



# laetus in praesens

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## Implication of the 12 Knights in any Strategic Round Table

### Each circulating globally in quest of sustainability and immortality

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## Introduction

Use is frequently made of "round table" as a metaphor to suggest a configuration of a fruitful diversity of stakeholders and contrasting perspectives -- vital to an integrative strategic approach. Examples include the [round table discussion](#) favoured at academic conferences, the [European Round Table of Industrialists](#), the [Round Table club](#), the [Round Table movement](#), and the [Round Table Journal](#) regarding policy matters of the Commonwealth of Nations. The [Round Table Group](#) figures significantly in conspiracy theories regarding the promotion of a New World Order. Other indicative examples include:

- [Round Table Discussion: an effective public engagement strategy](#) (North American Association of Christians in Social Work, 2010)
- [Round Table 'Strategy of Ukraine'](#) (Ukraine Crisis Media Center, March 2014)
- [Strategy Round-table](#) (Paradox Interactive Forums, 2012)
- [European Security Round Table](#)
- [Business and Policy Leaders Round Table](#)
- [Expert Round Table on Social Media and Risk Communication during Times of Crisis](#) (American Public Health Association)
- [Regional Strategic Planning and Regional Round Table](#) (SADC, 2009)
- [Caux Round Table: moral capitalism at work](#)
- [Round Table on the NATO-Russian Relationship](#) (Woodrow Wilson Center, January 2014)
- [OECD Innovation Strategy Round-Table Meeting](#) (OECD, 2010)
- [Asia Leadership Roundtable](#)
- [A Common Strategy in Communication for Development](#) (UN Inter-Agency Round Table, 2007)
- [Roundtables](#) (Asia Europe Physics Summit, 2013)
- [Round Table Conference "Sustainable Use of Natural Resources in light of the Strategy for the Danube River Basin"](#) (International Scientific Forum "Danube -- River of Cooperation", May 2013)
- [Corporate Strategy for 21st Century: Leadership and Corporate Governance Round Table](#) (Executive Talents, October 2014)

Despite predictable denial in some instances, even in the most formal and conventional contexts, use of the term draws on Arthurian mythology. This implies a nostalgic cultural memory for the court of Camelot and all that it continues to represent. Camelot itself is favoured -- as in the [Camelot era](#) nickname for the Kennedy period, in the [Camelot strategic board game](#), and in the dubious [Project Camelot](#) of the social sciences. Several games now use the round table as a focus for developing strategic skills ([Citadels](#), [Quests of the Round Table](#), [Round Table Games](#), [The Roundtable Game](#), [Knights of the Round](#), [Shadows over Camelot](#)). The existing [Society of](#)

[Knights of the Round Table](#) (founded 1720) continues to perpetuate the name and fame of [King Arthur](#) and the ideals for which he stood.

In previous exercises the curious preference for 12-foldness has been variously explored (*Enabling a 12-fold Pattern of Systemic Dialogue for Governance*, 2011; *Eliciting a 12-fold Pattern of Generic Operational Insights*, 2011). Those exercises associated 12-foldness with a variety of qualities, notably recognizable through characteristic "languages" variously considered appropriate to strategic articulation (*12 Complementary Languages for Sustainable Governance*, 2003).

Here the archetypal metaphor is taken further through raising questions as to how these contrasting qualities might be better understood. The particular concern is to avoid premature closure on definitions of such distinct qualities. The suggestion is that they represent a challenge to appropriately subtle comprehension, and therefore call for a process evoking questions, rather than immediate closure on any particular classification. This is as much a personal challenge to learning as one seeking a larger consensus.

Use of "round table" merits a degree of challenge through the manner in which it implies that any viable global strategy can be readily articulated from a "planar" perspective -- leading to presentation of "global plans". Together these might well prove to be a fundamental contradiction in terms -- framing a mode of thinking which undermines the very "global" viability which is sought through the "plan". This tendency to "flat earth" assumptions has been separately criticized (*Irresponsible Dependence on a Flat Earth Mentality -- in response to global governance challenges*, 2008). The argument here considers the possibility of a more appropriately spherical geometry as a remedy for what could prove to be a critical inadequacy for this period -- especially given the technology potentially supportive of another modality (*Middle East Peace Potential through Dynamics in Spherical Geometry*, 2012; *Spherical configuration of interlocking round tables: Internet enhancement of global self-organization through patterns of dialogue*, 1998) .

The further suggestion is that there is an intriguing mystery as to how the archetypal "Knights" might be understood -- as with their individual quests and any global endeavour in which they might be engaged. Framed as a "mystery", this potentially evokes fruitful imagination and forms of engagement which are typically beyond the capacity of strategic endeavours conventionally defined. Framed as somewhat mysterious, the elusive nature of the "Knights" and their endeavours helps to frame the difficulty in practice of achieving meaningful consensus on viable approaches to global sustainability. It suggests that a somewhat unconventional approach might prove more appropriate to the nature and quality of the consensus required.

Rather than frame "Knights" as emblematic of a mode of organization which it is now desirable to supercede, the argument here is to benefit imaginatively from the values traditionally associated with nobility -- as potentially implying a degree of holistic transcendence. This might even be one characteristic of the integrative sense of "globality", as separately argued (*Future Generation through Global Conversation*, 1997; *Transforming the Art of Conversation: conversing as the transformative science of development*, 2012) . These values could now be especially recognized in terms of long-term learning regarding integrative remedial strategies -- calling for reconnection with the popular imagination for which the archetype retains its appeal through myth and online gaming. The question is how any such myth can enable new ways of thinking in response to the strategic disconnect which is so widely evident. What might be a more appropriate "language" through which the global strategic challenge might be imagined?

Of special interest is the framing by the "Knights" of their respective quests, of how each such quest might well be a challenge to the comprehension of the others. Where do the Knights each think they are going? What form do they expect the end of their quest to take? Given the manner in which their quests have been woven into that for the [Holy Grail](#), what might that "holiness" imply for each? How is its mythical offering of immortality to be related to that for global sustainability? This extends a previous discussion of the association of sustainability with the myth (*In Quest of Sustainability as Holy Grail of Global Governance*, 2011; *Interrelating Cognitive Catastrophes in a Grail-chalice Proto-model: implications of WH-questions for self-reflexivity and dialogue*, 2011).

The emphasis here is therefore on an open process of imaginative engagement rather than on the definitive closure so widely practiced -- typically in vain, it would seem.

## Who can the "Knights" be imagined to be?

There is a very extensive literature on the [Knights of the Round Table](#) and the associated legendary quest for the [Holy Grail](#) -- as helpfully introduced by Pauline Matarasso (*The Quest of the Holy Grail*, 1969). It forms part of a vast compilation known as the *Prose Lancelot*. As noted by Matarasso:

...it is the product of a period when things were rarely quite what they seemed, when the outward appearance was merely a garment in which to dress some inward truth, when the material world was but a veil through which the immutable would be sporadically glimpsed and perpetually reinterpreted. Most medieval literature can be read on more than one level, that of the story proper, and that of the meaning it served to illustrate... (p. 9).

Those medieval nuances could well be recognized as very appropriate to meanings in the emerging global knowledge-based society of the 21st century -- especially given the spate of disclosures and the extensive use of spin. An influential thinker with respect to the "Knights" is [George Trevelyan](#) (*Twelve Seats at the Round Table*, 1976). He organized in the UK, over many years, a round table bringing together leaders of holistic medicine, spiritual communities, and sympathetic scientists.

The question above can be framed more generally in terms of how to distinguish the elements of any pattern of 12-foldness. The nature of the challenge is evident with respect to the [12 Apostles](#) of Christianity, the [12 Tribes of Israel](#), the [12 Imams](#) in [Shi'a Islam](#), or the [Dodekathion](#) of Greek antiquity (and the corresponding [12 Dii Consentes](#) of Rome) -- as was previously discussed (*Eliciting a 12-fold Pattern of Generic Operational Insights: recognition of memory constraints on collective strategic comprehension*, 2011; *Generic Reframing of the 12 Tribes of "Israel"*, 2009).

The point to be made is that, whilst each may well be distinctively named and widely recognized, the functions and qualities are less readily distinguished. Such qualities may be evoked in stories, but these do not lend themselves readily to an extensive understanding of the distinct functions implied. Of particular relevance, there is little sense of how each might be vital to comprehension of the nature of more comprehensively integrative "globality" -- from a systemic perspective.

Any such determination leaves open how they "work together" and complement each other in doing so -- as a pattern of checks and balances. In the case of *The Quest of the Holy Grail*, the complex tale distinguishes the Knights to a degree in ways which are helpful to the dramatic interest of the narrative. It follows the journeys of half of them in their quest. Missing is the systemic insight which is only implied by current enthusiasm for "round table" as indicative of an integrative, action-oriented perspective. The same could be said of other 12-fold configurations of archetypal exemplars, however much they are valued for what they imply.

A valuable approach to the questions raised here is that of [David Perkins](#) (*King Arthur's Round Table: how collaborative conversations create smart organizations*, 2002) as significantly summarized and amplified by [Dorothy Howie](#) (*Teaching Students Thinking Skills and Strategies: a framework for cognitive education in inclusive settings*, 2011). In a closing chapter on *Decision Making for a Whole-School Approach to Teaching Thinking for All*, Howie develops the insights of Perkins, made initially at the [International Conference on Thinking](#) (Harrogate, 2002) in a paper on *King Arthur and the Round Table*. Howie discusses the metaphor of the round table as articulated by Perkins with respect to decision making. Howie notes:

A Round Table is seen as a "smarter" table, in which people can "put their heads together". At the Round Table of the mythical King Arthur, the knights sat around a large marble table, with their backs against the wall, to discuss and decide key matters for political ordering. The roundness of the table meant that every person could be heard by all when they spoke. The importance of equal voice and regard available with the round table arrangement is pointed out by Perkins.... Regrettably, Perkins notes, today these aspects of position and closeness to the source of power continue to be important to each person's decision-making power.

Perkins then discusses the importance of the collaborative conversations which are possible around such a Round Table... successful Round Table conversation and decision-making involves knowledge processing by all, attention to the evidence, clear discussion, with appropriate questions of clarification and exploratory and imaginative consideration of solutions...

With regard to the barriers in the organization and sharing of the ultimate aim as argued by Perkins, Howie then remarks:

There are barriers not only in terms of individual persons' resistance to innovation... but also individual agendas which can form barriers to joint aims and beliefs. For example, regressive barriers in the Round Table conversations and decision making can occur, according to Perkins, when there are "people bent on attaining, maintaining and taking advantage of power positions, even though they serve the general interests of the group less well"... We need to put aside individual aims for power, status and territory need, for the Round Table beliefs.

One previous approach to the issue of configuration took the form of a "classification", separately described (*Functional Classification in an Integrative Matrix of Human Preoccupations*, 1982). This has been extensively used in ordering international organizations and their preoccupations, most notably in the *Yearbook of International Organizations* and the *Encyclopedia of World Problems and Human Potential*.

## Labels tentatively indicative of the "Knights" and their noble ventures

As framed above, any process of identifying the "Knights" is necessarily an iterative one. It is not especially important what labels are used initially to indicate a qualitative cluster -- one of twelve. Many modern classification systems are based on a 10-fold pattern of definitive clusters -- seldom open to extensive modification. Mintzberg (1994), for example, suggests 10 "Schools of Thought on Strategy Formation".

Schools of Thought on Strategy Formation (according to <a href="#">Henry Mintzberg</a> , distinguishing "school" and "view of process")	
<ul style="list-style-type: none"> <li>• design (conceptual)</li> <li>• planning (formal)</li> <li>• positioning (analytical)</li> <li>• cognitive (mental)</li> <li>• entrepreneurial (visionary)</li> </ul>	<ul style="list-style-type: none"> <li>• learning (emergent)</li> <li>• political (power)</li> <li>• cultural (ideological)</li> <li>• environment (passive)</li> <li>• configurational (episodic)</li> </ul>

From this perspective, the following might be tentatively distinguished as a preliminary exercise (in no particular order):

<ul style="list-style-type: none"> <li>• science</li> <li>• religion / belief</li> <li>• technology / applied science</li> <li>• aesthetics / poetry / music / art</li> <li>• recreation / sport / entertainment / media</li> <li>• environment / nature / agriculture</li> </ul>	<ul style="list-style-type: none"> <li>• business</li> <li>• information</li> <li>• community / kinship / law</li> <li>• politics / governance</li> <li>• military / security</li> <li>• finance</li> </ul>
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The value of the constraint to 12 clusters follows on the one hand from the preference in practice for 12-foldness, as previously noted



include particular clusters in every program. The tales of Knights, Apostles and Greek deities offer little indication of such cases of functional "repression" or "domination", and of their consequences.

Curiously, and potentially of great significance to any global understanding, is that Knights and Apostles are represented by men -- none with any female associates. This is less evident in the case of the deities of Greek antiquity who have a degree of interaction with goddesses -- if not understood as specifically complementary. What merits attention with respect to the role of women in "sustainability"? Clearly women constituted a challenge to some of the Knights in the tale of Camelot -- introducing a particular dynamic essential to the tale. Attention has more recently been given to the role of some women with respect to some Apostles in that tale. The systemic functional implications are far less evident.

## Questionable implications of the roundness of a table and reinforcement of "superficiality"

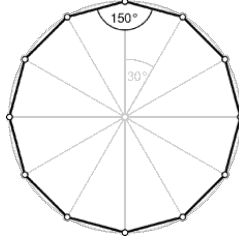
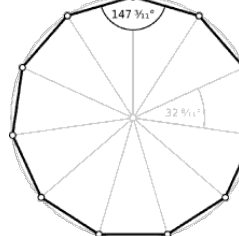
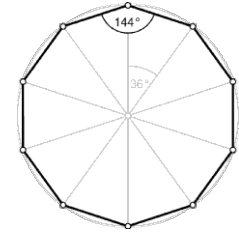
The traditional tales are suggestive of the nature of some journeys. Missing is any systemic sense of where the Knights travel to, their period of absence, and the nature of their return -- as with the prodigal son. How are such questing journeys to be understood in systemic terms? How do they help to engender sustainability? Of potentially greater significance is how such journeys interweave and interlock, reinforcing each other in various ways. Do particular Knights meet each other in the course of their quests? Do they learn from each other such as to give expression to systemic constraints?

Such questions are not adequately or fruitfully addressed in use of the round table metaphor in a strategic context. Given the flatness of the table, it might be asked whether this implies and reinforces the "flat earth" mentality to which reference was made above.

One approach is the articulation of quests presented in the form of a [concept map](#). For example a concept map of archetypal character types and roles figures in the more general argument of Peter von Stackelberg (*Creating Transmedia Narratives: the structure and design of stories told across multiple media*, 2011, p. 131). It is appropriate to note that in a mythological mode it is the dramatic tales of narrative that are explicit with any implicit "map" or "code" held to be a secret possibly to be sought. This contrasts with conventional logic in which the implicit significance of narrative relations are subordinate to systemic presentations with which engagement and identification are questionable.

The "geometry" of a round table, often of concern to enabling negotiation in diplomatic summits, provides a metaphorical framework in which such consideration can be taken further. The basic issue is the implication that by being seated at a "round" table a degree of continuity between neighbours is enabled in the sense that their strategic or ideological positions are "aligned" by the curvature of its circumference. Through being seated in a circle, they are somehow forced into fruitfully integrative alignment -- consistent with all that is implied by the integrative symbolism of a circle.

That this assumption merits careful attention, is indicated by the following images.

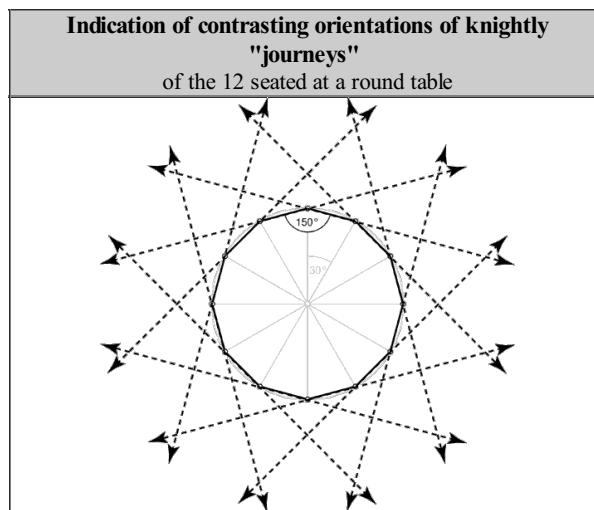
Various multi-sided "round tables" indicating degrees of alignment between knightly seating positions (knights would be "aligned" if the angle between neighbours was 180°)		
Dodecagon (for 12 knights)	Hendecagon (for 11 knights)	Decagon (for 10 knights)
		
Degree of alignment = $150/180 = 83.3\%$	Degree of alignment = $147.3/180 = 81.7\%$	Degree of alignment = $144/180 = 80\%$

*As the number of knights increase beyond 12* the geometry of the table (as indicated by the above images), would imply an ever greater possibility of alignment in physical terms (as the table approximated increasingly to a circular one) -- obviously constrained in practice by other factors undermining the agreement between neighbours that such a complex configuration might then imply.

*As the number of knights to be seated decreases below 12*, the degree of alignment of neighbouring positions (and their potential for agreement) is summarized in the following:

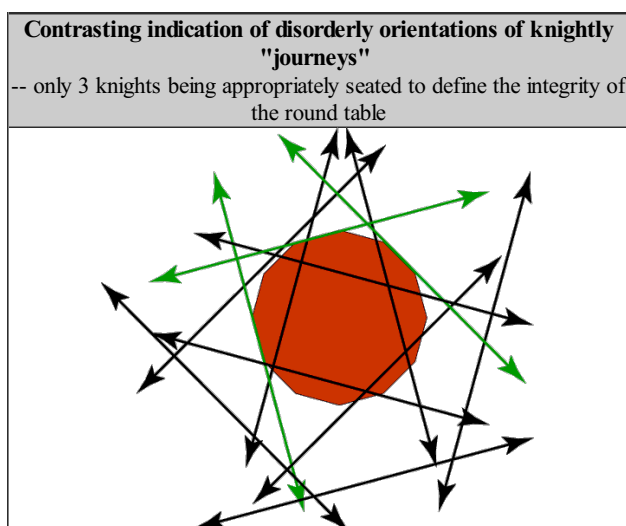
Configuration of knights around a table		
9 knights ( <b>nonagon</b> ) $140/180 = 77.8\%$	6 knights ( <b>hexagon</b> ) $120/180 = 66.7\%$	3 knights ( <b>equilateral triangle</b> ) $60/180 = 33.3\%$
8 knights ( <b>octagon</b> ) $135/180 = 75\%$	5 knights ( <b>pentagon</b> ) $108/180 = 60\%$	2 knights ( <b>digon</b> ) ?
7 knights ( <b>heptagon</b> ) $128.6/180 = 71.4\%$	4 knights ( <b>square</b> ) $90/180 = 50\%$	1 knight ( <b>monogon</b> ) ?

The geometry of a conventional round table may be used to highlight the sense in which each knight is on an implicit journey ("beyond the table") -- momentarily interrupted by being seated at the table (and confined temporarily to it). It is the direction of the journey (or its orientation) which is indicative of the contrasting functional preoccupations of each knight. It is the set of these journeys which is indicative of a larger system implied by the round table.



Use of double-headed arrows also offers a sense of the ambiguity of the journey with respect to the significance of the past and the attraction of the future -- with the possibility of a form of "return" and systemic closure (as discussed below). The image above also suggests the sense in which the knights on these journeys may variously encounter each other ("beyond the table") -- and have memories of those encounters (possibly of a "traumatic" nature), or anticipate them with concern. Expressed otherwise, certain knights may have "history" with each other.

The association of the journeys with the sides of the round table above can be usefully contrasted with the more disorderly arrangement indicated by the image below. There only three of the knights (in green) could be understood as having come appropriately "to the table" -- then inadequately defined by the disorderly arrangement of the others.



Missing from either of the above representations is the degree of integrity implied by a more integrative interweaving of the journeys -- in more than the two dimensions of the table, as previously discussed (*Interweaving Thematic Threads and Learning Pathways*, 2010). As represented the journeys go their various linear ways -- to infinity -- without any more effective integration than that implied by the central round table. In this sense the integration of the round table may be understood as illusory -- reinforcing a form of "superficiality". Its strength lies in how what is implied may indeed be integrated in ways not explicit in the design of the round table.

**The question is whether greater integration, and the integrity it implies, can be represented through geometry of higher dimensionality.** It is appropriate to note that the *Wikipedia* profiles (to which the above forms link) provide many references to more complex forms suggestive of higher forms of integration, with images illustrating their nature. As noted by *Wikipedia*, the regular dodecagon is the **Petrie polygon** for many higher dimensional polytopes, seen as **orthogonal projections** in **Coxeter planes**, of which the following are examples

<b>Implied or potential "round tables" of higher dimensionality?</b> (selected examples reproduced from <i>Wikipedia</i> for the case of dodecagon as <b>Petrie polygon</b> )					
6-orthoplex	Rectified 6-orthoplex	Birectified 6-orthoplex	Birectified 6-cube	Rectified 6-cube	6-cube

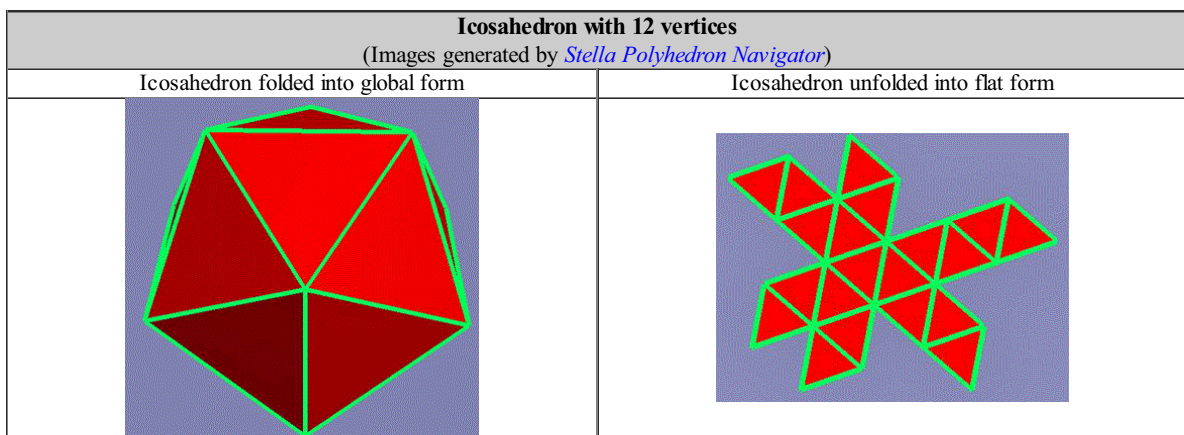
## **Knightly journeys in quest of global sustainability (and immortality)**

**Constraining implications of 12-foldness:** One approach to these questions -- from a systemic perspective -- is to return to the constraint of 12-foldness and the geometry this may imply. Aspects of this approach have received considerable attention from [Arthur Young](#) (*Geometry of Meaning*, 1976) and from [R. Buckminster Fuller](#) (*Synergetics: explorations in the geometry of thinking*, 1975).

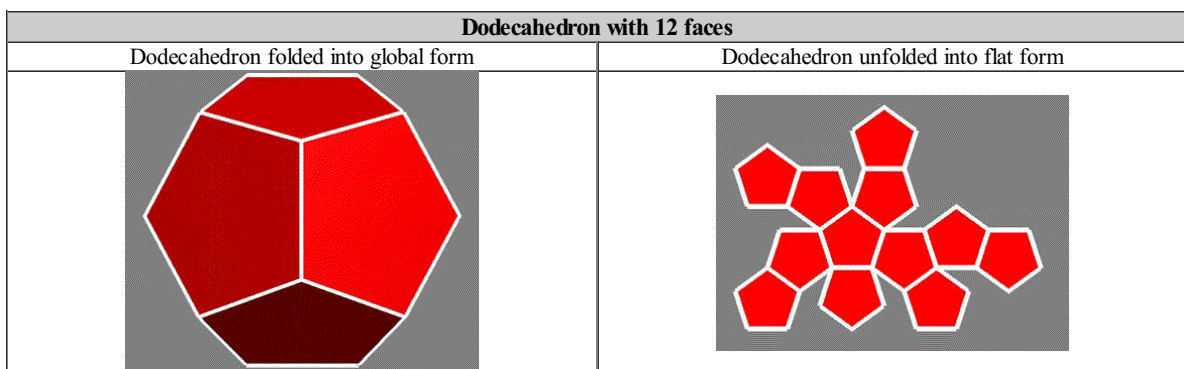
Fuller offers greater insight in terms of geometrical complexity, as discussed separately (*Geometry of Thinking for Sustainable Global Governance*, 2009). Young offers greater insight in terms of distinctive functionality, as variously suggested (*Characteristics of phases in 12-phase learning-action cycle*, 1998; *Typology of 12 complementary strategies essential to sustainable development*, 1998). From a cybernetic perspective, both are complemented by the work on syntegeity of [Stafford Beer](#) (*Beyond Dispute: the invention of team syntegeity*, 1994) as variously summarized (Allenna D. Leonard, *Team Syntegeity Background*. 2002; J. Truss, et al., *The Coherent Architecture of Team Syntegeity: from small to mega forms*, 2003).

**Spherically symmetrical polyhedra:** With respect to geometry, the issue is how a 12-fold pattern might be represented -- beyond the integrative implications of the traditional round table. The approaches of Fuller and Beer are especially significant in highlighting the nature of globality through their reference to spherically symmetrical polyhedra. It is then appropriate to suggest that the Knights travel variously around a spherically symmetrical polyhedron -- a virtual form indicative of functional globality. The distinct patterns of their journeys -- with their interweavings and consequent learnings -- might then be recognized in terms of distinct polyhedra. This argument has been highlighted in considering the relevance of polyhedral mappings to governance (*Towards Polyhedral Global Governance: complexifying oversimplistic strategic metaphors*, 2008)

The argument can be taken further in functional terms if it is assumed, as argued by Beer, that it is such configurations which are of cybernetic significance. Global forms onto which the 12 Knights, and their journeys, might be mapped then include the following.



In the above case the Knights could be explicitly associated with distinct **vertices**. Whereas in the following case they could be associated with the domains represented by the distinct faces -- with a Knight located virtually at the centre of each **face**.



Beer focused his cybernetic argument on the [icosidodecahedron](#) with 32 faces (of two types), 60 edges, and 30 vertices -- emphasizing the variety that could be associated with the vertices. The cube and octahedron (Platonic forms like the icosahedron and the dodecahedron) each have 12 edges. Restricting the focus here to the more fundamental [Platonic forms](#), the pattern is as follows.

<b>Pattern of characteristics of the set of spherically symmetrical Platonic forms</b>					
	Tetrahedron	Cube	Octahedron	Dodecahedron	Icosahedron
Edges	6	12	12	30	30
Faces	4	6	8	12	20
Vertices	4	8	6	20	12
<i>Total</i>	14	26	26	62	62

**Great circle pathways:** One possibility is then to assume that the quest of any one Knight is delineated (or mapped) by the [great circle](#) pathways around such polyhedra -- with which a vertex or face is associated (according to the form selected for the mapping). The explicit "linearity" of the journey may however be broken (or take implicit form) -- as when a face must be "crossed", perhaps to be understood as requiring an explicit diversion around the edges of that face in order to get back onto the circular pathway.

Here the circularity of the path -- and the closure with which it is associated -- is suggestive of an integrative journey circumscribing the whole and returning to the point of departure. With respect to any knightly quest, this recalls the poetic lines of [T. S. Eliot](#): *We shall not cease from exploration / And the end of all our exploring / Will be to arrive where we started / And know it for the first time.* ([Little Gidding](#), 1942).

Distinguishing the global knightly journeys in terms of the set of spherically symmetrical Platonic forms					
	Tetrahedron	Cube	Octahedron	Dodecahedron	Icosahedron
<b>Journey pathways</b>	6	12	12	30	30
<b>sub-global journeys</b> (strategic quests)	4 disparate sub-global (3-phase) journeys imply 12-foldness only through their bidirectionality -- but with each phase common to 2 domains	8 disparate sub-global (4-phase) journeys imply 12-foldness through their unique directionality -- but with each phase common to 2 domains	8 disparate sub-global (3-phase) journeys imply 12-foldness through their unique directionality -- but with each phase common to 2 domains	12 disparate sub-global (5-phase) journeys express 12-foldness through their implicit common focus delineating a domain of unique orientation -- but with each phase common to 2 domains	20 disparate sub-global (3-phase) journeys express 12-foldness through their explicit junction points between 5 distinct global journeys -- but with each phase common to 2 domains
<b>global journeys</b> (strategic quests)	3 global journeys, in each of which only one phase is explicit, separated by 2 intermediary diversions between other domains	4 global journeys, each with two contrasting phases, separated by 2 intermediary diversions between other domains	4 global journeys, each with two contrasting phases, separated by 2 intermediary diversions between other domains	5 global journeys, each with two contrasting phases, separated by 4 intermediary diversions between other domains	5 global journeys, each with two contrasting phases, separated by 2 intermediary diversions between other domains.
<b>Unique domains</b> (orientation / identity)	4	6	8	12	20
	12-foldness is expressed through the conflation of 4 orientations (with implicit central identities)	12-foldness is expressed through the conflation of 2 parallel orientations (with implicit central identities)	12-foldness is expressed through the conflation of 3 orientations (with implicit central identities)	12-foldness is expressed explicitly through the 12 distinct orientations (with implicit central identities)	
<b>Unique perspectives</b> (worldview)	4	8	6	20	12
	each perspective conflates 3 orientations and implicit worldviews to express 12-foldness				12-foldness is explicitly expressed by the junction points between the 5 global journeys

**Non-linearity of journeys:** The non-linearity of such knightly quests, and its importance in ensuring strategic continuity and coherence, recalls the importance attached to so-called Knight's move thinking in chess, and the equivalent in the game of go ([Predictability and pattern-breaking: the Knight's move](#), 2011; [Knight's move thinking: appreciated or deprecated](#), 2012; [Insights from Knight's move thinking](#), 2012; [Alternative representations: Knight's move, Swastika and BaGua ?](#) 2012; [Stratagems and ploys characteristic of Knight's move thinking](#), 2012).

As noted in those discussions, there is great irony to the fact that knight's move thinking is considered to be a [thought disorder](#) in medical practice, denoting a lack of connection between ideas as being indicative of illogical loosening of associations ([Knight's move thinking, General Practice Notebook](#)). This contrasts with its other uses as a metaphor for the much valued capacity to perceive relevant connectivity despite the unexpected and illogical. A knight figures prominently for that reason in many insignia and badges of the [U.S. Military Intelligence Corps](#) -- whom only political activists would characterize as suffering from a pathological thought disorder.

The ambiguity variously associated with illogicality, non-linearity and recognition of a higher order of connectivity (than is implied by "orderly" conventional thinking) suggests that the quests of the knights merit consideration in those terms. This is especially the case if interpreted with respect to globality, collective sustainability and personal immortality in their most integrative sense. Of relevance is any premature closure on a "holy grail" in the light of the argument of Paul Prew ([The 21st Century World-Ecosystem: systemic collapse or transition to a new dissipative structure?](#) 2003):

If social sciences are to advance, they must relinquish their hopes of scientific credibility in their quest for the holy grail of linear causality and begin reorienting research to include the ideas being generated in what has been called the "new sciences".

The concern has been articulated otherwise by [Henry Mintzberg](#) ([The Rise and Fall of Strategic Planning](#), 1994). He concludes that strategy cannot be planned because planning is about analysis, whereas strategy is about synthesis. Prew notes similar arguments by [Richard E. Lee](#) ([Imagining the Future: Constructing Social Knowledge after "Complexity Studies"](#), 1998)

The point may be suggestively made otherwise in that the Knights of the Round Table are considered the exemplars of the medieval [knight-errant](#) who wandered the land in search of adventures to prove his [chivalric](#) virtues, either in knightly duels ([pas d'armes](#)) or in pursuit of [courtly love](#). Whilst "errant" may be associated with wandering, it is also suggestive of a pattern of "error-making" meriting appreciation, as argued by [Donald N. Michael](#) in terms of the "requirement for embracing error" ([On Learning to Plan and Planning to Learn](#), 1973):

More bluntly, future-responsive societal learning makes it necessary for individuals and organizations to embrace error. It is the only way to ensure a shared self-consciousness about limited theory to the nature of social dynamics, about limited data for testing theory, and hence about our limited ability to control our situation well enough to be successful more often than not.

The argument might be extended to the appreciation of the challenges that humanity has engendered (*Celebrating the Value of Deadly Problems Worldwide*, 2008).

## Engagement of explicit masculine planning with implicit feminine globality

The challenge to comprehension of any association of great circle geometry with globality could then be fruitfully associated with higher values -- embodied in the feminine -- which the knights purportedly sought so honourably to defend (*Honour Essential to Psycho-social Integrity*, 2005).

It is in this sense that **the absence of ladies from the table of knights is especially appropriate**. There is no explicit "place" for them within a configuration reduced to two dimensions -- their presence can only be implicit. Their explicit embodiment calls for higher dimensionality -- of which spherically symmetrical globality is especially indicative.

In her introduction, Matarasso notes the contrasting context within which the Round Table of Arthurian Camelot was set -- one in which the importance of the feminine was upheld as primary:

Arthurian literature celebrates that cult of the lady which was first hymned in the poetry of the early troubadours. The courtly ethos was based upon a conception of life to which marriage was extraneous, in which the love was wholly subordinated to his lady who provided the inspiration which enabled him to excel in knightly skills, in combat, tournament and the virtues inherent in his way of life.

This paen to an adulterous passion hardly seems a suitable setting in which to integrate a work of spiritual edification which prizes virginity above all values. The dichotomy, however, is more apparent than absolute... Indeed their double standard gives to the whole a certain grandeur, for it is plain that the architect [of the tale] feels the attraction, even the nobility of that philosophy of love which he is soon uncompromisingly to condemn in the name of a higher and more exacting ideal... *The Quest* sets out to reveal the inadequacies and the dangers of courtly ideal. By allowing his heroes to retain their traditional roles and character, the author is able to show how their much-vaunted attributes lead them to the outcome one would have least looked for; the best are perhaps not the first, but he makes no bones about showing how the first are last (pp. 14-15).

There is strangeness to the relationship between the knight and the lady -- in that, with a "twist, "night" and "day" are curiously embodied in "knight" and "lady". The knight challenges the darkness of the world on a quest for enlightenment, implied contextually to a degree by the virtues of an absent lady.

## Indication of progressive approximation to explicit globality?

**Flatness and globality:** There is a curious paradox to be addressed more realistically with regard to the nature of globality and the possibility of "global plans" emanating from a flat round "table" of diplomatic summitry.

In geometrical terms, "flat" means that the junction between distinct domains can be assumed to involve no change of orientation. From a local perspective, neighbouring territories are typically not assumed to be set at an angle to each other -- despite the fact that stakeholders have distinctively contrasting perspectives. Being "flat", the angle between them could be described as 180 degrees. In design terms, this is indicative of "agreement".

This can be highlighted and contrasted in terms of the angles at which the faces of the above polyhedra meet in each case in 3 dimensions -- as was illustrated above in the case of the different polygons in 2 dimensions. The paradox lies in the requirement that achieving globality is indicated by the extent to which the junction of faces around the sphere approximates to 180 -- effectively enabling a flat earth (local) perspective within a global context.

Angles at which faces meet for the spherically regular Platonic forms (non-globality indicated by "unflatness" -- the degree of difference from 180°)					
	Tetrahedron	Cube	Octahedron	Dodecahedron	Icosahedron
Dihedral angle	71°	90°	109°	117°	138°
Implied mutual comprehensibility of neighbouring Knights	71°/180° = 40%	90°/180° = 50%	109°/180° = 60%	117°/180° = 65%	138°/180° = 77%

The above forms indicate that a globality of 77% is the closest that may be achieved with regular forms, in this case with the icosahedron. The possibilities may be extended by considering the case of the 14 Archimedean spherically semi-regular forms indicated below. In this case the closest approximation is achieved by the snub dodecahedron configuration with some faces meeting at 164° (91% globality) and some at 159° (88% globality).

Angles at which faces meet for the spherically semi-regular Archimedean forms (globality as indicated by approximation to 180°)					
truncated tetrahedron	109°°, 70°°	truncated cuboctahedron	144°°, 135°°, 125°°	truncated dodecahedron	117°°, 143°°
cuboctahedron	125°°	snub cube	153°°, 143°°	rhombicosidodecahedron	159, 148°°
truncated octahedron	125°°, 109°°	truncated cuboctahedron	144°°, 135°°, 125°°	truncated icosidodecahedron	143°°, 148°°, 159°°
truncated cube	125°°, 90°°	icosidodecahedron	143°°	snub dodecahedron	164°°, 159°°
rhombicuboctahedron	144°°, 135°°	truncated icosahedron	138°°, 143°°		

It is of course the case that the Archimedean forms are of far greater complexity than the Platonic forms and it is questionable how a "spherical round table" might then be organized in practice without computer facilitation.

## Squaring the circle and cubing the sphere -- the challenge of sustainability?

In the light of the above argument, the effort to achieve coherent global action from the perspective of a flat "table", however "round", might be usefully caricatured by the classic reference to endeavouring to "fit a square peg into a round hole". This is potentially indicative of the more general challenge of governability, as separately discussed (*Ungovernability of Sustainable Global Democracy ?* 2011).

The exploration of geometry of potential relevance to the systemic organization of sustainability is somewhat reminiscent of the strange challenge known from antiquity as [squaring the circle](#). In geometrical terms it is the challenge of constructing a square with the same area as a given circle by using only a finite number of steps with compass and straightedge. This might be interpreted as indicative of the challenging relationship between "planning" and "globality", namely as to whether conventional thinking operations can engender the integration implied by the roundness of the table at which the plan is articulated. This is typically with the aid of a tabular spreadsheet ignoring the any possibility of "spherical accounting" (*Spherical Accounting: using geometry to embody developmental integrity*, 2004). Relevant to this argument is that for a variant of chess -- *Round Table Chess* -- played on "CirSquare Game Boards".

As noted by *Wikipedia*, the geometrical task was proven to be impossible, as a consequence of the [Lindemann-Weierstrass theorem](#) through pi ( $\pi$ ) is defined as a [transcendental](#), rather than an algebraic irrational number; that is, it is not the root of any polynomial with rational coefficients. Such a conclusion suggests the sobering possibility that "globality" may be similarly unachievable using the conventional modalities associated with "global planning". Some consideration has been given to the matter by John Robinson (*Squaring the circle? Some thoughts on the idea of sustainable development, Ecological Economics*, 2004) who notes:

I introduce this story in order to make a simple analogy. The term "sustainable development" has been seen by some as amounting essentially to a contradiction in terms, between the opposing imperatives of growth and development, on the one hand and ecological (and perhaps social and economic) sustainability on the other. These critics might indeed be said to believe that trying to achieve sustainable development amounts to trying to square the circle, in the sense of trying to achieve the impossible. Moreover, the analogy cuts a bit deeper than that. At the heart of the problem of squaring the circle is the attempt to reconcile two incommensurable areas, which cannot be expressed in terms of each other, using the algebraic equivalent of a ruler and compass. As I will argue below, a similar problem of incommensurability lies at the root of some of the most serious criticisms of the concept of sustainable development.

Appropriate to the argument above regarding the planar "round table" and the systemically global nature of knightly journeys, Robinson concludes:

In the end, the mathematical problem of squaring the circle was solved by the recognition that, using the techniques of planar geometry, no solution was possible. Instead, new tools that transcended these limitations were required. I would argue that the equivalent development in the field of sustainability is the recognition that multiple conflicting views of sustainability exist and cannot be reconciled in terms of each other. In other words, no single approach will, or indeed should be, seen as the correct one. This is not a matter of finding out what the truth of sustainability is by more sophisticated applications of expert understanding (the compass and ruler). Instead we are inescapably involved in a world in which there exist multiple conflicting values, moral positions and belief systems that speak to the issue of sustainability. While it is crucial to identify points of empirical disagreement and to resolve those with better research and analysis, the ultimate questions are not susceptible to empirical confirmation or disconfirmation. What is needed, therefore, is a process by which these views can be expressed and evaluated, ultimately as a political act for any given community or jurisdiction.

A systemic approach featuring the same challenge appears in a much more recent paper by [Gennady Shkliarevsky](#) (*Squaring the Circle: in quest for sustainability, Systems Research and Behavioral Science*, 2014):

Development has been the main strategy in addressing the problem of sustainability since at least the mid-1980s. The results of this strategy have been mixed, if not disappointing. In their objections to this approach, critics frequently invoke constraints imposed by physical reality of which the most important one is entropy production. They question the belief that technological innovations are capable of solving the problem of sustainability. Is development the right response to this problem and is the current course capable of attaining sustainability? The article examines closely and critiques the principal theoretical objection to sustainable development that emphasizes physical constraints, and more specifically entropy production. It also offers a critique of the current approach to sustainable development.

Given the argument above associating conventional understanding of systemic knights with a planar worldview -- with explicit emphasis on a "male" perspective rendering implicit a "female" perspective -- it is appropriate to note the use of the geometrical challenge with respect to the empowerment of women (Linda Mayoux and Rogaya Hamza Osman, *Squaring the Circle of Women's Empowerment and Sustainability*, LEAP, 2006).

The many current references to "squaring the circle" suggest that the metaphor is indicative of a degree of recognition of unthinking recourse to the round table metaphor (William Thompson, *Reinventing the Wheel or Squaring the Circle: sustainable social quality vs. Social policy*, 28 February 2013).

Further challenges are evident in reference to cubing the sphere (Michael D. Perlman and Jon A. Wellner, *Squaring the Circle and Cubing the Sphere: circular and spherical copulas* 30 Dec 2010).

## Global strategic encyeling to engender integrative sustainability

Switching from the planar metaphor to that based on a globe defined by encircling journeys and learning pathways suggests a more fruitful way of thinking of the integrative quest of the 12 knights seated in positions at the round table.

Reference to a cyclic perspective could be considered consistent with critical appreciation of *The Quest of the Holy Grail* as a "cycle" in its own right. For Matarasso, the unity of plan and conception are to be acknowledged, as with the "complex system of cross-references of early prophecies fulfilled in later sections". (p. 26).

This more **integrative perspective is implicit in the roundness of the table**, even though the 12 positions only define an approximation to that roundness. They suggest a degree of agreement between neighbouring knights but without addressing the difficulties in practice of the limited degree of agreement. The knights are not "aligned" even though there is an implication that this is the case -- to some degree assumed to be adequate.

Giving **explicit recognition to the knightly journeys, as great circle pathways around a "functional globe"**, considerably enhances the systemic significance of those pathways and the manner in which they interweave and interlock. This could well be rendered even more explicit in a virtual environment sustained by internet technology and visualization (*Spherical Configuration of Interlocking Round tables: Internet enhancement of global self-organization through patterns of dialogue*, 1998). Polyhedral symmetry ordering such cyclic journeys could then enhance globality, as previously discussed (*Polyhedral Empowerment of Networks through Symmetry: psycho-social implications for organization and global governance*, 2008).

The process of engendering recognition of explicit cycles framing globality in a functional sense could then be usefully termed "encycling". Just as a new form of globalization has been achieved by circling the world with orbiting satellites, that tangible encycling of the globe is suggestive of the possibility of a functional analogue, as separately discussed (*Encycling Problematic Wickedness for Potential Humanity*, 2014). Given the many subtle indications offered by geometry and topology, a particular concern is however the challenge to comprehension (*Dynamics of Symmetry Group Theorizing: comprehension of psycho-social implication*, 2008).

With the explosive development of social networking, there is the further possibility that functional interweaving will be enabled in ways consistent with the emergence of new configurations -- of which **web rings** might be considered a precursor. Various arguments are suggestive of global ordering engendered in this way (*Re-Emergence of the Language of the Birds through Twitter?* 2010; *Dynamically Gated Conceptual Communities*, 2004).

Somewhat ironically the process of questing for group analogues to a round table might be understood in this light, especially with respect to ensuring adequate diversity for group sustainability (*Group Questing or Twelving*, 1976). How different do those at the round table need to be in order to engender a viable integrative approach? When the variety of those assembled is inadequate in this respect, does this reinforce what Magoroh Maruyama identifies as "subunderstanding" (*Polyocular Vision or Subunderstanding? Organization Studies*, 2004).

Especially intriguing is the challenge of understanding the nature of what might be circulating through the contrasting global cyclic pathways that may be distinguished (*Circulation of the Light: essential metaphor of global sustainability?* 2010).

**Emergent container:** According to the original tale, as a consequence of their gathering in a round table configuration, the knights are understood to be impelled on a quest for the Holy Grail -- however they may variously comprehend it. The tale defines its nature as an essentially mysterious container somehow related to immortality.

This offers an imaginative focus for reflection on the nature of the emergent "container" appropriate to global governance of sustainability. Can it be "discovered" -- an understanding explicitly challenged by the events of the original tale? Can it be engendered -- perhaps through recognizing how the pattern of journeys interweaves to form a container? Is the container implicit in the round table itself -- rather than through displacement and projection to an illusory location elsewhere?"

## Geometrical challenge to conventional "righteousness"

The argument above offers the further possibility of clarifying and distinguishing various senses of being "right". The issue is especially relevant in that those assembled are framed, and frame themselves, as exemplars of worthiness -- the embodiment of "right" -- if only in their aspirations. Problematic others are primarily to be encountered elsewhere as a challenge to their quest. Such otherness is deliberately designed out of the table as explicitly framed.

For the Knight on a quest, the direction of the journey then defines a particular sense of being right. The linearity of the chosen movement defines the appropriate end of the quest as the light to be perceived at the end of the tunnel framing the journey -- and the irrelevance of other contextual factors.

As a consequence, any sense of the rightness associated with the centre of the round table -- and potentially to be shared with other knights -- is an elusive challenge to the comprehension of any individual knight. It is orthogonal to the focus of the individual journey of any knight. Also it is defined as the intersection of directions orthogonal to the journeys of other knights, seemingly on other quite different quests -- making it even more elusive. Confusion regarding what is "right" is exacerbated by the knightly value associated with being "upright".

Further difficulty is experienced by the knight on a journey in that its linearity is challenged by learnings along the way. These can be usefully recognized in terms of curvature introduced into the tunnel as a consequence of those learnings. The experiential tunnel gradually bends over the duration of the journey. Things are not as they were originally understood to be. It may even be usefully recognized as bending back on itself to form a loop. This is implied by the lines of T. S. Eliot cited above. It is also articulated to a degree in the study of [Douglas Hofstadter](#) (*I Am a Strange Loop*, 2007).

The bending may be otherwise understood as a consequence of progressive recognition of the integrative nature of a whole, of roundness, of globality, and of self-reflexivity. This can be usefully associated with the challenging encounter with otherness and -- for the knight -- with the feminine, as potentially providing a mirroring function. This can be explored in terms of cybernetics of a higher order (*Consciously Self-reflexive Global Initiatives: Renaissance zones, complex adaptive systems, and third order organizations*, 2007).

## Containing the deadly question driving the quest

Use of "round table" implies a quest. This in turn implies a "question" of some form, namely something for which an answer is felt to be required. In modern terms, question and answer may well be recognized in terms of problem and solution -- especially in relation issues of global governance. In any mythical context, the problem may take the form of a puzzle or a riddle. It can be argued that the challenge of global governance is characterized by a complex puzzle, poorly defined -- perhaps better understood as a challenge to the nature and process of conventional definition and the consensus it is believed to require. Reference may well be made to a complex of dilemmas for which a key may be desperately sought (*Configuring Strategic Dilemmas in Intersectoral Dialogue*, 1992).

These elements, confusions and associated illusions, are usefully dramatized in the tale of *The Quest of the Holy Grail*. The ancient Celtic myth, which Matarasso notes underlies that tale, has as key features the extraordinary dangers of the quest and the key question to be asked in order to heal the king and to free the kingdom from its enchantments.

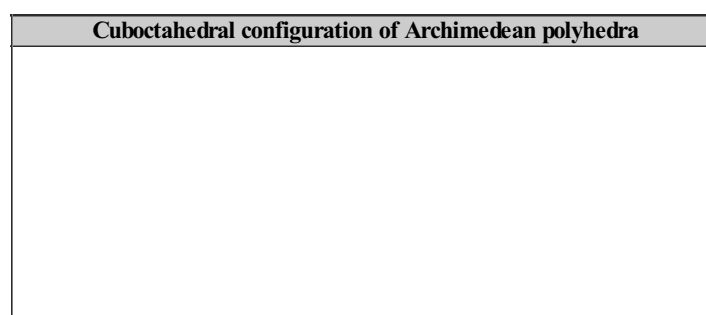
In the dynamics of a round table, it is therefore valuable to explore how an underlying "question" determines and engenders the "quest" of the participants. This is especially the case if a key to the redeeming nature of the "answer" lies in how that "question" is understood. It is appropriate to note that in modern round table processes the question and quest may be variously conflated with assumptions about the nature of a required answer. This framing may obscure the challenge to comprehension typically characterized by a riddle or a puzzle. Participants may variously believe that they already have the answer -- if only others would subscribe to it.

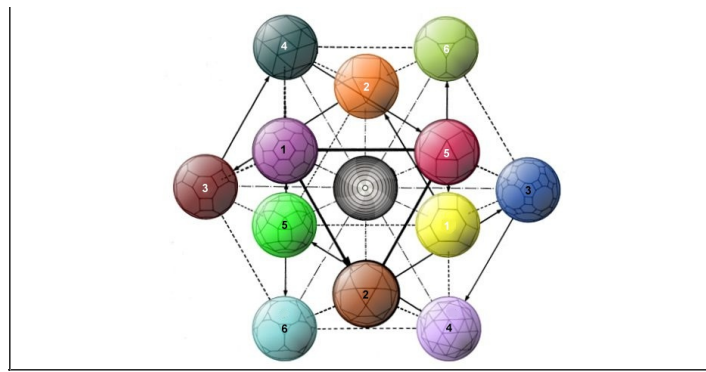
Such an assumption constrains the dynamic by implying that a participant has already "got it" -- namely is in possession of the answer. The transformative danger of the implicit question may then only be experienced to a degree in the form of disagreement amongst the participants -- a dynamic which may well be considered as unfortunate and best designed out by suitable facilitation. The tale offers clues to the engagement with the "pre-emergent" question -- challenging prior belief and the sense of identity.

Framed in this way, with the "answer" as possession of the Holy Grail -- understood to be the goal of the quest -- the answer is then itself problematic. The tale challenges the possibility of any conventional capacity to possess it -- even to "grasp it" (*Beyond Harassment of Reality and Grasping Future Possibilities: learnings from sexual harassment as a metaphor*, 1996; *Paradoxes of Engaging with the Ultimate in any Guise: living life penultimately*, 2012). Sustainability merits consideration in that light. Implications that the Grail may take the form of some kind of container can then be interpreted as indicative of the possibility that sustainability itself may require an unusual form of container. Insights from the design of nuclear fusion reactors are suggestive in this respect, as separately argued (*Enactivating a Cognitive Fusion Reactor: Imaginal Transformation of Energy Resourcing (ITER-8)*, 2006).

As one form of container, there is the further possibility that the very form of a round table may be usefully challenged by an appropriately "deadly" question, as separately argued (*World Futures Conference as Catastrophic Question: from performance to morphogenesis and transformation*, 2013).

In reflecting on the possible nature of a "spherical round table", the geometrical argument above can be taken further in the light of the challenge of sphere packing -- understood as the spherical arrangement of the distinctive cognitive significance of the 12 Knights. This can be represented by the following image derived from [Keith Critchlow](#) (*Order in Space: a design source book*, 1969, p. 39). Here 12 of the [Archimedean polyhedra](#) are arranged in their most regular pattern, a [cuboctahedron](#), around a [truncated tetrahedron](#) -- the latter two completing the total of 14 such polyhedra (as discussed in *Union of Intelligible Associations: remembering dynamic identity through a dodecameral mind*, 2005).





Arrows indicate the succession of truncations from 1 to 6 in each case. ( <i>Disabled: Clicking on a polyhedron links to a spinning image</i> )	
Successive truncations of <b>octahedron</b> 2, 3, 4-fold symmetry	Successive truncations of <b>icosahedron</b> 2, 3, 5-fold symmetry
1. <a href="#">truncated octahedron</a> (14 polygons: 4 / 6 sided) 2. <a href="#">cuboctahedron</a> / vector equilibrium (14: 3 / 4) 3. <a href="#">truncated cuboctahedron</a> (26: 4 / 6 / 8) 4. <a href="#">snub cube</a> (38: 3 / 4) 5. <a href="#">rhombicuboctahedron</a> (26: 3 / 4) 6. <a href="#">truncated cube</a> / <a href="#">hexahedron</a> (14: 3 / 8)	1. <a href="#">truncated icosahedron</a> (32 polygons: 5 / 6 sided) 2. <a href="#">icosidodecahedron</a> (32: 3 / 5) 3. <a href="#">truncated icosidodecahedron</a> (62: 4 / 5 / 10) 4. <a href="#">snub dodecahedron</a> (92: 3 / 5) 5. <a href="#">rhombicosidodecahedron</a> (62: 3 / 4 / 5) 6. <a href="#">truncated dodecahedron</a> (32: 3 / 10)

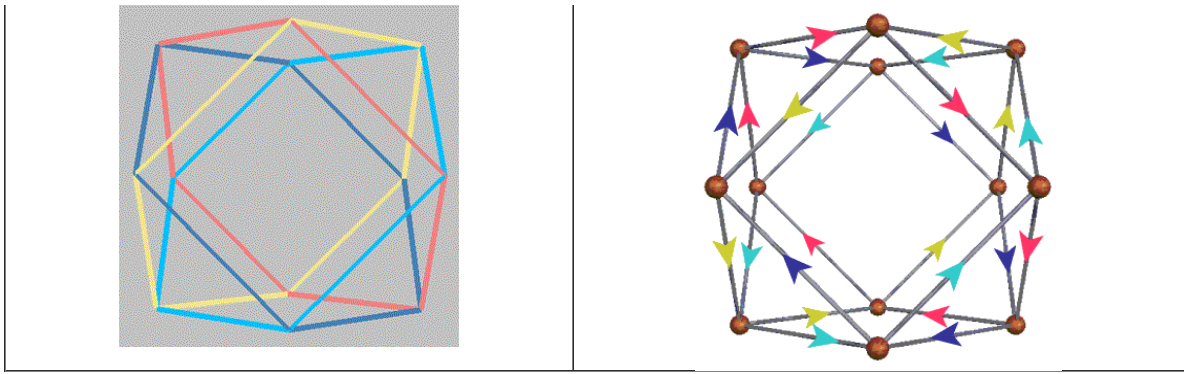
Each element of the configuration above can be considered as implying a question -- of which an associated Knight is bearer or embodiment through his "problematic" behaviour. The polyhedra each offer a basis for distinctive cognitive mappings -- perhaps to be compared to [metabolic pathways](#). The dynamic relationship between the polyhedra has been extensively explored by Buckminster Fuller through the cuboctahedron -- which he termed the [vector equilibrium](#) (now an inspiration for various explorations). The "truncations" might be interpreted as forms of cognitive [reductionism](#).

In the light of the argument above, it is useful to contrast, as "containers" in the following pair of images, the 2-dimensional, 12-fold round table with that of the 3-dimensional cuboctahedron -- the vector equilibrium indicated above. Of particular interest is how the 4 3-fold and 3 4-fold patterns are represented in the 2-dimensional case and then "expanded" from that "flattened" conflation into an articulation as 8 3-fold and 6 4-fold in the 3-dimensional form.

<b>12-fold pattern</b> distinguishing the 4 3-fold and the 3 4-fold constitutive patterns	
In 2-dimensions (typical of zodiacal representations)	In 3-dimensions (as a vector equilibrium)

Arthur Young (1976), as developer of the Bell helicopter, devoted considerable attention to the 2-dimensional pattern and its mnemonic relationship to the zodiac -- in his quest for a "psychopter", as discussed separately ([Engendering a Psychopter through Biomimicry and Technomimicry](#), 2011). Buckminster Fuller focused on the 3-dimensional cuboctahedron and its phases of transformation ([Vector Equilibrium and its Transformation Pathways](#), 1980). Of particular interest is the twisting nature of that transformation and its potential cognitive significance ([Engaging with Questions of Higher Order: cognitive vigilance required for higher degrees of twistedness](#), 2004; [Twistedness in Psycho-social Systems: challenge to logic, morality, leadership and personal development](#), 2004).

<b>Great circle pathways relating 12 "knights" on cuboctahedron</b>	
Circles distinguished by pathway colour (without distinguishing directionality)	Circles distinguished by arrow colour (assumptions made regarding directionality)



The following images present the cuboctahedron unfolded as a 2-dimensional net -- and partially folded into the 3-dimensional form depicted above. Folding the map combines external features.

Use of cuboctahedron as a concept map relating the 12 "knights" and their journeys	
Cuboctahedron as unfolded net	Cuboctahedron net partially folded

There is of course the possibility of using more complex forms onto which to map even more detailed articulations of "knights" and their "journeys", as discussed and illustrated separately (*Topological Clues to a Memorable 12-fold Systemic Pattern*, 2011). One especially interesting form is the drilled truncated cube -- one of the Stewart Toroids (*Cognitive implication of drilled toroids*, 2011). This has 32 faces (of 5 types) and 32 vertices (of 4 types). Of particular interest is that it is somewhat unique amongst polyhedra in having 64 edges (of 9 types). These allow it to be used to provide a 3-dimensional concept map of the 64 conditions of change denoted by the hexagrams of the *I Ching* (*Transformation Metaphors: dialogue, vision, conferencing, policy, network, community and lifestyle*, 1997). If understood to be a cognitive container, this is particularly interesting in the light of its structure as a ring -- or an approximation to one. The ring, like the grail, is a traditional focus of quests.

Comparison of cuboctahedron with drilled truncated cube	
Cuboctahedron	Drilled truncated cube (omitting 4 octagonal faces)

Switching metaphors, it is appropriate to note that Keith Critchlow has developed his own insights in terms of flowers (*The Hidden Geometry of Flowers: living rhythms, form and number*, 2011). This metaphor is explored separately (*Flowering of Civilization -- Deflowering of Culture: flow as a complex experiential dynamic*, 2014). The *language of flowers* notably featured in the dynamics of courtly love between knight and lady. Curiously, but as might be suspected, many sources focus on the primary set of 12 perfumes.

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