
The Pattern That Connects

Q: So we'll start the story with the Big Bang itself, and then trace out the course of evolution from matter to life to mind. And then, with the emergence of mind, or human consciousness, we'll look at the five or six major epochs of human evolution itself. And all of this is set in the context of spirituality—of what spirituality means, of the various forms that it has historically taken, and the forms that it might take tomorrow. Sound right?

KW: Yes, it's sort of a brief history of everything. This sounds altogether grandiose, but it's based on what I call "orienting generalizations," which simplifies the whole thing enormously.

Q: An orienting generalization is what, exactly?

KW: If we look at the various fields of human knowledge—from physics to biology to psychology, sociology, theology, and religion—certain broad, general themes emerge, about which there is actually very little disagreement.

For example, in the sphere of moral development, not everybody agrees with the details of Lawrence Kohlberg's moral stages, nor with the details of Carol Gilligan's reworking of Kohlberg's scheme. But there is general and ample agreement that human moral development goes through at least *three broad stages*.

The human at birth is not yet socialized into any sort of moral system—it is "preconventional." The human then learns a general moral scheme that represents the basic values of the society it is raised in—it becomes "conventional." And with even further growth, the individual may come to reflect on his or her society and thus gain some modest

distance from it, gain a capacity to criticize it or reform it—the individual is to some degree “postconventional.”

Thus, although the actual details and the precise meanings of that developmental sequence are still hotly debated, everybody pretty much agrees that something like those three broad stages do indeed occur, and occur universally. These are *orienting generalizations*: they show us, with a great deal of agreement, where the important forests are located, even if we can't agree on how many trees they contain.

My point is that if we take these types of largely-agreed-upon orienting generalizations from the various branches of knowledge—from physics to biology to psychology to theology—and if we string these orienting generalizations together, we will arrive at some astonishing and often profound conclusions, conclusions that, as extraordinary as they might be, nonetheless embody nothing more than our already-agreed-upon knowledge. The beads of knowledge are already accepted: it is only necessary to string them together into a necklace.

Q: And so in these discussions we will build toward some sort of necklace.

KW: Yes, in a sense. In working with broad orienting generalizations, we can suggest a broad orienting map of the place of men and women in relation to Universe, Life, and Spirit. The details of this map we can all fill in as we like, but its broad outlines really have an awful lot of supporting evidence, culled from the orienting generalizations, simple but sturdy, from the various branches of human knowledge.

The Kosmos

Q: We'll follow the course of evolution as it unfolds through the various domains, from matter to life to mind. You call these three major domains matter or cosmos, life or the biosphere, and mind or the noosphere. And all of these domains together you call the “Kosmos.”

KW: Yes, the Pythagoreans introduced the term “Kosmos,” which we usually translate as cosmos. But the original meaning of Kosmos was the patterned nature or process of all domains of existence, from matter to mind to God, and not merely the *physical* universe, which is usually what both “cosmos” and “universe” mean today.

So I would like to reintroduce this term, Kosmos. And, as you point out, the Kosmos contains the cosmos (or the physiosphere), the bios (or biosphere), psyche or nous (the noosphere), and theos (the theosphere or divine domain).

So, for example, we might haggle about where exactly it is that matter becomes life—or cosmos becomes bios—but as Francisco Varela points out, autopoiesis (or self-replication) occurs only in living systems. It is found nowhere in the cosmos, but only in the bios. It's a major and profound *emergent*—something astonishingly novel—and I trace several of these types of profound transformations or emergents in the course of evolution in the Kosmos.

Q: So in these discussions we're not interested in just the cosmos, but the Kosmos.

KW: Yes. Many cosmologies have a materialistic bias and prejudice: the physical cosmos is somehow supposed to be the most real dimension, and everything else is explained with ultimate reference to this material plane. But what a brutal approach that is! It smashes the entire Kosmos against the wall of reductionism, and all the domains except the physical slowly bleed to death right in front of your eyes. Is this any way to treat a Kosmos?

No, I think what we want to do is Kosmology, not cosmology.

Twenty Tenets: The Patterns That Connect

Q: We can begin this Kosmology by reviewing the characteristics of evolution in the various realms. You have isolated *twenty patterns* that seem to be true for evolution wherever it occurs, from matter to life to mind.

KW: Based on the work of numerous researchers, yes.

Q: Let's give a few examples of these twenty tenets to show what's involved. Tenet number 1 is that reality is composed of whole/parts, or “holons.” Reality is composed of holons?

KW: Is that far out? Is this already confusing? No? Well, Arthur Koestler coined the term “holon” to refer to an entity that is itself a *whole* and simultaneously a *part* of some other whole. And if you start to look closely at the things and processes that actually exist, it soon becomes obvious that they are not merely wholes, they are also parts of something else. They are whole/parts, they are holons.

For instance, a whole atom is part of a whole molecule, and the whole molecule is part of a whole cell, and the whole cell is part of a whole organism, and so on. Each of these entities is neither a whole nor a part, but a whole/part, a holon.

And the point is, everything is basically a holon of some sort or another. There is a two-thousand-year-old philosophical squabble between

atomists and wholists: which is ultimately real, the whole or the part? And the answer is, neither. Or both, if you prefer. There are only whole/parts in all directions, all the way up, all the way down.

There's an old joke about a King who goes to a Wise person and asks how it is that the Earth doesn't fall down. The Wise person replies, "The Earth is resting on a lion." "On what, then, is the lion resting?" "The lion is resting on an elephant." "On what is the elephant resting?" "The elephant is resting on a turtle." "On what is the . . . ?" "You can stop right there, Your Majesty. It's turtles all the way down."

Turtles all the way down, holons all the way down. No matter how far down we go, we find holons resting on holons resting on holons. Even subatomic particles disappear into a virtual cloud of bubbles within bubbles, holons within holons, in an *infinity* of probability waves. Holons all the way down.

Q: And all the way up, as you say. We never come to an ultimate Whole.

KW: That's right. There is no whole that isn't also simultaneously a part of some other whole, indefinitely, unendingly. Time goes on, and today's wholes are tomorrow's parts. . . .

Even the "Whole" of the Kosmos is simply a *part* of the next moment's whole, *indefinitely*. At no point do we have *the* whole, because there is no whole, there are only whole/parts forever.

So the first tenet says that reality is composed neither of things nor processes, neither wholes nor parts, but whole/parts, or holons—all the way up, all the way down.

Q: So reality is not composed of, say, subatomic particles.

KW: Yikes. I know that approach is common, but it is really a profoundly reductionistic approach, because it is going to *privilege* the material, physical universe, and then everything else—from life to mind to spirit—has to be *derived* from subatomic particles, and this will never, never work.

But notice, a subatomic particle is itself a holon. And so is a cell. And so is a symbol, and an image, and a concept. What all of those entities are, before they are anything else, is a holon. So the world is not composed of atoms or symbols or cells or concepts. It is composed of holons.

Since the Kosmos is composed of holons, then if we look at what *all holons have in common*, then we can begin to see what evolution in all the various domains has in common. Holons in the cosmos, bios, psyche, theos—how they all unfold, the common patterns they all display.

Q: What all holons have in common. That is how you arrive at the twenty tenets.

KW: Yes, that's right.

Agency and Communion

Q: So tenet 1 is that the Kosmos is composed of holons. Tenet 2 is that all holons share certain characteristics.

KW: Yes. Because every holon is a whole/part, it has two "tendencies" or two "drives," we might say—it has to maintain both its *wholeness* and its *partness*.

On the one hand, it has to maintain its own wholeness, its own identity, its own autonomy, its own *agency*. If it fails to maintain and preserve its own agency, or its own identity, then it simply ceases to exist. So one of the characteristics of a holon, in any domain, is its agency, its capacity to maintain its own wholeness in the face of environmental pressures which would otherwise obliterate it. This is true for atoms, cells, organisms, ideas.

But a holon is not only a whole that has to preserve its agency, it is also a part of some other system, some other wholeness. And so, in addition to having to maintain its own autonomy as a *whole*, it simultaneously has to fit in as a *part* of something else. Its own existence depends upon its capacity to fit into its environment, and this is true from atoms to molecules to animals to humans.

So every holon has not only its own agency as a whole, it also has to fit with its *communions* as part of other wholes. If it fails at either—if it fails at agency or communion—it is simply erased. It ceases to be.

Transcendence and Dissolution

Q: And that is part of tenet number 2—each holon possesses both agency and communion. You call these the "horizontal" capacities of holons. What about the "vertical" capacities of holons, which you call "self-transcendence" and "self-dissolution"?

KW: Yes. If a holon fails to maintain its agency and its communions, then it can break down completely. When it does break down, it decomposes into its subholons: cells decompose into molecules, which break down into atoms, which can be "smashed" infinitely under intense pressure. The fascinating thing about holon decomposition is that holons tend to dissolve in the reverse direction that they were built up. And this

decomposition is “self-dissolution,” or simply decomposing into subholons, which themselves can decompose into their subholons, and so on.

But look at the reverse process, which is the most extraordinary: the building-up process, the process of new holons emerging. How did inert molecules come together to form living cells in the first place?

The standard neo-Darwinian explanation of chance mutation and natural selection—very few theorists believe this anymore. Evolution clearly operates in part by Darwinian natural selection, but this process simply selects those transformations that have *already* occurred by mechanisms that absolutely nobody understands.

Q: For example?

kw: Take the standard notion that wings simply evolved from forelegs. It takes perhaps a hundred mutations to produce a functional wing from a leg—a half-wing will not do. A half-wing is no good as a leg and no good as a wing—you can’t run and you can’t fly. It has no adaptive value whatsoever. In other words, with a half-wing you are dinner. The wing will work only if these hundred mutations *happen all at once*, in one animal—and also these *same* mutations must occur *simultaneously* in another animal of the opposite sex, and then they have to somehow find each other, have dinner, a few drinks, mate, and have offspring with real functional wings.

Talk about mind-boggling. This is infinitely, absolutely, utterly mind-boggling. Random mutations cannot even begin to explain this. The vast majority of mutations are lethal anyway; how are we going to get a hundred nonlethal mutations happening simultaneously? Or even four or five, for that matter? But once this incredible transformation has occurred, then natural selection will indeed select the better wings from the less workable wings—but the wings themselves? Nobody has a clue.

For the moment, everybody has simply agreed to call this “quantum evolution” or “punctuated evolution” or “emergent evolution”—radically novel and emergent and incredibly complex holons come into existence in a huge leap, in a quantum-like fashion—with no evidence whatsoever of intermediate forms. Dozens or hundreds of simultaneous nonlethal mutations have to happen at the same time in order to survive at all—the wing, for example, or the eyeball.

However we decide these extraordinary transformations occur, the fact is undeniable that they do. Thus, many theorists, like Erich Jantsch, simply refer to evolution as “self-realization through self-transcendence.” Evolution is a wildly *self-transcending* process: it has the utterly amazing capacity to go beyond what went before. So evolution is in part

a process of transcendence, which incorporates what went before and then adds incredibly novel components. The drive to self-transcendence thus appears to be built into the very fabric of the Kosmos itself.

Four Drives of All Holons

Q: And that is the fourth “drive” of all holons. So we have agency and communion, operating “horizontally” on any level, and then “vertically” we have the move to a higher level altogether, which is self-transcendence, and the move to a lower level, which is self-dissolution.

kw: Yes, that’s right. Because all holons are whole/parts, they are subjected to various “pulls” in their own existence. The pull to be a whole, the pull to be a part, the pull up, the pull down: agency, communion, transcendence, dissolution. And tenet 2 simply says that all holons have these four pulls.

So that’s an example of how the twenty tenets start. There is nothing magical about the number “twenty.” These are just some of the common patterns I have focused on. The rest of the twenty tenets look at what happens when these various forces play themselves out. The self-transcending drive produces life out of matter, and mind out of life. And the twenty tenets simply suggest some of these types of common patterns found in the evolution of holons wherever they appear—matter to life to mind, to maybe even higher stages. Maybe even spiritual stages, yes?

Q: So there is indeed some sort of unity to evolution.

kw: Well, it certainly seems so. The *continuous* process of self-transcendence produces *discontinuities*, leaps, creative jumps. So there are both discontinuities in evolution—mind cannot be reduced to life, and life cannot be reduced to matter; and there are continuities—the common patterns that evolution takes in all these domains. And in that sense, yes, the Kosmos hangs together, unified by a single process. It is a uni-verse, one song.

Creative Emergence

Q: That one song you call Spirit-in-action, or God-in-the-making, which is a point I want to come back to later. But for now, tenet number 3 states simply: Holons emerge.

kw: Yes. As we were saying, evolution is in part a self-transcending process—it always goes beyond what went before. And in that novelty,

in that emergence, in that creativity, new entities come into being, new patterns unfold, new holons issue forth. This extraordinary process builds unions out of fragments and wholes out of heaps. The Kosmos, it seems, unfolds in quantum leaps of creative emergence.

Q: Which is why one level cannot be reduced to its lower components, or why a holon cannot be reduced to its subholons.

KW: Yes. I mean, you can analyze the whole into its constituent parts, and that's a completely valid endeavor. But then you have parts, not the whole. You can take a watch apart and analyze its parts, but they won't tell you the time of day. It's the same with any holon. The wholeness of the holon is not found in any of its parts, and that puts an end to a certain reductionistic frenzy that has plagued Western science virtually from its inception. Particularly with the systems sciences, the vivid realization has dawned: we live in a universe of creative emergence.

Q: Although there are still reductionists around, the tide does seem to have turned. You hardly have to explain anymore why reductionism, in and by itself, is "bad." And nonreductionism means, in some sense, that the Kosmos is creative.

KW: Amazing, isn't it? As "ultimate categories"—which means concepts that we need in order to think about anything else at all—Whitehead listed only three: creativity, one, many. (Since every holon is actually a one/many, those categories really come down to: creativity, holons.)

But the point is, as Whitehead put it, "The ultimate metaphysical ground is the *creative advance into novelty*." New holons creatively emerge. Creativity, holons—those are some of the most basic categories that we need to think of before we can think about anything else at all!

So yes, that's tenet 3: holons emerge. And each holon has these four basic capacities—agency, communion, self-dissolution, self-transcendence—and so off we go, creating a Kosmos.

Q: This gets a little ahead of the story, so I don't want to pursue it too much right now. But you link creativity and Spirit.

KW: Well, what is creativity but another name for Spirit? If, as Whitehead said, creativity is an *ultimate*—you have to have it before you can have anything else—what is an "ultimate metaphysical ground" if not Spirit? For Spirit, I also use the Buddhist term "Emptiness," which we can talk about. But Spirit or Emptiness gives rise to form. New forms emerge, new holons emerge—and it's not out of thin air.

We already saw that many scientists *agree* that self-transcendence (or novel emergence) is built into the very fabric of the universe. By any

other name, what is that self-transcending creativity? Spirit, yes? We are obviously talking in very general terms here, but so far it appears that we have: Spirit, creativity, holons.

Q: There has also been a recent warming in some scientific circles to a more spiritual or idealistic reading of creation.

KW: In a certain sense. The Big Bang has made Idealists out of almost anybody who thinks. First there was absolutely nothing, then Bang! Something. This is beyond weird. Out of sheerest Emptiness, manifestation arises.

This is a bit of a nightmare for traditional science, because it puts a time limit on the chance mutations that were supposed to explain the universe. Remember the thousand monkeys and Shakespeare—an example of how chance could give rise to the ordered universe?

Q: Given enough time, the randomly typing monkeys would manage to type out a Shakespeare play.

KW: Given enough time! One computation showed that the chance for monkey power to produce a single Shakespeare play was one in ten thousand million million million million million. So maybe that would happen in a billion billion years. But the universe doesn't have a billion billion years. It only has twelve billion years.

Well, this changes everything. Calculations done by scientists from Fred Hoyle to F. B. Salisbury consistently show that twelve billion years isn't even enough to produce a *single enzyme* by chance.

In other words, something other than chance is pushing the universe. For traditional scientists, chance was their salvation. Chance was their god. Chance would explain all. Chance—plus unending time—would produce the universe. But they don't have unending time, and so their god fails them miserably. That god is dead. Chance is not what explains the universe; in fact, chance is what the universe is laboring mightily to overcome. Chance is exactly what the self-transcending drive of the Kosmos overcomes.

Q: Which is another way of saying that self-transcendence is built into the universe, or, as you put it, self-transcendence is one of the four drives of any holon.

KW: Yes, I think so. There is a formative drive, a telos, to the Kosmos. It has a direction. It is going somewhere. Its ground is Emptiness; its drive is the organization of Form into increasingly coherent holons. Spirit, creativity, holons.

Q: Now the "religious creationists" have made quite a big deal out of this. They say it fits with the Bible and Genesis.

KW: Well, they have seized upon the increasingly obvious truth that the traditional scientific explanation does not work very well. Creativity, not chance, builds a Kosmos. But it does not follow that you can then equate creativity with your favorite and particular God. It does not follow that into this void you can postulate a God with all the specific characteristics that make you happy—God is the God of only the Jews, or only the Hindus, or only the indigenous peoples, and God is watching over me, and is kind, and just, and merciful, and so on. We have to be very careful about these types of limited and anthropomorphic characteristics, which is one of the reasons I prefer “Emptiness” as a term for Spirit, because it means unbounded or unqualifiable.

But the fundamentalists, the “creationists,” seize upon these vacancies in the scientific hotel to pack the conference with their delegates. They see the opening—creativity is an *absolute*—and they equate that absolute with their mythic god, and they stuff this god with all the characteristics that promote their own egoic inclinations, starting with the fact that if you don’t believe in this particular god, you fry in hell forever, which is not exactly a generous view of Spirit.

So it is a good idea to start simple, I think, and be very careful. There is a spiritual opening in the Kosmos. Let us be careful how we fill it. The simplest is: Spirit or Emptiness is unqualifiable, but it is not inert and unyielding, for it gives rise to manifestation itself: new forms emerge, and that creativity is ultimate. Emptiness, creativity, holons.

Let’s leave it there for the time being, okay? We can come back to this topic as things unfold.

Holarchy

Q: Fair enough. So we just looked at tenet number 3, “Holons emerge.” Tenet number 4 is: Holons emerge holarchically. Holarchy?

KW: Koestler’s term for natural hierarchy. Hierarchy today has a very bad reputation, mostly because people confuse dominator hierarchies with natural hierarchies.

A natural hierarchy is simply an order of increasing wholeness, such as: particles to atoms to cells to organisms, or letters to words to sentences to paragraphs. The whole of one level becomes a part of the whole of the next.

In other words, natural hierarchies are composed of holons. And thus, said Koestler, “hierarchy” should really be called “holarchy.” He’s absolutely right. Virtually all growth processes, from matter to life to

mind, occur via natural holarchies, or orders of increasing holism and wholeness—wholes that become parts of new wholes—and that’s natural hierarchy or holarchy.

Q: It’s the dominator hierarchies that freak people out.

KW: With good reason, yes. When any holon in a natural holarchy usurps its position and attempts to dominate the whole, then you get a pathological or dominator hierarchy—a cancerous cell dominates the body, or a fascist dictator dominates the social system, or a repressive ego dominates the organism, and so on.

But the cure for these pathological holarchies is not getting rid of holarchy per se—which isn’t possible anyway—but rather in arresting the arrogant holon and integrating it back into the natural holarchy, or putting it in its rightful place, so to speak. The critics of hierarchy—their names are legion—simply confuse these pathological holarchies with holarchies in general, and so they toss the baby with the bathwater.

Q: They claim in getting rid of hierarchies they are being holistic, because everything is treated equally and thus joined together.

KW: It appears to be just the opposite. The only way you get a holism is via a holarchy. When holists say “the whole is greater than the sum of its parts,” that means the whole is at a *higher* or *deeper* level of organization than the parts alone—and that’s a hierarchy, a holarchy. Separate molecules are drawn together into a single cell only by properties that supersede the molecules alone—the cell is holarchically arranged. And without holarchy, you simply have heaps, not wholes. You are a heapist, not a holist.

Q: But many feminists and many ecophilosophers claim that any sort of hierarchy or “ranking” is oppressive, even fascist. They say that all such value ranking is “old paradigm” or “patriarchal” or oppressive, and it ought to be replaced with a *linking*, not a *ranking*, worldview. They’re very aggressive with this point; they hurl rather harsh accusations.

KW: This is a bit disingenuous, because you can’t avoid hierarchy. Even the antihierarchy theorists that you mention *have their own hierarchy*, their own *ranking*. Namely, they think linking is *better* than ranking. Well, that’s a hierarchy, a ranking of values. But because they don’t own up to this, then their hierarchy becomes unconscious, hidden, denied. Their hierarchy denies hierarchy. They have a ranking system that says ranking is bad.

Q: You call this a “performative contradiction.”

KW: Yes, the point is that the antihierarchy stance is self-contradictory.

tory. These theorists have a hierarchy; it's just hidden or concealed. With this stealth hierarchy they attack all other hierarchies, and they claim that they themselves are "free" of all that nasty ranking. So they rancorously denounce others for doing precisely what they themselves are doing. It's an altogether unpleasant affair.

Q: But hierarchy has been put to many abuses, as you yourself have explained at length.

KW: Yes, and in that regard I very much agree with these critics. But the point is not to get rid of hierarchies or holarchies altogether—that's impossible. Trying to get rid of ranking is itself a ranking. Denying hierarchy is itself a hierarchy. Precisely because the Kosmos is composed of holons, and holons exist holarchically, you can't escape these nested orders. Rather, we want to tease apart *natural* holarchies from *pathological* or *dominator* holarchies.

Q: So holarchies really are inescapable.

KW: Yes, because holons are inescapable. All evolutionary and developmental patterns proceed by holarchization, by a process of increasing orders of wholeness and inclusion, which is a type of *ranking* by *holistic* capacity. This is why the basic principle of holism is holarchy: the higher or deeper dimension provides a principle, or a "glue," or a pattern, that unites and *links* otherwise separate and conflicting and isolated parts into a coherent unity, a space in which separate parts can recognize a common wholeness and thus escape the fate of being merely a part, merely a fragment.

So linking is indeed important, but linking is itself set within ranking and holarchy, and can exist only because of holarchy, which provides the higher or deeper space in which the linking and joining can occur. Otherwise heaps, not wholes.

And when a particular holon usurps its position in any holarchy—when it wants to be only a whole, and not also a part—then that natural or normal holarchy degenerates into a pathological or dominator holarchy, which by any other name is illness, pathology, disease—whether physical, emotional, social, cultural, or spiritual. And we want to "attack" these pathological hierarchies, not in order to get rid of hierarchy per se, but in order to allow the normal or natural hierarchy to emerge in its place and continue its healthy growth and development.

The Way of All Embrace

Q: Okay, here is what we have so far. The Kosmos is composed of holons, all the way up, all the way down. All holons have four funda-

mental capacities—agency and communion, transcendence and dissolution. Holons emerge. Holons emerge holarchically.

KW: Yes, those are the first four tenets.

Q: So now we have tenet 5: Each emergent holon transcends but includes its predecessor(s).

KW: For example, the cell transcends—or goes beyond—its molecular components, but also includes them. Molecules transcend and include atoms, which transcend and include particles. . . .

The point is that since all holons are whole/parts, the wholeness *transcends* but the parts are *included*. In this transcendence, heaps are converted into wholes; in the inclusion, the parts are equally embraced and cherished, linked in a commonality and a shared space that relieves each of the burden of being a fragment.

And so yes, evolution is a process of transcend and include, transcend and include. And this begins to open onto the very heart of Spirit-in-action, the very secret of the evolutionary impulse.