements, a quantum jump in policy analysis is needed....the explicit state of the main stream of policy analysis in its different versions and nomenclatures, as expressed in the vast majority of literature and teaching, is very useful for micro-issues but not for most critical choices."*

However despite some significant leads suggesting the absolutely fundamental role that poetic awareness could offer in such a situation, it is not to be expected that poets should respond enthusiastically to the operational concerns of the policy world given the social environment in which they function. Liberation poetry may articulate one need, but the modalities are quite another matter.

It could be argued that our collective imagination, nourished by the arts, is fundamentally "out of synch" with the style of collective organization that prevails. Our enthusiasms and sensibilities are poorly served by our organizations, especially with the progressive globalization and homogenization of society. The retreat to smallness is a viable response for some, but it fails to respond to the challenge of the nastier global concerns with which governments and international bodies are forced to deal. Commercialization of services is arguably a response for others, but the consequent denaturalization and adulteration of the quality of life and experience has been well demonstrated by the multinational corporations that increasingly control the media and the arts, if only through their sponsorship. The spiritual quest offers hope to others and enables them to associate fruitfully with the likeminded, but unfortunately it tends to provide them with little ability to relate to those with contrasting spiritual views. Spiritual leaders and gurus are not noted for their ability to transcend their differences in innovative dialogue with those of other faiths.

(d) Creating a new nexus

This paper is therefore principally concerned with what poetic insight and discipline can offer to the challenge of creating a new kind of nexus between the competing tendencies and obligations with which policy-makers must deal. But beyond the purely instrumental challenge is that of cultivating a new kind of meaningfulness in collective policy -- making fertile once again the soil rendered arid by the cynical and alienating politics of recent decades. Voter

apathy is now a fundamental challenge to the legitimacy of democratic institutions and to the appropriateness of their programmes. The young are right to be bored with the frameworks in which their elders endeavour to entrap them.

From a management perspective the challenge goes beyond the tokenistic cynicism of "public relations", "motivation", "mobilizing human resources" and ensuring "participation" in decaying institutions. It also lies beyond the desperate attempts to increase the level of "creativity" and "imagination" in sterile organizations that have been specifically designed to curtail such "undisciplined" behaviour.

(e) Challenge of the marriage

But whilst the Beast may be in increasingly vocal agony, it is as yet unclear whether Beauty knows how to respond -- if indeed she is prepared to do so after having been so menaced and ill-treated over the years. Objectively few could argue that they are even remotely suited as partners. It is understandable that Beauty should therefore seek to reserve her favours for an ideal Prince Charming of her own imagining. Psychoanalysts would however argue that Beauty needs to take care in indulging her romantic "illusions" and living for a marriage made out of her own dreamstuff. For the fundamental experience open to her, as great dramas and myths have explored, lies precisely in establishing a relationship with the repulsive Beast such as to reframe and transform the social context within which they together function.

It is important to acknowledge how challenging a marriage this could be. What serious policy-maker or manager of the 20th century could accept that poetic "frivolity" could be of fundamental significance to the future development of his or her institutional system? And what serious poet could accept the sully and distortion of cherished aesthetic principles which any such association might require? "State poetry" for national occasions is already sufficiently problematic as an exercise in aesthetic compromise -- and notably in the light of the experiences of the former socialist societies. What more might be required?

(f) Differences between poetry-making and policy-making

Perhaps what distinguishes most these potential partners, is their respective relationship to the individual and to the collective. Policy-making is clearly preoccupied with the collective, usually to the point of neglecting the individual, as is so systematically demonstrated in the treatment of non-conformists of any kind. For although policies may be devious, they are seldom subtle, and the many contradictory policies often grind the individual into unrecognizable pieces. Of course some nimble individuals can flourish in the interstices created by cumbersome policies - - and it is often poets who do so. But whilst poets can offer the individual ways of reconfiguring private experience through liberating perspectives, they seemingly have little to offer in dealing with the mundane issues of organizing collective activity in a more fruitful manner. Indeed poets of anarchist persuasion would consider this neglect of the collective a strength rather than a weakness.

This distinction also manifests in the characteristic mode of work. Managers and policy-makers are usually obliged to operate as teams, often deliberately designed so that each member's skills compensate for the deficiencies in others. The effectiveness of such teams is a matter of continuing intensive review and innovation. It is rare to find examples of poetry of any distinction that has been composed jointly by a group of poets -- indeed no innovative "methodologies" are explored for doing so. Whereas key policies may indeed be designed by leaders acting singly, the notion of poetry "made by committee" is inherently offensive to many. This is of course true of the arts in general -- with interesting exceptions in certain forms of music and drama (notably group improvisation), in some painting, in the culinary arts, and in architecture (and especially interior design). And yet both present and discuss their "works" in similar collective environments: managers in "quality circles" and the like, and poets

in "poetry circles".

With this individual/collective distinction is associated what is most painful to poetic sensibilities, namely the soul-destroying tedium and monotony of management discourse. How is it imaginable that the future of society and human relations can be articulated through such a quintessentially boring medium? It is no wonder that music has emerged as such a powerful antidote -- with the widespread use of drugs as another. And yet those of artistic sensibility are far from being renowned for their inter-personal skills and even-handedness in dealing with the rich polyphony of the immense range of cultural products -- the kind of challenge with which management is constantly faced. And in the absence of any aesthetically viable solution, it is ultimately the management mentality that is called upon to regulate conflicting variations through its own unimaginative and manipulative procedures.

(g) A marriage of opposites

This paper assumes that there will come a time when society will need what may be born from the consummation of a marriage between poetry-making and policy-making. Each carries particular combinations of "genes" of fundamental socio-cultural significance -- named by some as "memes". The survival of humanity as we know it may call for a level of insight that could only emerge from an appropriate combination of such memes. The concern here is with exploring the context in which such an improbable combination might occur -- in effect designing the "marriage bed" in which co-creation might take place. This design process may be understood as an exercise in creative imagination that effectively calls upon the insights of both partners.

If there is to be any such marriage, some form of courtship is to be expected -- Beauty has to be "wooed". Conforming to the metaphor, it is already possible to detect some patterns of courtship behaviour on the part of the Beast, however crude. True to role, Beauty has avoided any overtures, but occasionally exhibits anxiety about her "future". The most recent of these is entitled *Does Poetry Matter?* -- produced, ironically, by a businessman turned poet. The Beast has so far limited his initiatives to certain forms of token "public relations" activity (inauguration poetry and the like) which Beauty is wise to view with some suspicion as unworthy of what she really stands for. But there is much more activity on the sidelines on the part of various academic disciplines that recognize the cognitive and systemic challenge to the future of the Beast's existence and the key that poetic insight represents in responding to it. Within the metaphor they might be usefully seen as taking a role of Matchmaker.

(h) Need for recognition of limitations

In exploring such a marriage it is important to recognize that neither Beauty nor the Beast are "innocents". And their understanding of each other is above all governed by negative stereotypes to which feminists would be especially sensitive. The Beast is renowned for his activities as a cultural rapist -- as an untrustworthy rogue of the first order, however attractive his energy and power may make him (if only to himself).

Beauty has had many companions, none of whom she takes too seriously -- flirtation is one of her skills. To potential partners she is maddeningly fickle. Unwilling to be trapped in constraining relationships, flightiness is her principal survival trait -- which she would defend as a matter of principle. She has not "met her match".

Neither of the two recognizes any merit in the kind of fidelity characteristic of a mature relationship through which a collective future is built. Neither would claim to be "into" parenthood or co-creation.

(i) Overtures and inversions

To discover any windows of opportunity for such a marriage, it is useful to first briefly review some of the initiatives taken from the management side (Overtures of the Beast), on the part of concerned poets (Overtures of Beauty), and the catalytic role of various disciplines (The Voice of the Matchmaker). The signs sought are those of dissatisfaction on the part of either with their existing role, any recognition of its limitations, and any vision of new possibilities.

This marriage metaphor can be creatively applied in inverted form. The Dionysian dimensions of poetry-making suggest useful insights from framing it as the untamed Beast articulating the wild and savage energies of reality. Policy-making could then be viewed through an Apollonian or Athenian frame that for some reflects the inadequacies of bureaucracies. The contrasts of this inverted metaphor have not been explored here.

2. OVERTURES OF THE BEAST

From a feminist perspective, the Beast conforms to the stereotype of the macho male in his treatment of Beauty as a form of cultural sex object. As a decorative object she is manoeuvred and displayed, often with the greatest cynicism, to enhance his own self-image.

(a) Military and sporting events

That Beauty is important to the Beast is well illustrated by the way she has been "used" in military operations. Historically much importance has been attached to the development of battle chants and marching (bootcamp) songs as a way of psyching up soldiers and intimidating the enemy. This dates back to tribal times. Use of chants as a preliminary to violent reprisals has been documented amongst the Zulus in 1993. Similar chants are used prior to the commencement of major ball games and by fans accompanying them. The English rugby team in 1992 was reportedly intimidated by the All Blacks haka war chant -- designed for that purpose. The US military operation in Grenada, Kuwait and Waco (Texas) made use of broadcast music to undermine the morale of their enemy.

(b) Corporations

Reviewed by Newsweek under the heading *A Little Poetry for the Office Autocrat*, James Autry's book *Love and Profit: the art of caring leadership* (1991). gives advice to managers that frequently takes poetic form. He is president of a large magazine publishing group.

Some major corporations have developed songs, sung daily or on special occasions, to focus the efforts of employees. This is most common in Japan, where it is taken very seriously. But even IBM has its song. As in military and sports contexts, these reinforce corporate identity, bonding and sense of collective purpose. Drinking songs, notably amongst students, continue to be imposed (often during hazing rituals) as a way of reinforcing camaraderie amongst people of different origin. Many schools and universities have their own songs.

(c) Politics

Similar use has been made of Beauty in the political arena. Every newly independent country requires a national anthem as a symbol of national unity -- although it is questionable how many are played or sung with genuine enthusiasm. Goebbels was very skilful in his choice and adaptation of tunes during the Nazi era -- to the extent that some claimed that he had monopolized "all the good tunes". The *International* has been important to several generations of socialists. Songs such as *We Shall Overcome* have been of great significance in many civil rights demonstrations.

Commissioned poems have become a characteristic of some inaugural occasions, notably for the president of the USA (Maya Angelou, 1993) where Congress has instituted the position

of poet laureate, as have twenty-five states. International conferences may be launched by musical or vocal pieces. Even the United Nations and the EEC attach importance to their respective orchestras. The "wit and wisdom" of the United Nations, as a collection of proverbs and apothegms on diplomacy (of which some are in poetic form) has been published (V S M de Guinzbourg, 1961).

(d) Work

Songs and chants have longed been used as an accompaniment to work -- notably when there is a need to synchronize effort as in the case of sailors (hauling ropes), fishermen (retrieving nets), construction gangs (digging or moving objects). In certain cultures songs may be especially used by women to accompany tedious work. It was recently rumoured that one of the most productive assembly lines was composed of African women singing and dancing to their work. Background music (Muzak) is now very widely used as a mood altering technique in work and consumption environments. Many students now choose to study to the accompaniment of music.

(e) Advertising

Perhaps most aesthetically offensive to some is the way in which Beauty is exploited in advertising. It could be said that the most familiar poetry now takes the form of advertising jingles, ditties and slogans. Products are given identity by associating a "catchy" phrase or tune with them. Coca Cola has been remarkably successful in associating valued music (Beethoven) and songs with its product. Clearly considerably more is now invested in such commercial art than in other forms.

(f) Religion

This is not the place to distinguish the conditions under which institutionalized religion has used Beauty to carry or disguise its message from those in which Beauty is a natural expression of some spiritual understanding. It suffices to note that religious celebration makes special use of hymns and chants (mantras). Religious worship may be deliberately organized in various cycles (hours, days, years, or more) bound together into a coherent whole by aesthetic associations. Improvisation and collective participation may play an important role, where individuals in effect make aesthetic judgements on how to contribute or echo contributions of others (Hallelulah). Religious ritual shares with other forms of ritual, such as that of the freemasons or practitioners of magic, the use of liturgical structures which often take poetic form -- if only through the interweaving pattern of associations they embody.

(g) Sciences

There has always been a certain tendency to enhance and enoble scientific meetings with a suitably chosen poem in the printed proceedings. This has become more, rather than less, acceptable -- to the point that poems are now actually used within the body of texts or to summarize arguments. Thus Kenneth Boulding, a key figure in peace research, economics, and general systems research, chose (and was allowed) to summarize the proceedings of a United Nations University symposium on complexity by a poem -- each verse describing the contribution of a participant (S Aida (et al, 1985). His wife, Elise Boulding, of equivalent renown, chose to introduce her report on a working group of the World Futures Studies Federation (Rome, 1976) with a song.

Canadian environmentalist, Christian de Laet (1982), as a consultant in the drafting of the Papua New Guinea environmental policy, ensured that it was written in poetic form (mixed with symbolic and illustrative imagery). Hazel Henderson (1991), in presenting paradigms "beyond economics", chooses to include an *Ode to the Life Force* of her own composition. Of similar persuasion, Stephen Marglin (1992), in presenting a formal funding proposal to an intergovernmental meeting on the "greening of economics" used a "ditty" to emphasize the role

of love. The BBC TV economist, Peter Jay, responsible for a weekly Money Programme, summarized the financial developments of 1992 through a lengthy poem which he recited on the Christmas broadcast. It was based on Lewis Carroll's *Walrus and the Carpenter*. Development Alternatives, a New Delhi-based think tank on environmental policy, has released two volumes of "songs on the environment" on cassette

Wolfgang Dahlberg (1984) very courageously presented a university thesis for a doctorate in philosophy written in German such that the tonal value of the words carried an additional level of significance.

(h) Education and training mnemonics

In many fields of human activity mnemonic word patterns, often in poetic form, are used to facilitate learning. The film *the Dirty Dozen*, demonstrated their use in chant form in coordinating a sequence of actions of a commando group. Harold Baum, Professor of Biochemistry at Chelsea College (London) has edited *The Biochemists Songbook* (1982). The songs, based on well-known tunes, are explicitly designed to enable students to remember complex metabolic pathways. Lyrics and musical scores are given for 13 pathways -- few of them with less than 10 verses. Recordings are also distributed on cassette.

Note that in all of the above the emphasis of the Beast is on using Beauty to further his own institutional purposes -- however intrigued he may be by the inherent value of the qualities that Beauty carries. To what extent can it be said that the Beast's perspective is touched and informed by that of Beauty's? To what extent is she taken seriously? And what might that mean?

3. OVERTURES OF BEAUTY

From within the world of poetry there are those who occasionally express concern as to whether poetry matters to those outside it. But any criticism they voice is naturally greeted by a most vociferous defence on the part of the proponents of Beauty. An early example was Edmund Wilson's *Is Verse a Dying Technique?* (1934). The challenge was rearticulated in Joseph Epstein's *Who Killed Poetry? (Commentary, 1988)*. Wilson blamed historical forces, whereas Epstein focused on poets themselves, the institutions they helped create, and notably the creative writing programs. Both have been vigorously attacked by poets themselves.

Much more recently, it has been the former marketing executive Dana Gioia who has aroused considerable controversy, notably through a book entitled *Can Poetry Matter?* (1993). As an author of widely praised books of poems, he speaks with authority -- but from outside the academic institutional culture in which poetry currently thrives in America.

(a) Challenge to the subculture

Gioia accuses poets in America of having developed into an isolated subculture content to communicate with each other. Thus: "*the energy of American poetry, which was once directed outward, is now increasingly focused inward. Reputations are made and rewards distributed within the poetry subculture*" (p. 2). And: "*Over the past half century, as American poetry's specialist audience has steadily expanded, its general readership has declined*" (p. 2)

He is often brutal in his assessment: "*Like subsidized farming that grows food that no one wants, a poetry industry has been created to serve the interests of the producers and not the consumers. And in the process the integrity of the art has been betrayed. Of course, no poet is allowed to admit this in public. The cultural credibility of the professional poetry establishment depends on maintaining this hypocrisy*" (p. 10). And again: "*Most editors run poems and poetry reviews the way a prosperous Montana ranches might keep a few buffalo*

around -- not to eat the endangered creatures but to display them for tradition's sake" (p. 4)

(b) Isolation from public life

Like others before him, Gioia sees poets and poetry as increasingly separated from the general reader and the concerns of society. Thus: *"Even if great poetry continues to be written, it has retreated from the center of literary life. Though supported by a loyal coterie, poetry has lost the confidence that it speaks to and for the general culture" (p. 6)*. Also: *"poets and the common reader are no longer on speaking terms" (p. 10)*. And: *"public skepticism represents the final isolation of verse as an art form in contemporary society" (p. 11)*

Gioia notes that with few exceptions, poetry is essentially unrelated to any collective enterprise: *"Without a role in the broader culture, however, talented poets lack the confidence to create public speech. Occasionally a writer links up rewardingly to a social or political movement...But it is difficult to marry the Muse happily to politics. Consequently, most contemporary poets, knowing that they are virtually invisible in the larger culture, focus on the more intimate forms of lyric and meditative verse" (p. 11)*.

Of course there are contrasting views, such as those of Neil Astley, founder of the UK poetry publishing house Bloodaxe Books that has an anti-metropolitan, anti-establishment bias. In his view, to be one of their poets: *"means that you are emotionally tough, you have an intellectual grasp of the world and that you are in touch with the social realities of the 1990s... We don't publish much landscape poetry." (Guardian, 11 August 1993)*.

(c) Institutionalization of poetry

Whilst noting the manner in which poetry has thrived in a formal academic setting in America, Gioia deplores some of the consequences: *"...the engines that have driven poetry's institutional success...have unwittingly contributed to its disappearance from public view" (p. 2)*. As in other academic disciplines, the "publish-or-perish" syndrome holds sway: *"Poets serious about making careers in institutions understand that the criteria for success are primarily quantitative. They must publish as much as possible as quickly as possible" (p. 9)*. *"Society suffers by losing the imagination and vitality that poets bring to public culture. Poetry suffers when literary standards are forced to conform to institutional ones" (p. 14)*

Whereas it might be expected that poetry would offer insights into ways of reframing institutional initiatives in a society whose survival is so dependent upon them, in effect poets have become resigned to existing only in and for their subculture. As a consequence: *"...institutions have changed the social identity of the poet from artist to educator. In social terms the identification of the poet with teacher is now complete" (p. 13)*

Within the literature departments of universities, writers and literary theorists are often openly at war. *"Isolated even within the university, the poet, whose true subject is the whole of human existence, has reluctantly become an educational specialist" (p. 14)*

(d) Why poetry matters

Gioia frames the key questions: *"But why should anyone but a poet care about the problems of American poetry? What possible relevance does this archaic art form have to contemporary society?" (p. 19)*

In an initial response he suggests that: *"In a better world, poetry would need no justification beyond the sheer splendor of its existence....Aesthetic pleasure needs no justification, because a life without such pleasure is not worth living" (p. 19)*. This suggests the challenge: *"How does one persuade justly skeptical readers, in terms they can understand and appreciate, that poetry matters?" (p. 19)*

One might ask whether, phrased in this way, the questions do not preclude other kinds of answer. Is the question really just about "poetry" as a product which is being rejected by potential consumers? Are there not other insights to be obtained by focusing on "poetry making"? The fact that so many are attracted to creative writing classes and that so much poetry is produced in a materialist society does indicate that other processes are at work. At least poetry and poetry-making have an important psychotherapeutic function for the individual. Does this not suggest that it may have an analogous function for society as a whole? It perhaps this aspect that needs to be clarified.

For Gioia one starting point in establishing the relevance of poetry, at least for the individual, is a verse from William Carlos Williams: "*It is difficult / to get the news from poems / yet men die miserably every day / for lack / of what is found there*". But despite the vigour of his criticism, Gioia's arguments in favour of poetry are weak and his remedies are only addressed to the subculture he criticizes.

Gioia puts forward two reasons why the situation of poetry matters to the entire intellectual community. Firstly: "*A society whose intellectual leaders lose the skill to shape, appreciate, and understand the power of language will become the slaves of those who retain it -- be they politicians, preachers, copywriters, or newscasters*" (p. 20). He cites George Orwell: "*One ought to recognize that the present political chaos is connected with the decay of language...*" and argues that "*one is hard pressed to imagine a country's citizens improving the health of its language while abandoning poetry*" (p. 21). He fails however to identify how poetry can improve the quality of the language, but above all he fails to identify the special role of poetry in sharpening what language is used for. It then becomes too easy to obscure fundamental, technical points about the cognitive power of language (which are as yet poorly appreciated) by vague and superficial arguments about "the power of language" (notably as demonstrated by those with rhetorical skills).

Gioia's second reason is that poetry is not alone among the arts to find itself in an increasingly marginal position as well as isolated from other arts (p. 21). This appears to be little more than a plea for solidarity among all arts in the face of the fragmentary tendencies of modern society. As such it merely raises the broader question as to the role of the arts in responding to the challenges of contemporary society.

Gioia concludes that educational institutions have codified the conventions that guide creation, performance, instruction, and analysis. "*These conventions may once have made sense, but today they imprison poetry in an intellectual ghetto. It is time to experiment, time to leave the well-ordered but stuffy classroom, time to restore a vulgar vitality to poetry and unleash the energy now trapped in the subculture. There is nothing to lose. Society has already told us that poetry is dead.*" (p. 23)

(e) Poetry and corporate life

Of relevance to the argument of this paper, Gioia also studies "*a curious collection of modern poets who were also businessmen -- a group whose very existence no scholar has previously noted*" (p. 133). He himself is a management executive. The group includes: Wallace Stevens (insurance), T S Eliot (banking), Edmund Clarence Stedman (stockbroker), Richard Eberhart (director), L E Sissman (advertising), A R Ammons (salesman).

Gioia concludes however: "*The facts, as they exist, point toward an almost absolute separation between their business careers and imaginative lives*" (p. 134). He notes that, even for those who spent most of their working lives in corporate offices, none of them has seen it as an experience that is fit to write about (p. 111). Eliot spent the *most productive decade of his life* as a poet working in the international department of Lloyd's Bank of London (p. 114).

For American poetry, the business world according to Gioia is characterized by "tedium, isolation and impersonality". *"Business does not exist in the world of poetry, and therefore by implication it has become everything that poetry is not -- a world without imagination, enlightenment, or perception. It is the universe from which poetry is trying to escape.... Our poetry, in short, seldom deals directly with the public institutions that dominate American life, or with situations that increasingly typify it."* (p. 114).

Whilst Gioia's points are to be welcomed, there is another to which he does not address attention. There is an important distinction to be made in corporate life between implementing policies by executing decisions and the process of policy-making itself. As in the military world from which so much of management theory is inherited, much creative thinking is involved in "grand strategy" including: the selection and positioning of forces, balancing a variety of seemingly incommensurable factors (whether quantitative or qualitative), as well as issues of timing, morale and image. It should not be forgotten how closely linked strategic notions are to philosophy and poetry, notably in Chinese and Japanese traditions.

Some of the poets named by Gioia were indeed directors and "vice-presidents", presumably with policy-making functions, but others were clearly executors of decisions made elsewhere. More to the point, to what extent did any of them have experience of the creative dimensions of policy-making and business life -- as opposed to those they might more legitimately experience as tedious and uncreative?

Gioia notes that: *"Few critics... will be concerned about the absence of business from modern American poetry"* (p. 119). And: *"Too many critics have expressed a sort of innocent amazement that businessmen could actually write poetry, not to mention good and even great poetry"* (p. 124). There are however aspects of corporate and public life which call for a level of creativity and sensitivity that is little different from that of poets. Throughout the ages, people in public life at the highest levels of responsibility have expressed themselves in poetic form (V S M de Guinzbourg, 1961). The responsibilities in large corporations exceed by far those of the past. Many would be surprised at the private sensibilities of such people. It is for example noteworthy that the Director of the Department of Organizational Behaviour at the Weatherhead School of Business (Case Western Reserve University) is given to reciting his own poems during academic meetings.

Broadening the scope of his argument, Gioia continues: *"The inability of these businessmen-poets to write about their professional worlds is symptomatic of a larger failure in American verse -- namely its difficulty in discussing most public concerns. If business is nonexistent as a poetic subject, there is also a surprising paucity of serious verse on political and social themes. Not only has our poetry been unable to create a meaningful public idiom, but it even lacks most of the elements out of which such an idiom might be formed"* (p. 126-7). But again one might usefully distinguish between the thematic issues dealt with by policy-makers and the more creative, technical and experiential issues of how policy-making is done -- especially by an entrepreneur working "by the seat of his pants". Intuition is increasingly of concern to managers and its relevance is the subject of a number of recent books (Rowan, 1986; Le Saget, 1992).

(g) Poetry in a divided world

This is the heading for a review by Henry Gifford (1986) from a primarily European perspective. This demonstrates the importance of poetry to peoples under appalling conditions of repression and impoverishment -- in contrast with American society. He quotes Czeslaw Milosz, with respect to the Nazi occupation of Poland: *"when an entire community is struck by misfortune, poetry becomes as essential as bread"*. Milosz also recorded that following that period it was

not unusual for 150,000 copies of a book of poems to be sold out in a few hours.

Gifford points out that through Osip Mandelstam in particular *"a tradition of public responsibility, long established in Russian literature, was brought to a new focus."* Mandelstam is renowned for his statement that *"Poetry is power"*. Whilst the understanding of the poet's role and depth of commitment are not unique to Eastern Europe, Gifford points out there is a distinct difference between the metaphysical terror articulated by some poets in isolation and the physical terror shared by poets of Eastern Europe with thousands.

From Gifford's perspective, poets respond to a divided world, in *"a century preoccupied with language, its ability to conceal thought, to set limits upon it, to hold a sometimes despotic sway over minds, or to sink into a morass of ambiguities. With a growing awareness of the subconscious, the irrational in human behaviour, and of language's complicity with these forces, the coherence of life seems to have gone."* (p. 21).

This perspective could however be interpreted as only a kind of "holding action", now that the centre no longer holds. Thus Gifford places stress on the function of poetry in "bearing witness". Virgil Nemoianu has stressed this conservative function. The arts, even when they are revolutionary are essentially revolutionary only in their pursuit of tradition. From his perspective, from Homer to Eliot, the voice of poetry has been one of regret, restraint and scepticism, offering caution to the agitators, and comfort to the one who sees wisdom in settled ways. In this sense the literatures of Europe have, in opposing the European idea of progress, done much to ensure the survival -- and even, paradoxically, the true progress -- of its culture.

And yet it is no wonder that Theodor Adorno expressed the belief that after the horror of Auschwitz, poetry has become impossible to write. Bosnia would surely tend to reinforce this perspective -- especially given the apparently perverted use of poetry by Serbian warriors. Is poetry in a position to respond usefully in a world whose best intentions result in Bosnia?

In discussing the "international code of poetry", Gifford argues: *"We seek from the past more than political understanding, or the meaning of national identity...What can be found in the poetry of earlier generations...is a safeguard and a promise. There is in genuine poetry a depth of moral awareness, of involuntary truth, and a capacity to set human experience where it can be judged without special pleading or undue harshness. Poetry achieves this by a process of reconciliation and acceptance (not the same thing as capitulation): a reconciliation with the limits of what is possible for human beings, an acceptance of community."* (p. 90).

For Gifford, poetry is vitally important and indispensable for a number of reasons: *"for its unrivalled power of recall, which enables it to bring into the present and project into the future truths of feeling attained perhaps three thousand years ago; for its intimacy with every phase of our long developing and changing culture; and above all for its power of self-correction."* (p. 94). He concludes: *"If the poetic word were to be silenced, despotism and emptiness would rule everywhere."* (p. 96).

But is "reconciliation and acceptance" all that poetry has to offer?

(h) Liberation poetry

Also in striking contrast to the American situation presented by Gioia is that of liberation poetry, whether in Eastern Europe or in Africa. In a study of ideology and form in African poetry, Emmanuel Ngara (1990) concludes that: *"effective communication is not simply a question of craft. The significance and appeal of poetry is partly determined by its relevance to human life. Thus, poetry has a social function, and for the poet to be able to cry the cry of*

humanity he or she must strive to keep harmony between poetry and life....For those involved in the struggle for social justice...the poet should engage in practical action of some sort, for through action the poet will become part of the world of the oppressed, the poor, the dehumanized. Through the action of its creator poetry will be able to speak to humanity and to have a profound meaning." (p. 200)

Ngara continues: *"the revolutionary poet must keep searching for a genuine aesthetics of liberation....And how does the poet contribute to the liberation process? Is the poet a party propagandist or is he or she concerned with promoting new and progressive forms of social consciousness? How does the poet achieve the goal of raising readers' social consciousness? By resorting to open didacticism or by leading the reader gently by the hand to an awareness of new possibilities in social relationships and people's potential?" (p. 200-1)*

(i) Product or process: the challenge of how?

Whether from the American perspective of "poetry in policy-making" or a Marxist form of "poetry in politics" one might ask whether the skills of and insights from poetry are not of greater relevance than is comprehended within the world of poets. Articulating the quality of better times past, or those hoped for in the future, by contrast with the suffering of the present, is not enough. Many of the values expressed by poets of the past have been embodied in the declarations, treaties and programmes of international organizations. There is widespread consensus on the need to do better. But as Bosnia has demonstrated, the "how" eludes both political leaders and their academic advisors -- despite the degree to which many have been touched by the tragedy through the media.

Why have poets never addressed the how? Why have they never explored the relevance of their skills and discipline to bringing about any "new world order"? Wishing and deploring are not enough. Politicians have demonstrated considerable skill in deploring and resolving. It is the "how" that has proved so elusive in complex situations like Bosnia where many factors are in balance and there is a need to reframe the situation through new images that empower in new ways. The protests of anti-establishment poets may continue to be necessary, but they are not sufficient. Poets have more to offer.

Perhaps what is required from poets is their discipline and not their product? It could therefore be much less a question of whether poetry is "appreciated" or used to "raise consciousness" and much more a matter of how desperately insights from the discipline of poetry-making are needed in the present crisis of policy-making -- beyond the cosmetic or "educational" possibilities. Even when the need for "liberation" is recognized, the challenge is whether the remedies can be made more acceptable than the problems remedied. This has been the tragedy of "liberated" Africa. Ironically such a contribution from poetry to the qualitative improvement of policy would not be so startling within Chinese and Japanese cultures of the past.

4. VOICE OF THE MATCHMAKER

Is there even the faintest recognition in our times of the need to make use of poetic disciplines in response to the challenges we face? Surprisingly there is. The recognition comes from those who recognize the limitations of scientific disciplines in dealing with the complexity of the world problematique -- and specifically with the limitations of the human mind, or of any particular language, in comprehending and encompassing the subtle dimensions amongst which a dynamic balance needs to be maintained.

For example, the biologist/anthropologist Gregory Bateson, in explaining why "we are our own metaphor", pointed out to a conference on the effects of conscious purpose on human

adptation that:

"One reason why poetry is important for finding out about the world is because in poetry a set of relationships get mapped onto a level of diversity in us that we don't ordinarily have access to. We bring it out in poetry. We can give to each other in poetry the access to a set of relationships in the other person and in the world that we are not usually conscious of in ourselves. So we need poetry as knowledge about the world and about ourselves, because of this mapping from complexity to complexity." (Cited by Mary Catherine Bateson, p. 288-9)

(a) Quality vs. Complexity

As noted above, policy-making and management are faced with a crisis of impotence, incompetence and gridlock. This has been explored in many ways by numerous authors. Yugoslavia and Somalia are only the most publicized examples. The failure to respond creatively to the needs of the former socialist countries is another. The challenge of unemployment is yet another.

Of course there are many highly publicized efforts at "restructuring" institutional systems, including reforming the United Nations. Many conferences are now held on enhancing the "quality of life", of which the 1992 Earth Summit was the most important. The "dismal science" of economics even has its reformers that are endeavouring to quantify the value of quality (United Nations Research Institute on Social Development, 1991). Creativity has long been *à la mode* in seminars for corporate executives. Whilst effective in "cost cutting", such initiatives fail to disguise an abysmal lack of imagination in collective response to the conditions of physical suffering or psychic alienation in which many are plunged.

One response to this general challenge has been the focus on the science of complexity as a development of earlier concern with systems research and cybernetics. There remains the hope amongst certain academic elites that computers can be used to model the richness of society in order to guide policy-making at the highest level. Unfortunately this initiative is based on the naive belief that voters will have equal confidence in approaches that are essentially quantitative and which are in no way influenced in their design by the qualitative dimensions that make life worth living. It is also believed that leaders will themselves be able to grasp policies of appropriate subtlety and will be sufficiently empowered to implement them. As before, quality is only honoured to the extent that it is quantifiable, and it is hoped that leaders will be adequate to the task. Quality is increasingly emerging as incompatible with complexity - given the simplistic nature of institutional responses.

At the Sante Fe Institute (USA), specifically established by the best and the brightest to explore with mathematical rigour the science of complexity in the light of chaos theory, the director of their first economic initiative (1987-89), W Brian Arthur notes: *"Nonscientists tend to think that science works by deduction. But actually science works mainly by metaphor. And what's happening is that the kinds of metaphor people have in mind are changing.... Instead of relying on the Newtonian metaphor of clockwork predictability, complexity seems to be based on metaphors more closely akin to the growth of a plant from a tiny seed, or the unfolding of a computer program from a few lines of code, or perhaps even the organic, self-organized flocking of simpleminded birds."* (Waldrop, 1992, p. 327 and 329; see also p. 149)

Arthur indicates that the institute's role is to look at the ever-changing river of complexity and to understand what they are seeing. *"So we assign metaphors. It turns out that an awful lot of policy-making has to do with finding the appropriate metaphor. Conversely, bad policy-making almost always involves finding inappropriate metaphors. For example it may not be appropriate to think about a drug 'war', with guns and assaults. So, from this point of view,*

the purpose of having the Sante Fe Institute is that it, and places like it, are where the metaphors and vocabulary are being created in complex systems." (Waldrop, p. 334)

Ironically, the process of articulating such understanding with mathematical "rigour" necessarily has to be contrasted with the "mere" metaphors from which such understanding derives. When articulated in a rigorous computer simulation, the simulation may be recognized of greatest value as a new metaphor (Waldrop, p. 334), precisely because it is an abstraction of limited relevance to understanding the real complexities of current social concerns.

(b) Autopoiesis and self-organization

Fundamental to some of this research however is concern with the emerging theory of self-organization. Although the social implications are far from having been fully investigated, it is clear that there is a movement towards understanding how organization emerges and becomes coherent -- quite differently than if order is imposed by a leader in the conventional manner. How does an organization compose itself?

There are real challenges here to existing practices. The present approach is to articulate organizational programmes using point-by-point agendas, supported by linear text reports (often of great length). Selected key points may be repackaged by communications specialists in press communiqués to attract external support. Such programmes are then implemented through hierarchies of departments. In more enlightened bodies there may then be some endeavour to ensure "popular participation". The European Community has been especially challenged by this need since 1992.

Although there is no "self-organization" in this process, it may be argued that the "networking" reaction to such approaches is in many respects self-organizing. Unfortunately, as a reaction, it has gone to the other extreme. There tends to be little patterning in the organization of the networks that have emerged over recent decades. They too have proven inadequate to the collective challenge. It might be argued that hierarchical structures are poor carriers of quality because of their simplistic linearity -- hence their essentially monotonous quality. The current approach to networking has however led to structures that are so amorphous that the qualities they may well carry cannot be adequately contained or brought to any focus. They are too chaotic.

Living systems, including social systems, are too far from thermodynamic equilibrium to persist indefinitely in their environment. They become able to maintain themselves over time when they develop the capacity to replicate the structural pattern on which they are based. This self-organizing or self-producing ability has been termed "autopoiesis", from the Greek for "self-creating". Humberto R Maturana and Francisco J Varela (1980, 1987) define an autopoietic system as one in which a network of interrelated component-producing processes such that the components in the network generate the same network that produced them.

The relevance to strategic planning has been noted by Erich Jantsch (1980): *"Strategic planning creates a mental non-equilibrium structure with fluctuations fed into it deliberately to trigger further evolution in one or other direction. And above the strategic level, there is the policy level at which the dynamics of the system in question (eg an industrial corporation) is viewed in the context of an all-embracing socio-cultural dynamics. And even higher is the level of values which is no more subject to rational elaboration but always plays a decisive and guiding role, whether implicitly or explicitly."* (p. 266). His remarkable synthesis continues with chapters on artistic creativity, but without explicitly linking this to policy-making.

Of course "poiesis" or "poesis" is also the Greek term for poetry. This suggests a fundamental understanding of organization in all its forms which is to be associated with those qualities of

poetry which have been systematically excluded from everything associated with policy-making. Questions of "self-organization" are now at the cutting edge of all studies of complexity in social systems from which some hope to derive insights into developing policies for their control. Thus Ilya Prigogine was awarded the Nobel Prize for insights into the way in which self-organization depended on self-reinforcement, namely the tendency for small effects to become magnified (rather than dying away) when conditions are right. The insights from the poetic dimensions have however been ignored -- and yet does not much of the skill of the poet lie in achieving analogous effects at the level of understanding? Is this not a reason for which poetic effects continue to remain memorable?

(c) Systems of knowledge: Techne vs Episteme

The United Nations University WIDER group has recently explored the challenge of dominant systems of knowledge (F Apffel Marglin, et al) to the processes of modernization and development. In presenting a new research programme on the "greening of economics", a key representative, Stephen Marglin, argues that: *"the focus is on the difference between practice and ideology. Practice always involves a combination, synthesis, even tension between different systems of knowledge, between...techne and episteme. Techne (or T-knowledge) is embedded, contextual knowledge based on intuition, authority, and above all experience. Episteme (or E-knowledge) is disembodied, super-contextual knowledge based, in the West, on the discovery of acceptable first principles and logical deduction from these first principles."*

However: *"Notwithstanding the complementarity in practice, the Western ideology of knowledge has elevated its E-knowledge to a superior position, to a point, in the extreme case, that T-knowledge is not only regarded as inferior knowledge, but as no knowledge at all. Except to the extent that T-knowledge can be justified by E-knowledge, it remains superstition, belief, prejudice."*

Criticizing the reliance of economists on E-knowledge, Marglin asserts: *"under conditions of uncertainty, decision makers do not and cannot mobilize the apparatus of calculation and maximization. Without something to peg probabilities on, individuals necessarily fall back on quite different methods -- on intuition, conventional behaviour, authority -- in short, on a different system of knowledge from that which drives maximizing behaviour."*

He then continues: *"It should be clear from the foregoing that the greening of economics is to some extent metaphorical, that it includes more than an ecological dimension, central as the ecological dimension is to this project....The various notions of greening nourish one another. Thus this project is conceived as a dialogue, or rather a series of overlapping dialogues."*

But despite this concern with metaphor, and the expressed need for overlapping dialogues between themes which would not be foreign to poetry, it might be asked whether such an initiative is not trapped by a form of knowledge that it sets out to transcend. The critique projects all that E-knowledge lacks into a poorly understood T-knowledge that is reduced to a form which excludes much that poetry stands for -- or leaves it implicit in broader interpretations of T-knowledge. There remains the unexplored possibility that in the above terms only a third, mediating, form of knowledge, namely poesis (or P-knowledge), can provide the degree of continuing renewal and creative balance without which genuinely qualitative efforts at "greening" can be rendered sustainable -- rather than simply "technically" feasible. It might be argued that this is an important reason why so many cultures have cultivated this latter form of knowledge.

Anne Buttmer (1983) introduces this notion of poesis into a four-fold classification of professional roles in relation to planning or government service: Logos (promotion of analytical rigour and theory building); Ergon (practical application of discipline to solution of social and

environmental problems); Paideia (teaching and documentary work); and Poesis (evolving a sense of place, meaning of landscape and civilization). Clearly Logos and Ergon relate to E-knowledge and T-knowledge respectively.

(d) Cycles and Phasing

In response to complexity, the policy and management sciences are increasingly obliged to structure their initiatives and programmes into phases over time. "Five Year Plans" are now common, as are multi-phase programmes, notably in complex construction projects. Businesses and national economies are increasingly concerned with the ways that they may be affected by business cycles. There is renewed concern with long-period cycles of natural and social processes (Mallmann, 1993). The adaptation of mathematics to the study of cycles of social significance is now being undertaken (Mushakoji, **). Accompanying this trend is the tendency to develop multi-track programmes in which complementary tasks are undertaken in parallel - with such tracks converging and combining to achieve the final objective. Special computer tools (such as PERT) are used to visualize and modify the relationships within such complex pathways.

It is possible to look at classical Chinese approaches to strategies of change in terms of "sustainable policy cycles" (Union of International Associations, 1991) -- even though they were originally formulated in poetic and metaphoric form.

It is tempting to see such articulations as complex patterns of associations which might otherwise be of significance to poets or musicians.

(e) Cognitive function of metaphor

Since the 1970s there has been an explosion of interest in the role of metaphor in all areas (Van Noppen, 1985, 1990), but especially in the language of disciplines (Dirven, 1984). It is no longer considered merely a matter of rhetorical flourish or poetical imagination (Ortony, 1979). Robert Nisbett (1969) states: *"It is clear from many studies of the cognitive process generally, and particularly of creative thought, that the act of thought in its more intense phases is often inseparable from metaphor -- from that intuitive, iconic, encapsulating grasp of a new entity or process."* E L Doctorow (1977) has even argued that: *"The development of civilizations is essentially a progression of metaphors"*. In a similar vein, Gibson Winter (1981) argues that: *"..if the present age faces a crisis of root metaphors, a shift in metaphors may open new vistas of human possibilities."*

Lakoff and Johnson (1980) argue that our conceptual system is fundamentally metaphorical. They give such examples as: argument as war (resulting in indefensible claims; attacking an opposing view) and spatialization (happy and health as up, with sad and sick as down). These are domains in which poets are most skilled.

Metaphors are used to get a conceptual handle on complexity, notably in physics (Jones, 1983). They have a major role in psychoanalysis and psychotherapy (Gordon, 1976; Hillman, 1983). Educators make extensive use of metaphor, building on its traditional role in religion. Elise Boulding (1988) has explored its educational uses in relation to the "imaging capacity" required to build the future. Metaphor is fundamental to skilful advertising and image building, notably in politics (Miller, 1979). It underlies discussion of organizational cultures and their ability to innovate (1986). In that respect metaphor or guiding imagery (leitbild in German) is also vital to technological development (Dierkes, 1988; Romanyshyn, 1989; Rogers, 1990).

(f) Organizational science in a postmodern context

Kenneth Gergen, concerned with the dilemmas of identity in contemporary life (1991), sees the future of organizational science in the following terms: *"the most significant and potential*

powerful byproducts of organizational science are its forms of language -- its images, concepts, metaphors, narratives and the like. When placed in motion within the culture, these discourses may -- if skilfully fashioned -- be absorbed within ongoing relations. Such relations thereby stand to be transformed. Not only does this place a premium on reflexive critique within the profession...but it also invites the scientist to enter the process of creating realities....Rather than "telling it like it is," the challenge for the postmodern scientist is to "tell it as it might become." Needed are scholars willing to be audacious, to break the barriers of common sense by offering new forms of theory, of interpretation, or of intelligibility." (Gergen and Thachankry, 1993)

These concerns are shared by sociologists David Cooperrider (1987) and Suresh Srivastva (1988, 1990)

(g) Metaphor and policy-making

The consequences of implicit metaphors for policy-making are just beginning to be explored (Judge, 1988, 1993). In a key paper, Donald Schon (1979) argues that the essential difficulties in social policy have more to do with problem setting than with problem solving. For him: *"the framing of problems often depends upon metaphors underlying the stories which generate problem setting and set the direction of problem solving."* In a much cited example he contrasts a housing problem where slum areas were defined as a "blight" or "disease" with one in which they were perceived as "natural communities". Using the medical metaphor the former justifies use of radical "surgery" to excise the blight, whereas the other calls for ways of enhancing the life of those communities.

A metaphor thus provides a framework of credible associations that increases the probability that relationships in other domains will be conceived according to that pattern, rather than another. The potential of generative metaphor in relation to problem-setting and social policy has since been explored by others (14). It has been associated with the question of framing, reframing, and the frame conflict underlying controversy (15). Metaphor has major implications for knowledge representation in artificial intelligence because of its use in refining ontologies (16).

Increasing interest in the role of imagination in the creation of present and future realities relies to a high degree on the use of metaphor (17). The envisaging process may be triggered by guided fantasy or the appropriateness of a newly encountered metaphor.

(h) Mathematics and poetry

There have been efforts to explore the mathematical principles underlying aesthetic appreciation. Their interest is usually thought to lie in either "explaining" the attraction of art, or as a means of developing new approaches to aesthetics, most recently with computer assistance. But of greater relevance to the theme of this paper are the implications of such insights for the articulation of subtler scientific hypotheses and forms of social organization. Any "new world order" will be based on some principle of organization, beyond the simple hierarchy or the complex network. To be coherent and comprehensible it must necessarily embody aesthetic principles. Such an order will have to be articulated through text, at least in part.

It is interesting therefore to note the work of the Romanian mathematician, semiotician and systems scientist, Solomon Marcus (1973). His study of mathematical poetry reviews the distinctions between mathematical and poetic discourse and endeavours to model them. He analyzes poetic figures. There and elsewhere he explores the role of metaphor in articulating scientific insights. Such explorations are a valuable groundwork for exploring the relevance to policy-making -- on which he has also produced a number of studies.

The Russian mathematician V V Nalimov (1982), in a striking interdisciplinary synthesis ranging across the arts and the sciences, discusses the use of metaphors in relation to the construction of mathematical models in the case of the softer sciences. He argues: "*I believe that the difficulties of constructing mathematical models may be largely explained by the fact that biologists and psychologists try to construct them in order to obtain a literal, mechanistic interpretation of phenomena. This is what happened in early physics.*" (p. 38). But he points that E H Hutten (1956) demonstrated that the mathematical models of modern physics are metaphors.

Nalimov then raises the question as to whether "*we can say we know something which we have been unable to put into words*" (p. 39). He concludes: "*I believe that we can if the scientific concept turns from a familiar scientific term with a rather unambiguous meaning into an extremely semantically polymorphous symbol with a metaphorical flavour. A word, a sign of our language, is contrasted here to a symbol since these two notions are not completely synonymous....Constructing such models turns into a kind of art: the modeller must become a symbolist-poet. He creates a model-symbol by means of which he does not so much actually describe the phenomenon as consider it from a new angle. The model proves to be nothing more than a hint. It makes use of the ability inherent in people from the days of yore to control their consciousness through symbols*" (p. 39). From such a perspective, how different is poetry-making from the construction of policy models -- when these seek to deal more effectively with social intangibles?

(i) Poetics of scientific hypothesis formation

Gerald Holton (1973; 1978) was an early explorer of the question of the "thematic imagination in science" as a factor in hypothesis formation. More recently, under the heading *In Favor of a Poetics of Hypothesis*, Fernand Hallyn (1990) uses the work of Copernicus and Kepler to demonstrate the role of poetics in scientific hypothesis formation. He investigates the cultural problem of hypothesis formation, and why certain facts and not others are used in support of a particular theory. He is not concerned with the logical form of theories, nor their truth value, but rather the way in which hypotheses are established as such.

Hallyn argues that it is the "moment" that Charles Peirce called abduction, encompassing "*all the operations by which theories and conception are given birth,*" that poses the greatest problems for both epistemology and the history of science. The establishment of a new hypothesis remains an enigmatic moment. Once it has effectively become the basis for a new conceptual language the poetics of hypothesis formation then gives way to the epistemology and history of science.

The epistemology of logical positivism focuses on the form of theories once they are established. The activity by which a theory was established is then relegated to a prelogical stage situated outside the scientific enterprise properly speaking. For Carl Hempel, the way in which facts are selected and combined to establish a particular hypothesis depends on previous hypotheses and involves the play of the imagination in an indefinable act of creativity. Karl Popper invokes literary or artistic intuition: hypotheses are "*free creations of our own minds, the result of almost poetic intuition, of an attempt to understand intuitively the laws of nature*" (1972, p. 192). Hallyn reviews other approaches to abduction, especially the work of Gaston Bachelard (1964) and Gerald Holton (1978) on "presuppositions", noting their inadequacies.

Hallyn (1990) stresses his intention not to call the study of abduction a poetics in the Aristotelian sense of a system of normative rules, "*but rather in the sense that one speaks of the poetics of Racine or Baudelaire, namely to designate a collection of choices made at different levels (style, composition, thematics...) by an author or group*" (p. 14). For Hallyn this comes down to what Umberto Eco (1990) calls "*the plan for shaping and structuring the*

work".

An important aspect of this poetics is tropology in which metaphor is the trope most frequently cited in connection with abduction. Hallyn notes the recognition of the link between metaphor and model, including Max Black's suggestion that a model is nothing more than the explanation of a metaphor (1977). He points to Michel Meyer's affirmation that the first level of scientific activity through which a hypothesis is inferred is governed by a form of logic which resides in the making of metaphors (1979).

Hallyn refers to the recent study of Dedre Gentner (1982) which concludes that scientific analogy and literary metaphor are "more alike than different". The differences are of degree, orientation, and coherence, not composition. The key difference lies in the "assimilation" of things to the subject in the literary case, as compared with the subject's "accommodation" to reality in the other. The former tends to subordinate the environment to the organism as it is, whereas with the scientific trope the subject aims to subject himself and others to the constraints that the object is supposed to impose on all. The metaphor used then aims to supplant the language pattern that it opposes (p. 31).

He uses Michel De Coster's (1978) differentiation of the status of metaphor:

- a discursive status, when the purpose is to enlighten, persuade or explain;
- a methodological status, when it has a heuristic function; and
- a theoretical status, linked to a vision of the world that poses a priori the existence of a real analogy.

It is the two latter types which belong in the poetics of the hypothesis.

Hallyn demonstrates the achievement of Copernicus through a tropological operation. The requirement for symmetry, already widespread in Renaissance art, was transposed through metaphor. *"The replacement takes the form of metonymy when it is necessary to reconceive the empirical data; it corresponds to synecdoche when attention turns to theoretical elements. Thus a metonymic operation makes it possible for the empirical perception of the sun to be interpreted as an effect replacing its cause (the earth's motion). In the physical theory...a synecdoche of a part of the whole comes into play when Copernicus replaces the totality of the universe with celestial bodies taken individually..."* (p. 283)

(j) What is meta for?

The theme of metaphor runs throughout the work of anthropologist/biologist Gregory Bateson. In preparing his final book, the author of *Mind and Nature: a necessary unity*, became aware that the unity of nature he had been affirming might only be comprehensible through the kinds of metaphor familiar from religion (p. 2). From this perspective there were strong and clear arguments for the necessity of the sacred, and these arguments had their base in an epistemology rooted in improved science (p. 11). What is referred to as the "sacred" is in this sense a way of coping with certain epistemological problems (p. 86). He argues that *"metaphor is not just pretty poetry, it is neither good nor bad logic, but is in fact the logic upon which the biological world has been built, the main characteristic and organizing glue of this world of mental process..."* (p. 30). For him formal logic rejects as invalid the metaphorical connections that are so pervasive in the natural world (p. 144).

In a posthumous summary of his work on this point, in a chapter entitled *So What's a Meta For?*, his editor (his daughter) states that he: *"contrasts the general preference of biological communication for metaphor with the human development of a system organized around nouns set in subject-predicate relations. In metaphor, two complex propositions are set side by side and, to some degree, equated -- the affirmation lies in juxtaposition."* (p. 188). His stress is on the need to develop a mode of discourse appropriate to knowledge and decision making in the

world of relationships (p. 190). *"If we want to be able to talk about the living world (and ourselves), we need to master the disciplines of description and reference in this curious language that has no things in it but only differences and relationships. Only if we do so will we be able to think sensibly about the matrix in which we live, and only then will we recognize our affinity with the rest of that world and deal with it ethically and responsibly."* (p. 191)

He presents evidence *"for the reality of very large mental systems, systems of ecological size and larger, within which the mentality of the single human being is a subsystem. These large mental systems are characterized by...constraints on the transmission of information between their parts. Indeed, we can argue from the circumstance that some information should not reach some locations in large, organized systems to assert the real nature of those systems -- to assert the existence of that whole whose integrity would be threatened by inappropriate communication."* (p. 135) And again: *"The mental world is vastly bigger than we are, but we do have various 'tricks' that enable us to grasp something of its vastness and its detail. Of these tricks the best known are induction, generalization, and abduction....It is this last step, for which I use the term abduction, that is the glue that holds all science (and all religion?) together."* (p. 174-5).

But because of the complexity and subtlety, this holding together can only be achieved through maintaining appropriate barriers: *"we must bear in mind the barriers that must be maintained if the network of mind is to become richer and more complex, evolving towards something like ecological climax, a semistable system of maximum differentiation, complexity, and elegance. We look for contrast that develop or differentiate as sophistication increases."* (p. 175). For him metaphor was the vital tool for thinking when faced with complexity and paradox.

His arguments are of importance to the contradictions and challenges of policy-making in the large systems of concern to the international community, whether social or ecological. Drawing upon contradictory and conflicting dramatic themes from myth he concludes: *"It is not that one or the other of these double phrasings is right, or that it is wrong to have such double myths. What seems to be true is that it is characteristic of large cultural systems that they carry such double myths and opinions, not only with no serious trouble, but perhaps even reflecting in the latent contradictions some fundamental characteristic of the larger mentality."* (p. 141)

(k) Therapeutic metaphors

Bateson's work continues to be related to ongoing studies of cybernetic epistemology as in Bradford P Keeney's *Aesthetics of Change* (1983). For example, Douglas G Flemons (1991), uses Bateson (1972, 1979, 1987) and Keeney, plus insights from Taoism, in new approaches to the relations between problems and solutions in therapy -- an early concern of Bateson's. Flemons suggests that addiction and other social and ecological dilemmas stem from the belief that distinctions such as hate and love, sickness and health, or problem and solution are irreconcilable oppositions. He shows how such separations can be completed so that genuine healing can occur in individuals, families, organizations, and ecologies. The stress on metaphor continues and poetry is extensively used to illustrate the argument.

Aspects of the work of Bateson on language and metaphor have been extensively developed by Richard Bandler and John Grinder (1982) (his students) and others into a training programme for therapy and communication known as neuro-linguistic programming. The study by David Gordon (1976) is perhaps the most explicit with regard to metaphor.

The school of archetypal psychology, and notably the work of James Hillman (1983) on healing fiction and metaphor represents a quite distinct approach. Depth psychologist Andrew Samuels (1993) has done much to relate outward political convictions to inner processes and journeys.

(l) Light of the mind

In an unusual study, Arthur Zajonc (1993) explores the understanding of light down the centuries. He shows that even with the latest advances of science, there are aspects to light and the processes of perception that remain mysterious. He clearly shows from medical histories that a healthy eye is not sufficient for vision. There is a special contribution from the brain, effectively a "light of the mind" or of consciousness, which creates what is seen, including patterns and colours.

What comes to the eye "objectively" is thus constantly challenged and moulded by what comes from the eye "subjectively" to create the environment in which an individual dwells. People in particular cultures may bring to the perception of colours constraints which transform the spectrum of colours seen and the colour values attached to certain objects.

Zajonc's study offers many clues to ways of exploring the manner in which poetry may affect the light of the mind and thus transform what is effectively seen. It explores the manner in which the objective world that preoccupies policy-makers is intertwined with the subjective world that preoccupies poets.

This perspective is confirmed in an interdisciplinary study of perception entitled *Perceiving Ordinary Magic: science and intuitive wisdom* in which Jeremy Hayward (1984) uses Heidegger's argument that it is our knowledge of what is present (eon in Greek) and our ability to describe what is in language, which have increasingly obscured eon from us. Existence becomes inauthentic when people get caught up in the descriptions, taking these to be what is. Thus for Heidegger (1968) : "*Thinking is only thinking when it recalls in thought the eon (what is present), that which this word indicates properly and truly, that is unspoken, tacitly.*" Hayward states: "*When language and thought are in this way freed from their bondage to description, they point beyond themselves to what is. This is poetry. And poetry is, therefore, the highest, most human use of language.*" (p. 50)

(m) Articulation of policy guidelines in poetic form

There is a long tradition of expressing wisdom concerning the future in poetic form, with or without the appropriate policy responses. In the distant past this merges necessarily into expression of religious and philosophic understanding. Sri Aurobindo noted that the rishis of ancient India were knowers of the divine as well as kavis, poet-seers, who expressed the eternal truths they intuitively grasped in poetic hymns that are now known as the Rigveda. The voluminous collection of verses making up the Rigveda is divided into ten mandalas which may be understood as song cycles. A mandala is thus to be understood as the synthesis of numerous distinct elements in a unified scheme. Apparent chaos and complexity are simplified into a pattern.

The musical allegories of the Rig Veda and of Plato, have been intriguingly analyzed by Ernest G McClain (1978) as a coded expression of policy relevance. Thomas Cleary (1990), translator of the Taoist classic the *Huananzi*, which he renders as *The Tao of Politics* states: "*The book of the masters of Huainan is a record of sayings on civilization, culture and government. More detailed and explicit than either of its great forerunners, Lao Tzu's 'Tao Te Ching', and the 'Chuang-tzu', it embraces the full range of natural, social, and spiritual sciences encompassed in classical Taoism. It links environmental husbandry, personal development, and sociopolitical evolution into a comprehensive vision of human life.*" (p. vii). These works, together with the *I Ching* all served as sets of guidelines for imperial policy making. Like other Chinese guidelines for action, they make use of poetic form in which metaphor plays a major role. In Europe the quatrains of Nostradamus have been valued at the highest level over the centuries. This approach continues with publication of such books as *The Tao of Management* by Bob Messing (1989). The poetic text of the *I Ching* has been adapted as a metaphor for policy-making

challenges (Union of International Associations, 1991).

It may well be asked whether the poetic form was deliberately used in order to conceal or because any other literary mode would have been inappropriate. It is more interesting to question whether the poetic mode enabled insights to be communicated which could not otherwise have been communicated. It is possible that "proto-insights" could only be expressed through metaphoric allusion, namely that over-definition was either impossible or inappropriate.

(n) Complementarity

This concept of fundamental importance to physics may be understood as the interrelationship, completion or perfection brought about by one or more elements supplementing, being dependent upon, or standing in polar opposition to another. The situation in quantum physics has been considered a reflection of the application of an all-pervasive principle determining the approach to the unity of knowledge exemplified by the wave/particle concepts of light. Situations in psychology and biology also present equivalent complementary aspects.

It has been argued by De Nicolas (1978) that the Rig Veda requires four complementary conceptual languages, rather than one, in order to convey the contrasting natures of its meaning. The four languages then function as four spaces of discourse within which human action takes place and from which any given statement in the text gains meaning. The languages show the human situation within disparate linguistic contexts embodying different ways of viewing the world. Complementarity in this sense is also vital in poetry to reflect insights which cannot be adequately captured by single metaphors in isolation.

(o) Interwoven alternatives: resonance hybrids

Chemistry has had to develop a theory of resonance in order to represent certain kinds of molecules. The normal state of such molecules can only be understood as a continuing alternation between a set of complementary alternatives. The molecule is thus conceived as resonating among the several valence-bound structures, or rather to have a structure that is a resonance hybrid of perhaps five of these structures -- each of which is less stable than the pattern of resonance as a whole.

It has been argued that as a metaphor resonance hybrids could well provide the key to the conception, design and operation of coalitions of people or groups which could not cohere for any length of time in one single form but could be stable if the coalition alternated between several complementary forms. Underlying this possibility, the metaphor is also of interest to the integration of incompatible perspectives, paradigms and policies without eroding their distinctiveness in some simplistic compromise. It opens the way to more fruitful discussions both about how alternation between the opposing answers characteristic of a complex society can be improved and about the kinds of social structures that could be based upon such patterns of alternation.

Patterns of resonance are of course fundamental to poetry-making.