APITHOLOGY OF HUMANITY PSYCHOLOGY: HUMANITY AS A GENERATIVE SYSTEM

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ABSTRACT

The systems discipline of apithology was established to look specifically at the wellbeing of the humanity system. Being a systems theory of generative dynamics it provides the potential for a different research focus in the field of human systems. It looks for systemic outcomes for human health and offers a counterpart perspective to the mitigation of problems. This enables a generativist approach to the complex challenge of governance for humanitarian outcomes. This paper comprises an introduction to the application of apithology theory and practice to humanity psychology.

While apithology theory can be applied to many forms of generative systems, its greatest value is possibly in its application to the formation of human motivations. This involves the analysis of dynamic tensions in systems of conceptions. This form of human systems inquiry illuminates the changing capacities of human conceptions across varied human contexts. The result is a systems discipline for the ethical care of the generative potentials necessary for humanity-scale wellbeing.

In this paper the distinction between generative and dissipative dynamics is clarified. The tensions involved in the formation, continuation and actuation of systems of conceptions are described. This is done using the systems principles of autopoietic systems, purposive systems and complex systems. The delineation of three systemic dimensions comprising coherence, orientation and integration is made and the effects of their interactions explained.

From this analysis the basis for a generativist approach to the health of humanity-scale systems is proposed. The generation of an apithology triptych is demonstrated. This is used to illustrate three forms of systemic health as a focus for the enablement of humanity's capacity for adaptability. The practical challenges and ethics of practice, as well as the abilities of practitioners in this field, are also mentioned. The paper concludes with a description of the governance challenges for the wellbeing of a future humanity.

Keywords: general systems, apithology, health, autopoiesis, hierarchy theory

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Introduction

The systems discipline has provided many clear analytical methods to understand complex modern problems. For each form of systemic dysfunction there is an appropriate systems paradigm that provides a resolution. In dealing with world crisis, pandemic disease, environmental degradation or urban congestion the application of a systems analysis provides the potential for intentionally designed solutions (Meadows and Meadows, 2007). As global impacts intersect there is an increasing need for collective humanitarian responses (Ward and Dubos, 1972). This indicates one area where the discipline of systems analysis falls behind the emergent needs. This is the inquiry into the generative potentials of humanity-scale capacities. In gaining expertise in the planning for, prevention of, and response to the remediation of presenting problems, there has historically been an overlooking of the modalities for the curation of generative enablement.

The study of the anthropocene requires extended spans of the conception of time. By definition this involves the inclusion of globally orientated spatial considerations. It also invites an extended conception of the scope of human relevance in terms of our planetary impacts. In a contribution to this field this paper considers the present and future capacities of the system of human conceptions at humanity-level scales. It proposes a humanity psychology by looking at humanity using a generativist ontology. This informs considerations of the dynamics at play in human conceptions operating for the duration of the anthropocene. To enable this analysis the systems discipline of apithology is applied to humanity as a generative system. This approach specifically considers the relational dynamics within systems of conceptions. This is done to provide observations of the formative relations that enable the health of the whole.

This paper will introduce the defining features of apithology systems theory as a systems praxis. These are illustrated by the application of its principles to questions about the landscape of human motivations. The paper begins with an explanation of the apithology paradigm and explains its advantages in humanity-level future governance. From a foundational analysis the dimensions of significance are outlined for systems of human conceptions. An approach to an understanding of the formation, continuation and actualization of humanity capacities is outlined. By using apithology theory a description of the system of the generative potentials of humanity-scale motivations is generated. This provides a means for the analysis for the systemic capacity of a generative humanity. The contribution of significance is to comment on global health from a different premise (i.e. generative paradigm), at a different scale (i.e. humanity-scale), for a different purpose (i.e. future enablement).

Humanity Capacity

The description of the world-system is a daunting undertaking that has been actively engaged in by leaders within the systems disciplines, from environmental, economic, cultural, political and related perspectives (Boulding, 1985, Laszlo, 1974, Meadows, et. al 1992, Forrester, 1971, Wallerstein, 1997, 2004). If we take a moment to consider the humanity-system in the present era we must face directly some of the intractable dilemmas of the human situation. These include the viability of the human animal in a degraded planetary environment, the functioning of international relations between political and ideological polarizations, the economic inequity of wealth disparity between members of a global society, the fragmentation of community by the social challenges of unemployment, lack of education, sectarian violence and drug addiction, the tensions in relationships from domestic violence, generational abuse, and parental separation, and the pressures for individuals from psychological depression, economic preclusion and empathetic isolation. For each scale of the humanity problem there is easily imposed a systemic boundary definition (Midgley, 1992). The question asked is how are any of these difficulties, whether the deprivations of the single child or the epoch level effects of climatic change, not a difficulty of an entire humanity? We come to understand by this question that the classification of problems is primarily a feature of the capacity of our conceptions.

Kenneth Boulding (1966) when introducing the concept of 'spaceship earth' over 50 years ago was surprised that the acute problems of environmental degradation 'produced no response whatever' with economists continuing to think and act as if production, consumption, throughput, and the GNP were the sufficient and adequate measure of economic success. In recognizing that those same observations might be made today, Boulding speculated on the 'aging society' where the expenditure of daily outputs cannot be replaced by any known inputs. In failing to ensure its systemic renewal, the system will cease to be. He hoped with a 'modest optimism' that solving some of the immediate problems would lead to a capacity to solve the larger ones. However, we might question whether the tension of dealing with larger questions, if not ever engaged with, eventually will become a capacity by its non-exercise. In focusing on the alleviation of immediate concerns, does the capacity for increased receptivity for wider challenges ever occur?

This leads to the speculation of what are the capacities needed for the self-governance of a world-system? Notable systems theorists have previously raised the need for adaptability, flexibility, and reflexivity in the humanity-system. Ross Ashby (1956) noted how the capacity for healthy survival of an organism depends on self-reflexive regulation. This recognition of the necessary fact of our self-regulation in the world governance discourse raises the secondary capacity of the ability for a collective response. Gregory Bateson (1972) derived a concept of 'flexibility' while seeing humanity and its environment as one unitary system. In this context, the concept of flexibility is defined as '*uncommitted potentiality for change*' (Bateson 1972, p. 497), effectively setting a budget for that which is available and not already used. Bateson recognized that in attempts to keep variables within their tolerance limits, there is a frequency of repetition, which leads to habit formation. This 'tends to remove the idea

from the field of critical inspection' (Bateson, 1972, p. 501). The contrivance of localized resilience, can lead to perverse forms of persistence (Gallopin, 2006).

This recognition of a limited systems budget for flexibility raises the tertiary issue of reflexivity, being the capacity to learn about the habitual assumptions. Niklas Luhmann (1989, 1990) acutely points out how the language domains of social systems indicate the limitations of their environmental conception. Any conceptualization that is 'within language' and can be communicated demarcates the social limitation of that convention from the wider reality available for perception (Luhmann, 1989). In developing humanity's capacity to solve systemic problems, we might recognize how more is required than simply a relocation of the pathology to other places of temporary flexibility. In reflecting on whether mankind is too clever, or not clever enough, Bateson (1972) calls for an expanded system view, noting:

> To achieve, in a few generations, anything like the health system dreamed of above or even to get out of he grooves of fatal destiny in which our civilization is now caught, very great flexibility will be needed. It is right, therefore, to examine this concept with some care. Indeed, this is a crucial concept. We should evaluate not so much the values and trends of relevant variables as the relation between these trends and ecological flexibility. (p. 496)

The subtlety of the shift required to appreciate the ecological implications of the 'humanity-environment organism' in its capacity for self-adaption is not to be underestimated. We might map trends and look at variables in the system tolerances for humanity's continuing biophysical capacity, sociological integrity and psychological stability and still miss the critical question entirely. By seeing 'humanity capacity' differently we recognize that increasing the flexibility of one part of the humanity system in its tolerance limits to create resilience, consumes some other part of the system-wide budget for adaptability. Systemic pathology and attempts at alleviation result in pathogenic expansions that potentially consume this budget inequitably. The question if asked differently is how to increase the capacity of humanity entirely, rather than reallocate the capacity budgets inexorably? For this reason, an approach based on the systems principles of apithology provides an alternative, simply because it looks to the formation of generative capacities. Rather than solving problems within available limitations, its premise is to enable potentials by inquiry into the totality of the humanity-system.

This solution-demand is not a grand generalization, but rather a more brutal pragmatic requirement of the demands of an acutely good question. This leads to the request for a systems approach to generative capacities within the wider landscape of human aspirations. This requires us to examine the tensions of relations between human conceptions within a system of inter-connected tolerances. The benefit of this generativist approach to inquiry methods is that, not only are the variables that lead to systemic pathology revealed, what is also disclosed is the potential for the apithology of the generative capacity of humanity systemically.

Apithology Theory

The research field of apithology was formed to promote the study of the systemic causes and effects of generativity and growth in living systems (Varey, 2008). Being the counterpart discipline to the field of pathology, which examines the systemic causes and effects of dissipation and disease in degenerative systems, apithology systems theory provides a focus on the enablement of the generative. Features of the field are the identification of components in the formation of coherences, the potential for scenarios based on alignments of conditions, the reciprocity of effects of systemic coactions, and the finding of gradients of potency in the actuation of potentials.

This relatively new field primarily is applied to systems that have generative dynamics as their defining feature of interest. Such systems might include the familiar examples of the germination of a seed, the growth of a child, the development of a society, and the maturation of humanity. As a discipline involving the study of emergent systems relying on contingent factors and complexity dynamics some specific considerations apply. The theoretical premises of an apithology systems approach requires the release of paradigmatic assumptions of stasis in favor of an attunement with trajectories of unfoldment. Being generative, the observer is in the uncomfortable position of not knowing what the system will become, only that it is so doing. For this reason the presumption of patterns and the holding of normative narratives provides an active limitation to neutral observations.

Importantly, the discipline of apithology does not neglect or negate the consideration of pathology. In fact the contrary proposition is more accurate, as the dynamics of dysfunction provide the noticeable difference that leads to the observation of what enables its generative counterparts (Bateson, 1979). This difference of approach is unlike the deductive method of finding a pathological cause, or the inductive approach of relating unrelated conditions for success in other cases. Instead the focus of an apithology analysis is the abductive reasoning of the combination of causes that provide for generative enablings. When the generative fails to occur, or occurs only from unique or remarkable circumstances, whatever constitutes a variation on the usual and normal, may provide the data that signifies pathways to discovering the beneficially 'adnormal' (Varey, 2008). For this reason the discipline of apithology is complementary to the disciplines correctly focused on pathology, normalcy and conformity. This recognition provides realistic limits to the fields enactments and suggests necessary preconditions for its applications.

Humanity Conceptions

The application of apithology theory to a study of the adaptive capacity in the humanity-system creates the problem of accurately defining the category of inquiry. Essentially, the primary question is how to describe how a humanity becomes increasingly capable to conceptualize its own existential problems (McFarland, 2011). This generates the question what fields of study would necessarily be needed to comprise a 'humanity psychology'? Of importance in approaching this question is the understanding that

neither of the terms 'humanity' or 'psychology' as used in their conjunction in 'humanity psychology' will be likely to have the meanings from our usual concepts of these terms individually.

This prompts the first clarification, being that when we say 'humanity' what is the entity that we are discussing? To answer this question we must first accept the social-psychological limitations in any assumption that a common conception of humanity is held by all persons equally (McFarland, et al. 2012, 2013). It is common to mistakenly attribute to all humanity the qualities that most resemble our own cultural identities, also describing as inhuman that which is socially or culturally repugnant (Bilewicz and Bilewicz, 2012). Using one example from developmental psychology, the span of moral concern that is measurably held by different people fundamentally indicates that our in-common conceptions of whom to care for as fellow humans will have diverse graduations (Kohlberg, 1969, Benack, 1984, 1988). For this reason, rather than attempt to define a humanity-psychology discourse based on a definition that is omnicultural, the question of humanity-level concerns may be entirely more practical (Moghaddam, 1990). The capacities of significance for humanity-scales are linked to those impacts felt by humanity as a species-totality, including the impacts occurring for other species of greater vulnerability. This limits the inquiry specifically to the system boundary of causes and effects of humanity-wide concerns.

To assist with the conceptual semantics it is worth considering how the homonym 'humanity' has three primary meanings (Oxford, 1989). The first meaning of humanity is objective, referring to all people. This is a reference to the state of being human, as a member of the human race. It distinguishes humans and human concerns collectively from those of other non-human animals. It includes the totality of all human beings, without exception by race, disability, quality of mind or conscious actions. The second meaning of humanity is inter-subjective and refers to the quality of being humane, being a form of kindness or benevolence we associate with a human quality, not expressed by other species. Importantly, while having humanity is primarily expressed as care for other people, a humane action can be a kindness shown to other sentient beings consistent with human sentiments. The third meaning of humanity is subjective and refers to the state of the inquiring mind and topics unique to the human condition. These are the humanities, including the activities of philosophy, poetry, history, literature, art and music created by all of the world's eras and cultures. In essence these artifacts are understood as being the products of human expressions formed by a human mind (or soul). Being distinguished from the natural sciences, the question occurs what is the science of our experience of being 'as' this humanity?

In fact, none of these meanings can be acceptably adopted for what is meant by the term 'humanity' in study of the apithology of humanity-psychology. This is because apithology theory looks at the qualities of conceptions, rather than adopt their specific conventions. This often involves the conjunction of objective, inter-subjective and subjective dynamics as resultants to determine their enduring significance in systems of meaningfulness. A premise of apithology theory is that in any system of conceptions there will be significant diversity in the composition of fundamentally held propositions (e.g. concepts like 'health', 'sustainability', 'resilience', or 'systems'). The conception of

a 'humanity' is no exception to this premise. In this context, the definition of a humanity is more related to the dynamic, emergent, evolving and generative qualities of the totality of all human activity. Instead of being a concept, or a signified reification, a 'humanity' in apithology theory is a continuously prospective phenomenon. This is greatly inconvenient as a definitional premise, yet significantly more valid in an observational science of emergent phenomenon. In short, the maxim used is 'humanity is as humanity becomes as'. This takes us directly into the pragmatics of humanity psychology as discipline of inquiry.

Humanity Psychology

The second clarification is that, in the idea of a humanity psychology the use of term 'psychology' is probably a misnomer. This is because in humanity-scales of inquiry there is no locatable 'psyche' of an individual. The anthropomorphizing of humanity as having a human personality is logically erroneous. In doing so we would also suffer from an abundance of choice. In the diversity of all the traits, proclivities, genders, preferences and psychological pathologies, which is to be attributed to a humanity personally? A different approach is required for humanity-level questions entirely. Just as the universalization of any one psychological trait to all is inaccurate, the aggregation of all traits to everyone is inappropriate. While a human society is by definition an aggregation of all of its peoples, a humanity psychology is not an aggregation of all the human personalities. There potentially exists a fundamental scaling error in attributing to the whole system the characteristics of its parts. The conundrum of assessing the conceptual capacities of the humanity-system requires slightly greater precision in its definition.

To appreciate the criticality of this question it is useful to consider how humanity-scale dynamics are essentially different to those considered by conventional forms of psychology. It can be argued that each psychological discipline operates to examine distinctly different scopes and scales of normal and abnormal psychological capacities. These disciplinary foci also provide specific contributions to a systems psychology approach to research. For example, the research of cognitive psychology provides insights into the different neurological capacities of individuals (Neisser, 1967, Lakoff and Johnson, 1980). Traditional behaviorism provides the premise for the observable and purposeful actions of sentient organisms (Skinner,1953, Spence, 1956). Formal psychology examines the composition of human personality and its functioning within a complex society (Angyal, 1967, Fromm, 1973, Graves, 1970). The lineage of psychotherapy considers counter balances between obsessions and fixations (Freud, 1962, Mitchell, 1974). The structural development of formal operations provides for transitions in childhood perceptions (Piaget, 1928, Bruner, 1973). The premise of social learning theory highlights the dynamics of relational instruction (Vygotsky, 1987, Bandura, 1977). The developmental pathways of adult psychology alter assumptions of biological cognitive maturity (Kohlberg, 1984, Loevinger, 1976). The psychodynamics of social organization provides explanations for collaborations and conflicts (Lewin, 1948, Bateson, 1958). In humanistic psychology the healthy individual is continually enabled within the human-potential narrative (Maslow, 1943, Rogers, 1961, Erickson, 1959). In transpersonal psychology the person, family and culture is transcended to connect us more intimately to soul and spirit (James, 1950, Tart, 1973, Wilber, 2000). All are useful

for a different scale. None precisely, however, answers the questions of humanity's psychological capacities, each being directed to different inquiries entirely.

In looking at the humanity-scale explicitly, it is still important to include the contributions of the disciplines and schools of all of psychology. Each provides a level of validity to the observations made of the humanity-condition at each organizing scale. However, the attributes of individuals and groups of peoples are not validly attributed to a humanity in its present (and emergent) complexity (Moghaddam , 1990). Significantly, the elusiveness of humanity-level capacities is not found within the other-scale discourses. This leads to the recognition that in examining humanity-scale capacities we are not looking at the capacities of the individual parts, but rather the capacity of a system of dynamic relations. This is not a consideration of the health of the parts, but the 'health of the whole of the parts of the whole'. If existing psychology theory does not consider this directly, perhaps there is required a different unit of inquiry.

Systems of Conceptions

There is one major innovation in humanity-psychology in the application of apithology systems theory. This is in the selection of the primary unit of observation. Rather than looking to the trait, the person, the group-dynamic, the disorder, the symptom, the existential-level, the self-concept, the subject-object abstraction, or the transcendental stage, apithology theory has a different ontological unit of inquiry. This is used to consider the system of relations in humanity-scale dynamics. In the application of apithology theory to humanity psychology the unit of relevance used is the 'conception'.

In this systems application the term 'conception' has a specific and technical meaning. Its specific meaning is as applied to appreciations of the landscape features of the system of human thought. Its technical definition describes the dynamic resultant of trichotomous correlates and the formative dynamics of systemic coactions. A colloquial non-technical understanding is possibly gained by understanding conceptions as *locations of potentials*. These locations effectively operate as temporary and enduring gradients in an ecology of minds (Varey, 2010b, 2011b). These are the landscape features in thought, as evidenced by the activity of thinking. This concept is discernably different to the use of the idea, belief, opinion, thought, concept or paradigm in other philosophical systems of description. Accordingly, the conception is not synonymous with the disciplinary terms used in psychology of the ego, values-system, self-system, existential state, structures of development, level of existence, or states of consciousness, specifically. In a figurative sense conceptions operate as the gradients of potentials for the meaningful within the landscape of the humanity conceivable. While abstract and conceptually demanding, the tests for composition are explicit and the requirements for delineation exacting. From the use of this different unit of appreciation, a 'capacities-based' approach is possible. This allows us to assess the present state of the humanity-system as a discrete evolutionary unit of selection.

Generative Systems

In the systems discipline the term 'generative system' has been used sparsely (Klir, 1985, 2013). This general concept is often applied to systems that are not simplistically described due to non-linear features in their systems of causality, yet are also essentially different to dynamic systems of randomized complexity (Van Geet, 2003). This concept of a generative system is most valuable where the system rules are generated by the system through an integrative history of entrainments, inter-linkages and entrenchments (Wimsatt, 1999, 2006). Idealistically, from a few basic parameters all known and knowable iterations can be developed. The limitations on possible forms are often defined by the generative system's own patterns of evolution. In truly generative systems the sustaining of the system's novel production comes from the systems own parameters of limitation. In this way generative systems can be distinguished from autopoietic, autocatalytic or heteropoietic models exhibiting development only by combination, expansion or extension (Jantsch, 1975, Zeleny, 1980).

The classical example of the modeling of natural processes from generative system rules is the computer simulation using 'bird-oid objects' to generate emergent 'flock-like' behaviors (Reynolds, 1987). Other applications of generative systems theory include language development (Van Geert, 1991, Jackendoff, 2003), architectural design (Gullichsen and Chang, 1985, Eckert et al. 1999), musical forms (Visell, (2004), game design (Huck and Remo, 2008), design aesthetics (Bohnacker, et. al. 2009) and computer mediated art (Boden and Edmonds, 2009). More recently, generative systems do not simply replicate emergent behaviors, but also generate emergent forms, and meta-level emergent system capacities (Klir, 2013). To look at the dynamically emergent and evolutionally significant qualities and trajectory of a contemporary humanity, a generativist approach can provides distinctive advantages.

The theoretical premise of a generative systems theory is mentioned for its distinctive benefit in modeling apithology systems. The adoption of generative systems principles to the understanding of a humanity psychology provides the potential for novel insights. Significantly, there is no need for an observational narrative to describe the formation of phenomena. The consequentialist approach of providing an explanation of causation from a retrospective viewpoint does not work for the prospective, contingent and emergent. Consequently, more time is invested in developing an abductive understanding of the causative dynamics, than providing a post-hoc explanation of the forms of specific content. For these reasons, a generativist psychology approach might be the more appropriate paradigm of inquiry for humanity-scale complexity. In addition, we would perhaps personally like to think of the evolution of humanity as a work in progress (rather than a completed project). The approach using generative systems design assumes there may be (as yet) not actualized potentials for humanity remaining to unfold (Koplowitz, 1982).

The discipline of apithology is also a generative system by design and definition. Each time a specific type of phenomena is considered nuances and distinctions in the generative and dissipative are uncovered. The practice of such inquiry generates

significant new propositions for praxis efficacy. By the application of apithology principles to humanity-psychology generative system rules are discoverable. By identifying the critical parameters evolving structures of human motivations, and the proliferation of pathology from their systemic frustrations, can be efficiently modeled. These system rules are most effectively described with reference to discernible causal dimensions. By using this approach generative formations in systems of relations can be observed and measured. This provides a different emphasis for the assessment of the systemic capacities of a generative humanity.

Existential Tensions

The abductive analysis of complex relations benefits from problem-constraints and the acceptance of defined solution parameters (Simon, 1977). It is recognized that the act of creation is often the product of the constraints of its generative tensions (Koestler, 1964). In apithology systems the tensions between phenomena enables temporal actuations (Varey, 2009b). What this means is that the temporary tensions that problem-solving disciplines seek to alleviate are, in apithology theory, the causal phenomena of greatest significance. In adopting a generative systems approach it is worthwhile to consider the fundamental existential tensions of the humanity-system already described by the systems disciplines.

The first of these tensions is the tension of *formation*. For apithology systems the event of the coming into existence as a distinguishable phenomenon is a primary feature of generative enablement. This involves the fact of formation, representing the sustaining of the tensions of existence. The failure of the apithology system to sustain the tension of formation is non-existence (i.e. extinction). This is analogous to the tension described by Humberto Maturana and Francisco Varela (1980) in the description of formation of an autopoietic system:

> … thus, given the proper components and the proper concatenation of their interactions, the system is realized... The establishment of an autopoietic system cannot be a gradual process; either a system is an autopoietic system or it is not. (Maturana & Varela, 1980, pp. 94-95)

The second tension is the tension of *continuation*. In apithology systems mere existence is insufficient as formation occurs in the context of specific conditions. This prompts the existential choice of changing directions, maintaining the tensions for purposeful production. The failure of the apithology system to maintain the tension of continuation is non-continuance (i.e. frustration). This is analogous to the tension described by Russell Ackoff and Fred Amery (1972) in their consideration of purposeful systems, which are defined as:

> Thus a purposeful system is one that can change its goals in constant environmental conditions; it selects goals as well as the means by which to pursue them. It thus displays *will*. Human beings are the most familiar examples of such systems. (p. 31)

The third tension is the tension of *actuation*. The premise of apithology systems is that potential is actuated over time as a trajectory of development. This involves the fact of

composable actuation, representing the responding to the tensions of developmental transformation. The failure of the apithology system to remain in the tension of actuation is non-actuation (i.e. dissipation). This is analogous to the tension described by Herbert Simon (1962, 1973) in defining complexity as involving different strengths in tensions between and within hierarchical systems (and their subsystems). The actuation of potentials, at different levels of organization, represent different categories of tensions, so that:

> … it is not assembly from components, per se, but hierarchic structure produced *either* by assembly or specialization that provides the potential for rapid evolution. (Simon, 1996, p. 193)

These exemplars of systems descriptions pose the question of whether it is the fact of formation, the selecting of direction, or the appearance of new levels of organization that provide the primary existential tensions in life. For apithology systems as applied to conceptions the answer is not to privilege, or negate, any one of these contributing tensions. Instead the approach is to provide them each with equivalence as factors worthy of significance. This leads to the question of how to represent and consider the question of the relative dependence and interdependence of these tensions, specifically in the analysis of systems of human conceptions.

System Dimensions

In recognizing these fundamental existential tensions we can use apithology theory to examine how these are resolved in a humanity psychology. The combination of these tensions generates three distinctive dimensions as discrete continua of development on which assessments of capacity can be made (Varey, 2012). Each of these three dimensions requires specific and separate consideration. They may appear initially to be sequential, but in fact are concomitant. An understanding of the distinctiveness of each allows for the appreciation of the relationship in their conjunction. In applications of apithology theory such sets of phenomena are held as equal considerations, each with distinctive contributions to the total systemic capacity.

The first set of considerations is described within a dimension of *coherence*. In simple terms where a conception comprises elements that do not correlate, incoherence results. We recognize incoherence informally as the ideas, propositions, hypotheses or beliefs that are untenable in terms of their social recognition or enacted pragmatism. The determination of coherence in apithology is not an attributed quality based on comparisons to other conceptions (for example, comparing religion to scientism). It is determined based on the concatenation of relations between the components of composition. The components enabling formation of the conception comprise the phenomena in question. The implication of this principle is that only conceptions with coherence become necessarily existent. The system rule for coherence is that the presence or absence of correlates enacts different resultants.

The second set of considerations is described within a dimension of *orientation*. In simple terms this is the direction of attention that results from a balancing of tensions between a

motivating aspiration and its effective application. We recognize disorientation informally in the attraction of grandiose unachievable ambitions or a fixation without a means for realization. The attribution of orientations in apithology is not based on comparisons to other purposive outcomes (for example, success in one field being less ambitious than another). It is determined based on the dynamics between distinctive sets of counter-balances. The implication of this principle is that only conceptions with orientations appropriate to the existential conditions will endure. The system rule for orientation is that the balance of tensions between horizons alters continuing direction.

The third set of considerations is described within a dimension of *integration*. In simple terms this describes the dependencies of complexity as seen within an enabling holarchy. We recognize disintegrations informally in the vulnerability of enactments outside of their contexts of supported development. The attribution of integration in apithology is not based on comparisons to normalized pathways (for example, that literacy is only formed by rote repetitions). It is determined based on the contingencies required in a future trajectory of completed actuations. The implication of this principle is that only conceptions with necessary integrations are enabling of developmental fulfillment. The system rule for integration is that the inclusion and inclusiveness of potentials determines the possible actuations.

When the tensions between the relational dimensions of coherence, orientation and integration are in an optimal configuration, the potentials in the system of conceptions become systemically generative. The application of the generative systems rules means the three dimensions generate complex combinations of potential conceptions in an apithology system of abstract and inter-dependent relations. The counterpart implication is that with each absence there results a corresponding loss of generative tension. These absences compound in relations of dysfunction, possibly extensively and ultimately systemically. By the conceptual conjunction of each dimension, rather than examining isolated discontinuities, there is the possibility for the study of the systemic advancement of supporting consiliences. The presence or absence of capacities, in one or other of these requisite dimensions, generates different combinations in the landscape of humanity potentials. The practical implications of this are easily envisaged by imagining the presence or absence of the generative system rules in humanity-scales as a triptych of systemic capacities.

Humanity Triptych

In apithology theory the convention used to define, delineate and validate sets of generative dynamics is to form an apithology triptych. This modality was inspired by E. F. Schumacher's discussion of the need for semantic distinctions when working on predictability in contexts of uncertainty. In the essay *A Machine to Foretell the Future* (Schumacher, 1974) the problem of fundamental terms being freely used interchangeably is seen to create an incoherency in a discourse even before it commences. Schumacher identifies that where there is a trichotomy of counterpart non-conflatable concepts (e.g. the polarities of the continua of three concomitant dimensions) there are 2^3 combinations, which generate eight distinctive expressions. These eight expressions allow for

distinctions to be drawn within a possibility space prior to language conventions (and conceptions) dividing up the territory inappropriately.

When working with the emergent and prospective in the abstract generative this way of delineating basic features and parameters provides a coordinate system of neutrality and impartiality. The eight resultant expressions are notionally signified and have only the meaning attributed to them by the space remaining from all other possibilities. In Gordon Pask's (1968) spatial exploration of the possibilities of n-space, a similar technique is used as the premise for systemic solution generation. This provides an abductive approach to systems generation with constraint parameters appropriate to the solution demands. In apithology theory this convention provides a means of navigating the landscape of potentials conceptually, without a steadfast reliance on the life-rafts of our pre-existing conceptions. The discovery of generative possibilities, not premised from within any one conception, then becomes possible. This approach is known as n-dimensional hyperseeing and applies the established principles of ecological modeling to the possibility-spaces of psychodynamic potentials (Hutchinson, 1961, Freidman, 2011, Varey, 2012).

The validly formed apithology triptych has a number of defining features. These include: a) the existence of a generative trichotomy developed by an apithology inquiry; b) counterpart expressions for the polarities of each dimensional trichotomy; c) a set sequence of combinations for the presence and absence of each mutually exclusive set of counterparts; and d) the eight resultant expressions structured as a progressive set of potentials. For the n-dimensional possibility set of human conceptions the triptych that results from the three dimensions discussed delineates expressions from (+++) through to (- - -) as mutually exclusive alternatives. This provides a representation of the capacity for *formation* in the continuum of *coherence*, the capacity for *continuation* in the continuum of orientation, and the capacity for *actuation* in the continuum of *integration*.

Form	*Coherence*	*Orientation*	*Integration*	*Resultant*
A.	+ Productive	+ Responsive	+ Expansive	Adaptable
B.	+ Productive	+ Responsive	- Inscient	Inexorable
C.	+ Productive	- Indifferent	+ Expansive	Invulnerable
D.	- Inept	+ Responsive	+ Expansive	Incapable
E.	- Inept	- Indifferent	+ Expansive	Predictable
F.	- Inept	+ Responsive	- Inscient	Vulnerable
G.	+ Productive	- Indifferent	- Inscient	Critical

H.	- Inept	- Indifferent	- Inscient	Unviable

Table 1.1 - Eight Expressions: Descriptions of Resultants

The eight triptych resultants are the highest-level abstractions of the possibility for different forms of generative expression for the selected set of dimensions. In a way each resultant generates the same possibility for content. However, only one combination, the one that sustains, maintains and retains optimal generative tensions, is generative of a (+++) combination. In terms of the generative qualities of a humanity psychology, the eight alternatives represent distinctively different trajectories for humanity's adaptive capacity (see Table 1.1).

To elucidate these conceptual distinctions, the signifier *productive* (in this context) means the ability to form coherent conceptions as a self-productive capacity (Maturana and Varela, 1980). This is contrasted with ineptness to form apt coherences as an absence of that adaptive skill. The signifier *responsive* means (in this context) the ability to alter orientations of attention to match changing conditions as a selective choice. This is contrasted with an indifference to stimulus by ignoring or negating news of difference (Bateson, 1979). The signifier *expansive* (in this context) means the acuity for inclusion of different conceptual levels of organization as entrainment and containment variables. This is contrasted with forms of inscience as the essential privileging of an interior understanding (Robinson, 2014). A short description of the combinations of the presence and absence of each of these sets of counterparts individually may assist in the understanding of the totality:

A. *Adaptable*: The presence of balancing dynamic generative tensions in coherence, orientation and integration, allows for productive formation, responsive continuation and expansive actuation, enables enduring adaptive capacity.

B. *Inexorable*: The presence of productive coherence and responsive orientations, with the absence of expansive inclusions, leads to inexorable limitations.

C. *Invulnerable*: The presence of productive coherences and expansive integrations, with the absence of responsive continuation, results in unviable direction perpetuation.

D. *Incapable*: The presence of responsive orientations and expansive integrations, with the absence of productive coherence, suffers inevitably from eventual failures.

E. *Predictable*: The presence of expansive integrations, with the absence of responsive orientations and productive coherences, allows for conflicted enactments as expected.

F. *Vulnerable*: The presence of responsive orientations, with the absence of expansive integrations and productive coherences, prompts ineffective and naïve enactments.

G. *Critical*: The presence of productive coherences, with the absence of responsive orientations and expansive integrations, requires erratic coping to avoid catastrophes.

H. *Unviable*: The absence of productive coherences, responsive orientations, and expansive integrations, ensures the system unviability becomes an inevitability.

This triptych demarcates possible scenarios for humanity with reference to the components of its adaptive capacity. The adaptability of humanity as an entity, in terms of being able to resolve its existential tensions meaningfully, is then determined by the conjunction of three specific metrics of capacity. In being discrete dimensions, one measure is required for each metric. These are described as *agility* (i.e. flexibility of coherence), *ability* (i.e. range of orientations) and *acuity* (i.e. extent of integrations) within the system of conceptions (Varey, 2012). From this assessment humanity can be seen as either becoming more productive, responsive and expansive; or more inept, indifferent and inscient in its generative capacity. This leads to the proposition that, while each of the enumerated resultant forms is possible, the only viable combination is one that is self-generative of systems of conceptions that are 'future adaptable'.

Generative Potentials

Within the possibility-space of the system of conceptions comprising a humanity psychology the phenomenon of primary interest is the presence or absence of generative potentials. From simple beginnings this inquiry into generative potentials has expanded significantly. In the praxis of humanity psychology the minimal level of complexity adopted involves identifying three components in the eight expressions of coherence, four delineations in eight combinations of tensions for orientation, and ten ontological scales of containment and entrainment in two horizons as integrations. The result is a matrix of primary forms for the health and pathology of the whole of the system of conceptions of humanity. In learning to appreciate how the relations between these landscape features cause the enablement and diminishment of systemic capacity, simple system rules apply to each distinctive feature equally. This allows the practitioner to develop nuances in specific applications and the design and modeling of system-wide transitions. As with working in any fragile living ecology, the sensitivity of intervention then comes from the intimacy formed with the unfolding observable complexity. Importantly, as the system understanding increases, the need for system intercessions decreases (Varey, 2014).

The proposition that forms from considerations of the presence or absence of capacities in the three dimensions in actual situations is that the hoped for adaptability of conceptions is natural, beneficial, conceivable - and also rare. The reason for the likelihood of the occurrence of the primary resultant of adaptability is the simplicity of the causation principles. The idealized pattern can be imagined as follows: The formation of coherence generates a set of relational tensions. The continuation in a direction enables a feature of reliance in a set of coactions. The reciprocal tensions of coactions become locational around contributive relations. These locations of reciprocity become reliable as potentials for generativity. The recurrence of potentials enables future potentials as probable possibilities. The entrainments of the future potentials set the conditions for the formation of new coherences. This generative process is seen as contextually dependent, multi-dimensional and self-generative. The hypothesis formed is: The praxis of being enables future becomings.

This generative pattern is as theorized by the concept of *praxogenesis*, being where enaction is influenced by causal conditions, with the reliance on those conditions in the actions selected, further enacting those conditions, in a trajectory of developmental reciprocity, in the direction of the originating attention (Varey, 2009a, 2011a, Thompson, 2007). The effect is that a combination of initial correlates forms a generative coherence, which assists in the formation of other generative potentials, enabling the conditions for the original formations. The counterpart to the elegance of this system of relations is that, at each point, there is also the potential for dysfunction (Fuller, 1969). Each absence causes an equally impactful systemic reliance with the effect of entrenchments of system disjunctions. While the system of generative potentials generates generative capacity, the system of potential dissipations generates degenerative capacity. In simple terms a generative system allows for the more that enables more; the dissipative system enacts less, prompting more of what is less. The question asked by apithology research is what are the conditions that enable more of the generative?

The question for futurists and historians equally is how will this envisaged system of relational tolerances enable the potentials of a future humanity. From the study of the apithology of humanity psychology we gain some insights into the humanity-scale systemic dependency on the continuance of existing pathology. The starkness of the scenarios that become apparent invoke a clear appreciation of the 'grooves of fatal destiny' (Bateson, 1972, p. 496). It is already recognized that a natural unfoldment of complexity may lead to systemic vulnerability (Holling, Peterson, & Allen, 2008). At the same time there is, in each same moment, the possibility for the formation of generative potentials. For this reason, instead of being a tool for predictions of collapse, stagnation, or transcendence the vital work of apithology theory is to actively provide for the presence of the capacities for generative enablements. The places that request this are anywhere the potential for humanity's aspirations may manifest.

Apithology Healths

The observation of systems of conceptions in apithology as a praxis applied to humanity psychology is not without its difficulty. By a conscious shift of focus, from the inexorable problems of disadvantaged persons to the generative potentials of an enabled humanity, there are opened up distinctly different landscapes of inquiry. Those landscapes depict the system dynamics of the enablement of generative potentials. The inquiry made in apithology theory becomes less about the symptoms of dysfunction and the iterations in compounding factors of neglect and more concerns the provision of the essential presences necessary for human wellbeing and humanity well-becoming. In apithology theory this practice of a conscious reorientation to a different horizon of inquiry involves specific forms of attentiveness. This is demonstrated by looking towards generative health, not away from dissipative pathology. The praxis for this begins with being attentive to the health of the whole of humanity, which is seen as a worthwhile and enduring emergent totality (Teilhard de Chardin, 1964).

Consequently, in apithology theory we refer to the doctrine of the 'three healths' in the context of enabling humanity. The first health concerns the health *in* the whole. The

second health concerns the health *for* the whole. The third health concerns the health *of* the whole. These are easy to recognize and rational in their delineations from a systems perspective. The health *in* the whole recognizes the importance of integrity for each constituent part. The health *for* the whole recognizes the significance of purposeful enactment in the relations between functions. The health *of* the whole recognizes the relevance of all integrations as a totality and their effect on system efficacy. The parts of the system, the relations between them, and the whole system functioning must each contributive generatively for health in apithology (Varey, 2010a).

The assumption is that the presence of the 'three healths' is necessary for the possibility of systemic generativity. The contribution of this work is to identify the structures and relations in the systems of human conceptions that enable systemic health. This provides a focus on the conditions enabling of generative outcomes. The only possible reason for engagement in this demanding inquiry is a commitment to the enablement of the health of humanity, in its entirety, by the expressions of human potentials, exquisitely.

Ethics of Praxis

This necessity to hold in our attention systems of relational combinations prompts the researcher in apithology to develop the capacity for sustaining generative tensions in their inquiry process. The result is a systems inquiry praxis based on recognizing and enacting generative forms. Of specific interest to practitioners is the facilitation of the presence of enabling dynamics by the releasing of disabling dynamics. The letting go of the desire to isolate and reduce problems to temporal locations, immediate outcomes, or specific disciplines provides an underlying ethic for engagement. The praxis for this is challenging, expanding and in many ways, quite simple. Only some will have the intentionality to do this and even fewer the motivation to learn this. The resulting benefit is that by mastering the nuances of this praxis the embodiment of the generative moves us together into newer forms of collaborative effort. This allows for unique forms of generative participatory investigation. The prospect for this embodiment informs the ethic of engagement.

In a systems approach there is a cognizance of and empathy with these familiar challenges. It is reflected in the disciplinary courage of looking directly at the difficulty of expansive situations, not simply towards their aversion or avoidance, as a form of generative competence (Barrett and Peterson 2000). The familiar act of abstraction in systems thinking allows for a perspective that appreciates systemic relations. While the desire for conceptual simplicity and practical manageability is always strong, the praxis for systemic efficacy and perspectival adequacy is often fragile. From this courageousness comes the recognition in apithology that each of humanity's pathologies are products of its own making. They are also primarily a function of self-definition. How we choose to engage with them is a demonstration of our own conceptual limitations. Being able to appreciate the suffering within humanity, while being not other than a part of all humanity, requires a practice in compassionate intimacy. Something very different happens when we begin our collective inquiries from this de-centered premise. To

undertake inquiries 'as, with, for' has become an ethical convention in generative systems participation.

Importantly, being a part of humanity we are inexorably contained within the humanity-system we seek to redress. From this humble appreciation comes the proposition that our focus, rather than needing to be more expansive, or more specific, is actually to be undertaken from a distinctively different horizon of meaning. In seeking to redress the problems of human existence, we may have overlooked the inquiry required by humanity's own insistence for the humane. That insistence is grounded in the valuing of beliefs like those of personal autonomy, humanitarian equity and individual happiness in the pursuit of collective meaningfulness. In adopting a humanity-enabling ethic the humanitarian agenda becomes more humanistic and distinctively 'humanitist'. In enabling the generative, generatively, there is also the prospect to develop, personally and professionally. The system we desire to change, will change us, in the ways we desire to be changed.

Future Implications

The field of apithology provides an approach to future focused forethought in the application of systems theory. Importantly, it places in its center a reconsideration of the practice of humility in the knowledgeable systems observer. In its emphasis on the attempt to reveal insightfully the newly emergent, rather than describe with familiarity what is already apparent, apithology provides one practical means to systems efficacy. This suggests forms of generative governance that focus on making absent present needs by efforts towards future enablement. The questions this field asks of us are distinctly different. Some of the answers it generates, we do not want. This is primarily because they do not match with the existing thinking serving our modes of coping. Many of the answers and alternatives generated we will not appreciate, especially when contradictory to our more hope-filled narratives. However, what is the purpose or benefit of a scientific discipline that limits its boundary of inquiry and projects its assumptions indiscriminately? The applied ethics of a more open premise of inquiry benefits all of systems discovery equally (Gergen, 1978). Rather than assertions of correctness, the relevance of an inquiry is assessed by the generativity from the contributions made. In generative governance, what we bring to a problem is less valuable, than what newly results from the contributive opportunity.

The application of the apithology systems discipline to the discovery of generative potentials is exciting in that it allows for the emergence of the prospective. Of greater enticement is the radical proposition that the cause of apithological potential is the enactment of apithological enablement. This simple maxim realizes that with each remediation of a demanding problem, the most that can be hoped for is a complete and effective restoration of the preceding condition. The paradigm of apithology examines how with each beneficial intercession there is potential generated within expansive orientations. By each truly generative contribution, there is more potential, for more potentials. In this way the emphasis on potential problems, and the problems resulting from their solutions, holds less attractiveness in its attentive sway. For some, the aesthetic of the generative is only enticing once the conclusion of the dissipative has been factually

and clearly appreciated. For others, each day spent attending to the dissipative, is a moment expended in a diversion from the role of the humanity contributive.

Conclusion

It will be some decades in the future before this recognition is commonplace. In the absence of an ethic of care for the generative potentials of humanity, we reduce our and future generation's capacity for adaptability directly, equally and frequently. Often for generosity to occur in the hearts of people requires only an awareness for that which has escaped our attention. In our desire for release of existential tensions we naturally will look primarily to alleviation of the situations causing our own localized consternations. For those interested in a humanity-scale generative inquiry for the enablement of future potentials, rather than the remediation of individual problem-level situations by the repetition of past incapacities, there is now a premise, practice and pathway.

The field of apithology was founded in pragmatic necessities, with the abilities for its application being made readily available. However, from all that we have learned it is unclear whether, despite the discourse of deficiency being unsatisfactory, we now have the readiness for the alternatives of sufficiency. Perhaps, in our humility of knowing and our motivations for enactment, only a moment of reflective attentiveness is now required for its reception. In the era of the individual, in the epoche of anthropocene, it seems humanitarian themes of service have become unfashionable, yet the wisdom of the past proponents guide us as readily today as they did, for those who heeded them, in all of our yesterdays:

> What the job really boils down to is this — the fullest realization of man[kind]'s possibilities, whether by the individual, by the community, or by the species in its processional adventure along the corridors of time. (Huxley, 1959, p. 14)

To aim to bring about a world with less of what we do not want is noble. To inquire into and provide the means for a world-system of we do want is ennobling. The conclusion we reach is increasingly clear. The future of humanity may depend upon just one thing; the caring we have for the generative potentials of all.

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