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Dear Phil,

It appears from your recent correspondence that you are really getting to heart of matters. I believe that it would now be possible for you to consolidate your position and make it transmittable to some ripe audiences in a principled way. A few of those principles might be:

1. Every relative invariant, i.e., everything which goes on in operation, is the result of a cybernation;
2. Every system is an individual;
3. Every system has a life cycle from development through (cybernating) operation unto demise;
4. The transition from one system in operation to another is a developmental process,
5. "Learning" is an example of development as it applies to changes of minding;
6. Any two or more systems which operate together and/or which develop together do so as mutual heterarchical complements, e.g., as "system" and "environment."

You might find it most efficient to write papers and to make presentations if you were to weave these principles and their ramifications into a syllabus for a (secret and not yet taught) short course concerning the subject matter and then make excerpts for consumption by the unschooled of all educational backgrounds. It is true that the "most educated" tend to be the most indoctrinated in what ain't so, as I found when I first tried to assert myself systemologically many years ago. Eventually, the best way to change a few minds is likely to be to immerse curious students in an experiential workshop, e.g., as Peter Senge's "Fifth Discipline" tried to do regarding management cybernation. The extraordinary robustness of the cybernation of conventional thinking itself has been demonstrated by how little effect Senge's seminal approach has had in the decades since it was promulgated, however. My own personal experience with the stubborn cybernation of ideas in the Western Rational Tradition was neatly displayed on the day in 1994 at an ISSS conference when Heinz von Foerster gave a stem-winding sermon to the effect that heterarchy and toroidal topologies, i.e., as propounded by Warren McCulloch, had never been properly appreciated, whereupon the hierarchicalists who had previously belittled my visual metaphors turned to me with reverence and called me vindicated ... a condition which lasted an hour or so until they all had time to regroup over coffee and agree with one another that systems really are hierarchical after all. If it is your desire to change people's minds for good, the worst thing you can do is achieve quick superficial agreement and acceptance, for that will last about as long as the expiration of a NY parking meter. A thoroughgoing catharsis is required before assimilation can proceed, and even then there are no guarantees.

*one often to present many hands to many gives connected by generations to first n.s. independent hands.*

I think that it is timely and appropriate here for me to report back to you my critical reading of the materials which you most recently sent.

Regarding your letter:

¶1 - Long ago I was taught that defining "problems" could not be done without full consideration of the "mess" [Ackoff] or "problematique" [Ozbekhan] in which they are enmeshed and that it is best to "dissolve" problems rather than to "solve" or "resolve" them. I have concluded since then that the whole rationale of "problem definition" and "problem solving" is a self-defeating practice, at best leading people to lurch from one perceived "problem" to another 'til death do them part. Problem-solving is a kind of reactive adaptation; development, properly done, takes initiative to dissolve whole classes of problems. In any event, the clinging to ill-advised piecemeal palliatives and treatments of mere symptoms are indications of the strong cybernation which makes conventional methods seem appealing, necessary, and safe. Three cheers for the read, tried and true ... better the familiar failure than an unfamiliar felicity any day. As for the individuality of each system, that is traditionally undiscussable because "real science" and its formal infrastructures can only cope with generalities. Until there is a science of the individual in the collective, systems can never be studied properly. As for laws, exactitudes, and other formalisms, they are self-limited as I have tried to show in the "Not Exactly" page of the current version of the Sampler. As Salthe has said, they tend to accumulate to count among the encumbrances that drive systems into rule-bound senescence. In any event, theories and formalisms are nice, but actual outcomes must be engineered.

¶2 - Inductive reasoning in search of common principles or characteristics across various systems has been a fiasco, e.g., in terms of "isomorphisms" [Bertalanffy] and "cross-level hypotheses" [Miller]. A topological approach makes things easier, but the key is to assume that systemicity entails cybernation through a life cycle and then deduce what every system must do that every other system does. A cyclonic storm has a life cycle as purely as a corporation or an animal does, albeit each of these go on as individuals. I do find distracting your use of the word "independent" as a partial synonym for "individual." "Interdependent individuality" is what I think you mean, and for me that phrase carries the flavor of "relative invariant" and "irreducible composite" and "fluctuating regularity" that suggest the paradoxical complements which characterize systemicity. As for attributions of "randomness," those tend to be expressions of ignorance or other evidence that someone doesn't understand what is going on.

¶3 - As you suggest, doing more of the same thing that is already failing is one definition of insanity, but it is the usual way because of the cybernation that maintains the failing ways and means. In that sense, it isn't anyone's fault except those who recognize the need for a new system and don't work for substantial developmental change to produce a new order. As for "learning," I see it as a kind of development of mind leading to a change of minding. The complex "solutions" which you mention have all the features of a Rube Goldberg design except that they are less likely to work.

*out that way "what is understood by" and then, judged rather than questioned as assumed to be very different from what was suggested it seems.*

*with recognizing that  
independent is not product  
of  
features, while consistent  
with  
the features of systems.*

¶4 - Development has the major phases you note as well as sub-phases which are easy to identify in deliberate developments though more tricky to label in natural ones. Generations ago when I taught seminars in deliberate development and planning, the notion that it could be characterized in an orderly and repeatable fashion was considered radical. It is not surprising that people who study natural phenomena remain confused about life cycles, especially after having been trained to focus only on one sub-phase of one phase, i.e., "growth." If a brilliant scholar like Stan has been hung up on a "immature/senescent" dichotomy or supposes that abiotic phenomena have no life cycle, that is testimony to how far we still have to go in understanding systemicity. It is certainly true that a generation of boomers who expect to live forever at an age of 39 do not want to hear about senescence and demise. One of my charts of a life cycle includes a second trace which reminds us that during development more resources are consumed than are returned; that during mature operation there is return on the developmental investment; and that during senescence an increasing quantity of resources is required for maintenance, even as service levels of operation decline.

¶5 - Rosen's formulations always seemed provocative to me but somehow hollow and too neatly dichotomous. It certainly is possible to define two relatively distinct systems and then examine their interactions, e.g., in a feedback loop; but it is easy to forget that their relationship(s) are of systemic order also, i.e., the medium of connection matters, so there are at least four considerations: subject system A, subject system B, connective system C, and a percipient. Considering toroidal topologies and essential heterarchy there are probably at least seven considerations needed, but that accounting is left as an exercise. In any event, a formal model and an actual happening are profoundly different and require plenty of intermediation if they are truly to interrelate.

¶6 - (I would need more descriptive material to appreciate your modeling here.)

¶7 - What you are describing is part of the concern about semiotics which gained recognition in systems discourse during recent decades. The most that can physically be exchanged is signaling; beyond that it is all interpretation in the receiver which may or may not in-form. The result at its best includes "appreciation" in the deepest sense. For some reason I am reminded here of the aphorism: "The unlived life is not worth examining."

¶8 - In keeping with the dualism favored in the Western Rational Tradition it is common to set forth a dichotomy between "regulation" (cybernation) and "adaptation," e.g., as Ashby and also G.M. Weinberg did. I suggest that "development" is of a different order than either of these two and must be set forth as a third possible course of action. Then if learning is taken to be a special case of development, a lot of loose ends can be connected.

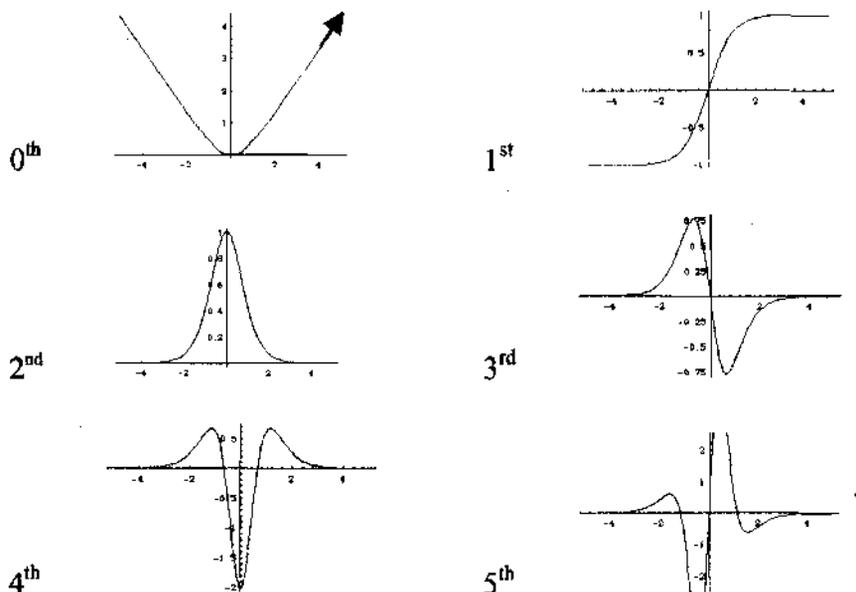
¶9 - My own solitude during recent years has led to the 287 pages of Sampler and Etudes enclosed. Parts of that work would be much better with collaboration; parts of it are already better because of your suggestions. As for Mother Nature's role in battling cleanup, she too cybernates and produces developments. The strength of the cybernation of the current order of things going on is also its weakness, driving it to a precipice of self-destruction.

Regarding your email exchange with Stan:

Stanly surely has some strange definitions of things. If senescence doesn't include "disintegration" for him, I'd like to know what vitamins he takes. One of his favorite exemplars is the cyclonic storm and it provides a salient example of an abiotic life cycle including rather distinct phases of development, operation, and demise, i.e., from nothing to a namable something to no-thing.

There may be quirky people who allege there can be no "steady state," but those of us who have studied some cybernetics of "control systems" take that phrase as a synonym for "dynamic equilibrium" or "relative invariance" or "cybernation" and take it to be one of the few universal principles which human perceptions and human manipulations can make sense of. The word "homeostasis" [from Walter Cannon and later from Ashby] is perhaps an unfortunate construct. I have fiddled with other neologisms such as "homeodynamics" and "homeokinesis" [van Gigh] and "homeorheosis" [Thompson] and "homeopoiesis." Perhaps "dynamostasis" would be better. The absence of a good Indo-European root word and a good modern English word for what is going on with relative invariants indicates how poorly cybernation has been appreciated over the millennia. Maybe "homeostasis" will just have to be good enough.

One way that the graphical curves related to changings can be visualized and related to one another is to consider the traces of ordinary physical motion. Starting with a trace of a change of direction of trajectory as the zeroth derivative (position) such as below, then the first derivative turns out to be a sigmoid of development (velocity), the second derivative a bell curve of resource usage (acceleration), the third derivative an upswing and downswing of control (jerk), the fourth derivative a valley of destination, the fifth derivative a waggle of change of destination, etc. Whether these curves have analogs in measures of "life" or vitality is left as an exercise, but they surely do look promising as visual metaphors at least.



The curves above depend for their representations and their relationships upon a mathematical notion of "continuity," but like any formalism it may not exist in "reality." We must always eschew the formality trap. I prefer to think of "continuity" as a nominal progression which may be intermittent or piecewise but nonetheless carries on. As for "commonalities" relevant to systemicity, they are at least as much topological, e.g., toroidality, as they are morphological, e.g., isomorphism, and the most illustrative of them concern what all systems do, e.g., cybernate, as what they "are," e.g., composite wholes. As for simulations or programs which model developmental trajectories including autocatalysis, they are explicit in many of the late H.T. Odum's representations, and Odum himself ran computer simulations of some of them. Stan knew Odum from various conferences, but it is sadly apparent that real communication between them about principles and practices never occurred.

Again, yes, there are politically incorrect concepts, and "senescence" and "ageing" are two of them nowadays. It is quite amazing how particular words and phrases which seem matter-of-fact to some people seem novel to others and repugnant to still others. Speaking of systemic individuality, it is startlingly true that no two people construe things identically or even similarly, and often the same "observations" mean radically different things to different people. Whole lives differ for this reason. My response to the "15 minutes to Armageddon" message of the Cold War was to keep everything short term, to live in meager quarters, to not marry or bring children into such a world, and to buy only one roll of toilet paper at a time. A good friend of mine from high school took quite another approach, earning a PhD, raising his young half siblings after his mother and stepfather died, then marrying and fathering three children of his own ... all this on the principle that if apocalypse is imminent one should nonetheless do the best things one can think of to do. In this he was right and I was wrong, though it is now clear that my staying out of family situations was best for some anonymous folks who don't know how grateful they should be ... a case of good results for wrong reasons.

Stan has, as always, amazing quantities of biological facts on the tip of his tongue. Many of them have been organized into his writings in support of his conceptual approaches. The trouble is that without a thoroughgoing model or suite of models (a la Odum) one is compelled to try to obtain theories and principles by inductive reasoning from details. In systemic thinking, it is better by far to appraise how things are cybernating together and, upon making the connections proceed to see where and how well the observable detailed measurements fit the model, i.e., make sense. In other words, it is best for us to beware of getting too concerned with quantitative measures until or unless they can be accompanied by a good model. Was it John Archibald Wheeler who said that he wouldn't believe the results of any experiment without a good theory for it?

Energy throughput is essential, of course, as is access to appropriate information, e.g., for autopoiesis or healing or just going on with cybernation, and a rate of flow of energy is "power," by definition. Autocatalysis and/or development accumulates repositories of energy, material, and information which make life possible but which may also bog it down as Stan has said. Some of Odum's models show how this happens. It is another case of the good (and necessary) news and the bad (and inevitable) news stemming from the same processes.

And so, as you suggest it is all about stories and as Odum suggested that pulses are what matter most ... pulses, that is, of life cycles and their effects ... intermittence as a quintessence.

but individual events are ones for which there can be no reference & which start to stop by one always starts to stop the more of history are the one thing you

had measured to prove a model but to point to where and when to look for behavior to suggest a model.

Regarding your paper:

(Please find enclosed a draft which I wrote as a reflection of it.)

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There is a project hiding in plain sight, namely to make a credible delineation of the phases of natural development which parallels the somewhat agreed definitions of the phases of deliberate development. I would be happy to work with you and Stan on this. Naming and categorizing is a primitive science, however, in comparison to modeling, so the real project is to find or make Odum-like models which simulate whole life cycles.

I have enclosed a current PDF of the "Going On ..." tome, now substantially enlarged from what I sent you in March and approaching 300 pages. (The pages have dates in their footings and so can be read selectively.) I continue to benefit from our correspondence, and I hope that you can do so as well or better.