

**Nature 9**  
**Cartoon Quipbyte Bypass**  
Presented by Roger Weir  
Saturday, February 26, 2000

Transcript:

This is *Nature 9* finally. And I want to start with a couple of quotations to position our attention. This is a quotation from a study that just came out on Emily Dickinson, *Dickinson and The Unknown*. But the title of the study is called *Nimble Believing* [*Nimble Believing: Dickinson and the Unknown*]. *Nimble Believing*. And the author says this about Emily Dickinson's language, her poetry, but basically about her being.

As with her interior world so also with her exterior. Dickinson's sense that we live surrounded by the unknown is exacerbated by her suspicion that our perception, our perceptions, do not put us directly in touch with the world we perceive. According to her radical idealism, the very act of perception divides what is perceived from the perceiver. Perception of an object costs precise the object loss. The object in this poem recedes into the distance. A perfectness by virtue of being perceived, but also heavenly far.

Now, this quality of our ability to perceive objectiveness severing a tie which was there and now is not there, releasing the object into a suspension which becomes distant in the sense of almost as far away as Heaven itself. Leaving the observer cut off is very, very interesting.

The Chinese phrase that reoccurs in *The I-Ching* all the time translates as Heaven suspends its emblems. That is to say, the ancient Chinese appreciation for the way in which a cosmos presents itself to us is in a state of complete and perfect suspension. None of the elements touch each other physically. And we talked about a month or six weeks ago about how when it came time for the Chinese to express in ink paintings, in Chinese landscapes, Chinese landscape scrolls,

which came about 4000 years after the beginnings of *The I-Ching*. Chinese landscape scrolls were prized by connoisseurs who were able to see that the lines that make up the landscapes do not always everywhere touch each other. Do not meet.

And one of the greatest of those painters. He was from a period in Chinese art history known as the Southern Song. His name was Ma Yuan. One time in a Chinese landscape, scroll put the ultimate Zen temple. And I once had a photograph of this scroll blown up to poster size so that you could see that every structural member of this temple was suspended in space. None of them touched. So that the Gestalt of objectivity to the Chinese Daoist sense is that we have suspended elements that occur together in an associational cloud but have no kind of post-and-beam contact whatsoever.

Remember in Zhuangzi, the Daoist butcher whose knife is always sharp because in cutting up a sacrificial ox, his knife goes in between all of the joints, all of the bones, and never touching anything actually remains always sharp. This sense that objectivity that is linked together, that is physically clamped together, that that kind of objectivity is an artifact of appearance and is not real. And we've talked about how we need to save the appearances. That the appearances are useful, that the sense of an objectivity, which is not just a gestalt of suspended practicality, but are objects which have that clamping, that joining together, those appearances are valuable. But we need to pair with that constantly. This suspicion of Emily Dickinson. The act of a perception that is grounded in accepting appearance betrays the actuality of the real.

Now, this is a very ancient wisdom notion. And not only for the ancient Chinese, but we have looked at how the ancient pre-Socratic Greeks also had this conviction that appearance always presents us with a polarized veil of objectivity. Which on one hand, we can work with. On the other hand, we need to be suspect of it because it is not ultimately real, not ultimately true.

The pre-Socratic Greek that we brought into play so that there was an East-West synergy a contemporary of Lao Tzu named Parmenides. Both of them lived in the 500's B.C. This is a fragments of his work. This is published by the University of Toronto Press, which did this beautiful translation in 1984. And the translation is very accurate in terms of the archaic Greek of

Parmenides. And it translates into English in just this way. He's talking about understanding Parmenides is saying, understanding is a route. It is a it is a trajectory which has its ins and outs. It has its motions. And he writes. Excuse me. "A single story of a route that still is left to us." That is, after looking at all of the possible routes that appearance has, and it has many. There is still a singularity, a unity, a single route which has not been discussed under all the possibilities of appearance. The multiplicities of ways of understanding that are there in the realm of appearance. There is also in the realm of, and here Parmenides uses a term which translates in English as is. Is.

A single story of a route still is left that is. On this route there are signs very numerous that what is, is un-generated, imperishable, whole, single limbed, steadfast, complete. Nor was it once. Nor will it be. Since it is now altogether one continuous.

And then there's an appendix clause supplied to this after one continuous. The clause is, "For what coming to be of it will you seek?"

So, the ancient wisdom East and West was already recognizing by at least 2500 years ago appearance has an emergent quality to it, but reality does not emerge. It has a Tao, and a Tae immediately spontaneously paired. It has an is not, a zero quality, and an is a one quality, both at the same time as a set. As a paired-ness. So that when it comes to talking about the real, we do not ever come to a juncture where paired-ness is not a trustworthy part of our language. Whatever it is that we are able to express, to hear, to say, to understand, to trust, the zero and the one together as a set, the is not and the is as a set.

And that when it comes to appearance, polarity has a magnetic quality of glomming on to each other. Anything that is in a polarized opposition tends to, to cling to each other. Whereas there is a mysterious quality that's there courtesy of the real courtesy of the fact that while zero and one go together as a set in the real, therefore polarity is able to cling. There is also a transform where polarity can be reversed and become disjunctive. So that in the realm of appearance there is a pair of possibilities. One is for polarity to want to come together, the other is for polarity to acquire a radical disjunctive-ness where it will not meet. It does not meet. It does not touch.

And so, Parmenides, like Lao Tzu, his contemporary, saying, in order for us to begin to understand nature we must appreciate this mysteriousness. That all of the appearances in nature, when they're building structure, use polarity in terms of this world. But hidden underneath it is a capacity for disjunctive-ness, which is always there. And it's misleading just to call it potential. That it's potentially there. It isn't that it's potentially there, it's that the disjunctive-ness is a phase of polarity itself. So that disjunctive-ness and polarity go together and make another set. So that appearance in its paired-ness of polarity clinging or disjunctive appearance, then, is a resonance of the real. The real having a zero one preparedness originally.

So that when we look to understand what is really objective, we have come to understand, both through ancient wisdom and through all of the developments worldwide in between, and here at the beginning of the 21<sup>st</sup> century in the deepest understanding and appreciation of nature of which we are capable now. Nuclear physics. Cosmic astrophysics. Molecular biology on level of quantum mechanical effects. We can understand that there is an oddity that happens. The oddity is that the physical objectivity which we're looking at occurs not because things are glued together, but because they are collected together by an energy resonance. And that energy has a resonant quality built into the fact that it is in fact a frequency. And that this objectivity of an energy resonance focus that that objectivity is amenable to transforms. Even radical transforms like completely reversing its worldly qualities.

One of the geniuses about 70 years ago who looked into this quality of the mystery of nature was Linus Pauling. And Linus Pauling saw that what he needed to focus on was a pair of qualities that occurred biochemically in all forms of life, all animals. And that was the paradox of antibodies and antigens. That antibodies and antigens always together constituted a kind of complementarity. The understanding of which was going to characterize he expected, and indeed it did, was going to characterize for him an application of what quantum mechanics and physics had understood to the chemical realm.

And as early as 1935, that's 65 years ago, Pauling coauthored this book, *Introduction to Quantum Mechanics with Applications to Chemistry*. So that already two thirds of a century ago, Linus Pauling had focused on this very, very peculiar capacity. The capacity for what is and what is

not. To have a disjunctive-ness, but also to have, in the realm of appearance a polarized phase which tends to want to collect them together.

I'm going to pause here in this line of development, because we're not trying to follow any particular line of development for very long. The line necessarily becomes so fine that it disappears. So, we're using an educational strategy. We're using a teaching method. We're using a language style which is more poetic than it is logical. Instead of clinging to a logical line which, like the objectivity of post-and-beam construction eventually becomes deceptive, our backing off and starting over again. Not with a new line but starting with the empty space out of which that line, that previous line, developed is a technique for learning to suspend the objectiveness of our expectation of form. And this is part of the radical quality of this education. It's very similar to the way in which ancient wisdom would have operated but informed with a 21<sup>st</sup> century capacity of development sense.

So, let's go back. Let's go back to the openness. Let's go back to the 40<sup>th</sup> chapter of *The Tao Te Ching* for a moment. One of the shortest chapters in all of *The Tao Te Ching*. It's only four lines. The first line, Returning. Returning is Dao presence movement. So, when you have a Dao presence movement, it returns. Now if we took a logical projection of objectivity expectation we would see a circle. Lao-tzu is not speaking circularly. That is to say, he's not speaking logically in the sense of a syllogistic basis. If A then B. If b then C. A therefore C. This kind of syllogistic logic eventually can be integrated to a very simple form, which is called a tautology. Its eventual discursiveness depends on you believing that A equals A. And what Lao Tzu and Parmenides and 5 or 6000 other wisdom teachers are saying is that A does not equal A. This A is distinctly different from this A always. And that the equals is a process which involves something even larger and more comprehensive than the A's being put in opposition to each other.

The second line of the 40<sup>th</sup> chapter of *The Tao Te Ching* is, “Yielding is Dao presence function.” Yielding. Yielding. Sometimes the Chinese word can be translated not only as yielding, but it has a further resonant connotation of accepting in the sense of letting something be. Yielding as to let something pass. To let something continue. Zero yields to one. And in yielding to one in no way impairs its zero-ness. That one is in no way impairs that zero is not. So that the is and the is not,

the zero and the one, are disjunctive in an appearance mode. They go together in a complementation in reality without disengaging their distinctive difference. So that a true transform respects not only the transformation of form, but the non-transformation of the background within which the forms achieve their objectivity. If the transformation is of form alone, this is playing with appearances and is actually a transposition, not a transformation. The ego has no way to tell the difference between a transposition and a transformation. It cannot tell the difference because it occurs upon an appearance plane where both of those are the same, they are tautologically indistinguishable to the ego.

Now let's come back to Lao Tzu. The first two lines in chapter 40 of *The Tao Te Ching*. Each chapter has a pair of Chinese characters that give it a title. The pair that titled this I've translated as *Avoiding Function*. Avoiding function is a variant of not doing, [inaudible]. But it's not, not doing, its avoiding function, as in yielding and not exercising the impulse to make a function. Either to make a function happen, or to expect that something is functioning. To expect that something is working. To want to check is it working? This entire scheme of expectations is a projection and has no bearing upon the real and has a deceptive bearing upon appearance.

Now, all of this amounts to the fact that without this kind of sensitivity that we're skirting, we do not have an appreciation for the mystery of nature. We make assumptions about nature as if it were a collection of things that stick together and by sticking together, build up this world. And that we can only trust it if it has this gluing capacity.

I'm reminded of one of the best expositions of this particular dilemma. Not as a dilemma, but as worldly wisdom, was in one of John Milius' screenplays. The film *Conan the Conqueror*. Most excellent kind of a film. A great screenplay. And at the beginning, the young Conan is listening to this wise old man who is telling him about the world. And he's saying, there are no men that you can trust. There are no women you can trust. And then he picks up a sword and he hits his hand, and he says this you can trust. You can trust steel.

In a way, the ego in its world can only trust the sword. Does not ever have, cannot allow itself to have, an appreciation of the mystery of nature. And to wisdom this entire scheme has the quality

of a cartoon. The world of the ego to the wisdom eye is a cartoon world. And its certainty is believing that in the realm of language, the most trustworthy language is that that's reducible down to the bite. To phrases which are condensed to the sound bite. And I've coined a word here not only sound bites, but Quipbyte. That you could quote this as gospel. And so, this lecture has the title of *Cartoon Quipbyte Bypass*. Doing a little language surgery here. A little psychic surgery on the language. Physically able to do so today.

What's interesting is that a byte, which was coined about 4550 years ago, is short for a binary unit. And a binary unit is always a zero and one. So that the very misuse of this kind of language on sociological, egotistical level even betrays the mathematical origins of computer language itself. Because if you look at the programming ultimate storyboard, it's just zeros and ones as an expressive set together. And all binary units include both those elements all the time. Otherwise, you don't have any traction in actuality. So that the sociological projection that one can reduce something down to a sound byte and keep quoting it till it becomes a Quipbyte and becomes aphoristically true, like A must equal A, and that's identity. And we can't get anywhere logically without identity. This is pernicious. No real logic ever got anywhere on the basis of identity.

As Parmenides pointed out 2500 years ago, if you're hoping to trust identity on basis of a tautological reduction, all you get is a cough. But every time there's a projection, there's an overcompensation. Without wanting to have it come into play, a compensation always comes into play. And it comes into play in terms of the real, not in terms of appearance. So that a compensation always alerts us if we are able to notice it, that what's being compensated was a partiality that was cut off from its context. And the compensation and the cut off element together as a set form an interesting kind of a paired-ness.

And if one were able to make one's way through this kind of paired-ness you would actually gain traction, and this is the whole theory of therapy. That there is a traction to be had by pairing together compensations and partialities. But there is a limit to that kind of therapy. That therapy is only effective to reinstate the realm of polarized appearance to its capacity to transform. It in no way affects your ability or capacity to appreciate the real. So that the best that you can do is

you become a free and easy in the realm of appearance. But in no way deepens without a deeper true transform that opens polarity into its complementarity possibilities.

Let's come back to Linus Pauling. Let's make it back to Linus Pauling by bringing in the last two lines, the third and fourth line of Lao-Tzu's *Avoiding Function*, chapter 40 of *The Tao Te Ching*. I'll read the first two and the last two together. So, you get the four line, you get the quaternary. The quatrain. "Returning is Dao presence movement. Yielding is Dao presence function. Heaven. Earth. The 10,000 things resonant by existence. Existence is consonant with the empty." So that we have a resonance, and we have a consonance that form a set. That form a of paired-ness themselves.

In terms of energy, in terms of dynamic, in terms of the dynamic movement, which is always a temporality, the dynamics of time and the energy resonance of the focused existential space. So that time and space, energy and dynamics, together, have a resonance which is built upon the polarity capacities. Both coming together and disjunctive. And those two have a relationship with a deep consonance, the consonance between 0 and 1. The consonance with the entire unity of all that is, in complementarity to the is not, which never is.

The Chinese phrase for this pair, of course, Tao and Tae. Tae having the sense of power. That existence has a power. It has not only a power to emerge and keep emerging and to sustain itself, to stabilize, to occur, and to keep occurring but also to reoccur, to come back into play again and again.

If we look at this in terms of our friend Linus Pauling. He writes in this way.

It became evident that non-biological specificity could also be explained in terms of complementarity. I gave an example in a lecture on analogies between antibodies and simpler chemical substances.

This was in 1946.

The reaction shown by simple chemical substances, substances that is analogous to that of specific combination of antigen and antibody is the formation of a crystal substance from solution.



This was in 1946, and Pauling quoted it again in 1974, in an article in the scientific magazine *Nature*. And it was reprinted in this critical edition of *The Double Helix* [*The Double Helix: A Personal Account of the Discovery of the Structure of DNA*], which is one of the texts that we're now using. We're using a pair of books. We're using *The Double Helix* by James Watson, and we're using Jane Goodall's *Through a Window*. Her life and her work with chimpanzees for the last 40 years in Africa. In Tanzania, on the shores of Lake Tanganyika, in what is now Gombe National Park. When Jane Goodall first went there the mountains were covered with forests. That was in 1960. Now Gombe National Park is only two miles wide. And as far as you can see there's deforested mountains and little villages of people living on the edges of life cannibalizing the chimpanzees for meat. And instead of 2 million chimpanzees, there are about 200,000 left in 40 years. And so, Jane Goodall has to go out. She went to every village. There were 30 villages on the periphery of the Gombe Game Preserve. She slowly educated all of those people so that in 27 of the villages they now have tree nurseries to replant. And they recognize that the chimpanzees have character. That they're not just stupid blind animals that are just meat for us, but that they are sentient beings who have character. They have life histories. They have families. They have tribal qualities. They're related to us. And she found that that was not enough to go to the periphery of the national park but eventually now the Jane Goodall Institute in Silver Spring, Maryland, outside of Washington, D.C., is involved in the world ecology movement because all of its interlinked.

In just this way, Pauling discovered when he was looking at this problem, he was looking at the problem of how antibodies and antigens work together in biological systems. And that this extends not only to the biological systems of life, but to the non-biological levels of the way in which specificity happens in existence.

And very early on in the 1930's already even before this 1946 article in *Nature*, quoted in 1974 and reprinted in 1980 in this book. Even in the 1930's, already Pauling had a prototype of how reality occurs that it gels out of a solution like a crystal that emerges when the solution is saturated. And it's just this way that existence comes into its oneness out of the Dao. It comes in whole, as Parmenides says, complete now. Always. In that it's Tae never is partial. What is partial is in the realm of the details of existence in terms of ratios. But in terms of the Tae realm,

it isn't multiple at all. It's always just one. The world is not only just one, but the universe is just one. That our ecology does not just extend to the villages around the preserve, that we're hoping to keep a little wildness alive.

What did Thoreau say, in wilderness is the preservation of man. The wilderness is the understanding that we occur in the real paired with an infinite openness. And that our reality is a function of that paradox occurring even in the realm of appearance. Now, this puts a great emphasis upon an education to constantly double back and triple back and come back upon its own statements, its own developments. So that those statements and developments don't get up ahead of steam and get going in their own way, in their own characteristic. That we acquire a recalibration where we're always willing to take a moment to come back and consider it fresh. To consider it new. Consider it originally.

It's like the theory of physical breathing. You can't keep breathing in. There has to be a period of breathing out. And you can't keep breathing in and out, there needs to be a quietness in between. A pause that's interiorized, and a pause between breathing out and just before you breathe in that so called exteriorized. And so, there's a four cycle, a pair of pairs in breathing. Just that function. And that that full cycle is what gives the energy, the resonance. And gives resonant energy in its dynamic actuality a relationship with the Dao. And when that's there, the Indian word for this was *prana*. *Prana*. That such breathing energizes oneself not just with air, but with the energy of the cosmos. Not just the actuality of the universe, but the cosmos goes beyond the universe and includes its Dao.

Let's take a break and we'll come back.

Let's come back. Our strategy is a strategy that pays off in the long run. You know in classical Greece largely philosophy was a matter of arguing. And the basic strategy was to make sure that the other person understood that you were right. And there was a gesture that accompanied the fact that they gave in to you. And that is that they would clench their fist, which meant that they had grasped your point, and that they understood. In the ancient world, when someone understood that you were right, they became your disciple. This was true everywhere from India

to Ireland. And so, there were a lot of stakes in arguing with people because as they became your disciples, you got their shekels etc., etc. So, there was a great motivation for winning arguments. And what we're trying to do is to recalibrate ourselves so that we do not argue. Because we do not care who wins. Because the whole notion of winning and of argument, those notions belong to such a clumsy realm of appearance that even the realm of appearance itself is outgrown that. And they never had any traction in reality in the first place.

You know Aldous Huxley's psychotherapist, Hubert Benoit, wrote a beautiful Zen book called *Letting Go* [*Let go! Theory & Practice of Detachment According to Zen*], and he said the great point that he got across to Huxley, who was a six foot seven, highly opinionated, tremendously intellectual character from the 20's and 30's. But finally, with Benoit, he got the point that there was nothing wrong with him in the first place. And because there was no problem, it was foolish to seek for a solution.

In *Letting Go*, Benoit shows that the Zen resides in recognizing that the problem and the answer do a duet together a pas de deux, but on a stage that's completely imaginary and therefore you don't have to pay for admission. You don't have to put yourself through all of those paces because that performance is not worth it. So, we're recalibrating ourselves that a lot of the melodrama that is attendant in our lives is literally useless. And even if we won, there would be nothing. No victory whatsoever.

So, we're taking our time with a language and a style of delivery that recursively scouts back again and again, not to delay the moment of grasping, but to desensitize ourselves from the need to get it. We don't need to get it. There's never a time when we triumphantly have to emerge with the non-arrogant smirk of certainty. We just don't need it. And there's nothing in the cosmos that will applaud us that we did get it. And so, with no audience and nothing at stake, we can let it go quite easily.

There is a beautiful example of some of this in *The Double Helix*, the Norton Critical Edition. Gunther Stent, who was from the Alternate High School in Chicago from James Watson, compiled this. And he put in many different articles and viewpoints to complement Watson's

book *The Double Helix*. And one of them is by an alias he's only known as F.R.S., *Notes of a not-Watson*. So that's the ultimate disagreement that one simply is a not whatever it was.

Watson's *Double Helix*, when it first came out, was circulated in a manuscript around Harvard University Press, and everyone was excited by it. It was in a time in the late 1960's, where University Presses were coveting the fact that they might have another esoteric bestseller. The prototype and the all-time champion of that was a monograph that the University of California Press published in the 1960's by Carlos Castaneda called *The Teachings of Don Juan* [*The Teachings of Don Juan: A Yaqui Way of Knowledge*], which was published as an anthropological booklet and was sold to the major presses and of course, became one of the most successful bestsellers of all time. And so, *The Double Helix* was looked upon in that way until people began to raise objections, and the Harvard Corporation denied Harvard University Press the right to publish the book and they reneged on their contract to Watson. And Watson went to another press, where the senior editor of Harvard University Press left his job and went to this publisher, Athenaeum, and they published *The Double Helix*.

I don't know why, but the film that Jeff Goldblum made of *The Double Helix*, *The Search for the double helix* [*The Race for the Double Helix*], has been taken out of circulation. So, you can't find it anywhere. I managed to get a copy, not pirated, but I have a copy and hopefully we can make, make that available for you to see. It presents very accurately the challenge for Watson.

The challenge for the young 20 something Jim Watson was not so much to shortcut the system, the stodgy University system of Cambridge University in England, but to beat the old genius at his game, Linus Pauling. Pauling, who was the champion in the field. He had been the champion in the field by that time. For over a generation. He was the intellectual genius like the Niels Bohr of chemistry. And Pauling had done all of the basic work and should have, before James Watson was even out of junior high, have come up with a structure for DNA.

In fact, just a few months before Watson and Crick quickly published their little article in *Nature*, which caused a worldwide sensation that a half century later has not abated. Pauling made an intellectual mistake. He decided to pursue a line of inquiry that had a triple helix instead

of a double helix as the structure for DNA. This went in face of Pauling's deep wisdom for more than 20 years that complementarity was the basic structure of how reality discloses itself. He got the notion of deep complementarity from Niels Bohr. His book on the quantum mechanics of chemistry [*On the Quantum Theory of Line-Spectra*] in 1935 already understood that there was something deeply involved here in the way in which surfaces which come together have not only the principle of the exchange of centers, that principle of the Tai Chi. The center of dark in the light, the center of light in the dark, is the mutual exchange of centers. That the true meaning of equilibrium in a pair of continua in appearance is that they exchange. And we will see that this is one of the deepest principles in which existence respects the mystery of nature. That exchange is the only focus where fertility, where creativity, actually occurs.

And we'll see when we get to the ritual section in another month that all human ritual has exchange as one of its principles. Not that I give you something and you give me something, but that our exchange is on the basis of a mutuality of centeredness. So that that tai chi symbol, that mutual exchange of centers, that tai chi symbol which Niels Bohr put on his family crest. Linus Pauling took it a step further and understood the nature of bonding. That there's not only exchange. Not only is the principle of exchange of centers true, but the bonding of surfaces mutually also occurs. And this was the theme of his greatest work. It's still in print. The third edition of 1960 is still in print. The first edition came out in 1939. *The Nature of the Chemical Bond the Structure of Molecules and Crystals* [*The Nature of the Chemical Bond and the Structure of Molecules and Crystals*].

Remember that Pauling took for his model of how Tao Tae worked together. That the crystal emerges whole out of the solution when the solution is saturated. It's, as we talked two weeks ago, it's like a principle of the mystery of nature. That when completeness occurs in a phase of nature the next phase occurs spontaneously out of the fullness. What does Shakespeare the great quotation, “ripeness is all”.

So that we'll see that in human culture around the planet for all time one of the savviest qualities of ritual is this exchange on the basis of centeredness, of an equilibrium which is shared and mutual, but also an annealing of surfaces together. And that those surfaces annealed together are

what we call now bonding. And that this is true all the way to the molecular world. That atoms stay together because they have annealed their surfaces together and have an exchange capacity of centers together. That when the bonding is there of the surfaces coming together and staying together, the atoms remain themselves but enter into a molecular structure which can be characterized by a crystalline quality.

So that the earliest of the experiments that Linus Pauling in the early 1930's already was doing were a pair of qualities of diffraction. He wanted to have the crystalline structure of solids, and to photographically investigate the diffraction patterns of light out of those crystals, and also a diffraction pattern that came out of gases. So that those pairs of diffraction patterns could be analyzed in such a way as to yield the molecular structure of reality, which was unknown at the time. Now it's known to such an extent that one can find a simple little science book by Pauling and Roger Hayward, *The Architecture of Molecules*. And it's like a little children's book that shows us the molecular structure of viruses, of various molecules, including in here the structure of a polypeptide chain. A very complex series of molecules linked together. And it is polypeptide chains that produce the proteins. And it is in the folding of the polypeptide chains that the surfaces come together. And that complexity of inter surface bonding on the scale of a polypeptide chain allows for the stability of the product, the protein.

We now know by the early 21<sup>st</sup> century this is actually almost medieval in its presentation. We know by now, some 15 years later, that there are a limited, though large number of proteins and there's a possibility of doing a genome of proteins. Not only can we do a genome of all the possibilities of DNA so that we would have a complete spectrum of life available on this planet, indexed by all of the DNA, all of the genetic possibilities. But there is a further, the science is now called the 21<sup>st</sup> century science proteomics. It means the science of protein structures. And that one eventually some eight to 12 to 15 years into the century, we'll be able to literally have a phone book of proteins as well as a phone book of DNA structures.

The difficulty is, who are you calling? What will you say? Because the conversation is such that if you work only with the mind that was trained on the realm of identity-based appearances there is not anything to say. Nor is there anything to hear from such phone books.

So, this education is attempting to give us a recalibration so that there will be not only a lot to say, but there will be an attentive, patient, listening to the silences, interspersing whatever it is that one could say or could hear. And to this end, the nature of the chemical bond. I once went through the book to put a bookmark at every major turn of the argument. And as you can see, it's a very complex argument.

The nature of the chemical bond. Valence and that a molecular structure has a bivalent quality to it. And here is a quotation from Pauling speaking to this. “During the decade 1930 to 1940,” that is 70 years ago already working on this. “During the decade 1930 to 1940, I formulated a general theory of the molecular basis of biological specificity.” How do things existentially get to be what they are as they are? How do they get to be specific? How do they existentially occur with the exactness that they are?

“This involved the idea that biological specificity results from the interaction of complementarity molecular structures with hydrogen bonds among the most important of the weak intermolecular forces.” That is to say, in between atoms of, say, oxygen, nitrogen, carbon, you will have atoms of hydrogen. And the atoms of hydrogen will hold together in a rather weak way. What's necessary here for molecular stability is that within a certain heat perimeter that the hydrogen bonding hold as long as that thermal spectrum is within the realm of feasibility. So that temperature and pressure, which are related to each other, affecting the hydrogen bond allow for the thingness of existentiality to occur. The stability to occur.

The hydrogen bonds, among the most important of the weak intermolecular forces between the interacting molecules. The most striking example of specific biological interactions of this sort is the interaction between two complementary strands of the DNA molecule.

And remember here that DNA then is a very complex molecule. The double helix structure of DNA that that double strand, that double helix together is a very complex molecule then. Molecular structure.

“And that the double helix discovered by Watson and Crick some 21 years ago, is the most striking example of how this works and how this is. My early work.” This is Pauling. This is one of those moments where one would like to just grasp the hand. But it's better, I think, at this point, to just hold the hands together and appreciate. Pauling is delivering an insight, an insight from a very happy go lucky genius.

There was somebody in the in the 1970's who was doing a typology of UFO inhabitants and came up with the ultimate UFO genius were called octave doctors. Those aliens who were at home in the complete octave of expression and who knew how to reinstate everything back into its health on this basis. Here's a terrestrial octave doctor at his most insightful.

My early work was on the determination of the structure of crystals. By X-ray diffraction technique the determination of the structure of gas molecules by electron diffraction. And the application of quantum mechanics to physical and chemical problems, especially the structure of molecules and the nature of the chemical bond. So that in between the two diffraction methods, x-ray diffraction, which was the key to Watson and Crick finding the structure of the double helix of DNA. And electron diffraction of gases. And in between those two diffractive analytical techniques was the synthesizing line of development of quantum mechanics.

That is to say, the, the realm that Niels Bohr was famous for in physics, the quantum realm, based on a 1900, exactly 100 years ago, mathematical observation by a man named Max Planck. That reality in the physiological sense occurs in a discrete way because the energy has a definite value. No more, no less. And establishes that particle as a quanta. And that the energy continuum within which that happens has a discontinuity. There are realms in the world of things where energy does not record. So that from one point to another, the energy must jump in order to gain traction reestablished in the world of appearance. That those are the quantum jumps. So that energy resonance occurs with a specificity and an exactness in appearance, because it does not have a objective material continuity, but has a discontinuity within its spectrum. This later on was in fact discovered to be one of the basic qualities of a spectrograph of light from the sun, of starlight, of sunlight. Of any star it turns out.



A man in Germany about 180 years ago named Fraunhofer, discovered that in the spectra, if you blew up the spectra, the rainbow spectra that came out of a prism. Just like the prism that Sir Isaac Newton used 300 years ago to diffract sunlight into its rainbow. That if you blew that rainbow up, there are dark lines that occur there called Fraunhofer lines. And that those Fraunhofer lines occur exactly where minerals or metals occur. That they do not occur in the light rainbow, but they're included as dark lines. Because that is where the elements are there blocking that transmission of energy exactly at that frequency. So that one could do an analysis in fact, it's an everyday occurrence now. It's done billions of times every day. All you need is one single photon from any star and you can diffract that into a spectrograph and read through the Fraunhofer lines what elements are present in the atmosphere of that star. And stars differ. Some of them are metal rich. Some are metal poor. Ours is a very average sort of a sun. There are some stars who are just spectacular with, with what they contain.

If we depended just on what we could grasp, we would never understand the scale of intelligence. We would have no ability whatsoever to position ourselves in a suspended wisdom long enough to appreciate the mysteriousness of actually what is there. And what is not there, which is a part of what is really occurring.

So, this education and the language that I'm using. Not just the language style. It's a poetic formulation of language that's in a very long tradition. The English that I'm using begins about 1300 years ago with *Beowulf*. Old English. At that time, the English language was heavily Germanic in its leanings. Heavily Germanic and yet able to express because of the nature of the vehicle written at the time to found the language. *Beowulf* was an epic poem meant to convey two different incommensurable cultural archetypes. One the Teutonic hero of the guy who trusts the sword to kill the monster. The other the nascent, mysterious Irish, Greek, Hellenistic, Christian ethos that only the humility of the heart was able to characterize the presence of the real. And so, you had a meeting of Saint Francis of Assisi with Conan.

One of the characteristics of *Beowulf* is that the slaying of the monster Grendel through the power of the sword is something that happens very early in the epic. But the real travail for Beowulf is having to govern for 50 years a population of human beings who are increasingly

enervated, that is to say, sapped of the heroic energy, because of the religious ethos that had come into play. Or those whose religious ethos was corrupted by the need to align it with a power of the sword arm. So, the difficulty in Beowulf as an epic character is to have the courage of heart, as well as the strength of arm, to encourage his kingdom to exist for 50 years under his kingship and his leadership. And the proof of his ability to do this is could he return back out of a secular society to a heroic encounter again with an even worse monster. Not Grendel returning, but Grendel's mother. And it's Grendel's mother, the battle of which is the end of the epic of *Beowulf*. And it ends with the death of Grendel's mother, and also the death of the hero Beowulf.

1300 years ago, Old English because of this incommensurate this disjunctive polarity that had to go together and could only go together on the basis of a transform of the language, an epic transform of the language, that allowed for the disjunctive polarity to be turned mutually. So that the two formed a complementarity. They never went together in a realistic polarity. They were always disjunctive. But they were held together in a complementarity ratio. This is what I have taken to call. I've used the phrase for many years now, a ratio of the real. The heroic warrior was never reconciled to the humble monk. They were never reconciled. But they were held together in a pair by a ratioed vision. And it's that ratioed vision that formed the basis of what, for a thousand years was called rationality. The ability to understand that this world and the next, which is completely different from this world, have a blending together, not by melding, but by being held together in a ratioed set.

And it was this rationality that was the deepest quality of the conviction in the Medieval period. Not an easy thing to balance at all. Something that went astray at a, at a moment's challenge, at a moment's difficulty.

That realm changed after a thousand years, when Chaucer came along and refashioned English again with another transform. He saw that the ratios, that ratio of the warrior and the meditator, the prayer person. I hate to say monk because that's a stereotype. But the contemplative and the hero were only held together by a ratio which had objectivity not in the mind. The Medieval conviction was that it was in the mind. That the mind was rational. Whereas the discovery increasingly was that the mind is not rational. It does not hold ratios like that. Where the ratios

are held are in a realm of objectivity that we call the person. That there is such a thing as the classic statement was a spiritual person. The more accurate statement is a differential person. That the objectivity of the person in a differential mode is able to hold ratios stably. So that the human person was the achievement that was necessary to make the ratioed realm possible. If one tried to hold the rationality in the mind, it automatically decayed to a level of ritual comportment without anybody wanting it to. Even struggling against it. And so, in a way, a lot of the decayed logic of the Middle Ages were forms of black magic. A very, very peculiar situation.

And the need to compel on the body level is always engendered in this. Someone who tries to physiologically coerce to make an argument stick is the very nature and basis of tyranny. And one can see very quickly how the political realm devolves without anyone being to blame, with the artifactual massive incidence of regression happening all by itself. There's no need to look for bad guys. The process itself is suspect.

Chaucer's revision of the whole English language was a part of a movement in the 14<sup>th</sup> century where English was taken out of its Old English matrix and transformed again so that the ratios were not held in an integral way, but they were held in a differential way, the way of the person. So that the focus of Chaucer's language is in people. The great phrase from Chaucer, he himself characterized his poetry as being about a fair field full of folk. About the whole realm of human beings, of human nature, of humanity. You do not find in Old English an operative concept of humanity in the Chaucerian mode. You do not find an Old English literature at all any respect for a family of mankind as any kind of ideal, as any kind of ratioed archetype by which one could trust. But in the Middle English and this changes so that one can no longer call it the English that was. The Old English that had been there since the late 600's. With the 14<sup>th</sup> century, the late 14<sup>th</sup> century English becomes a different language, Middle English. And its trustworthy basis is that the prism of the person gives the spectrum and not the identity logically informed mind. You don't run starlight through the logical mind to get the spectrum of what's real. You run starlight through the population of human beings, through people. Then you get the, the spectrum that you're interested in. So that the person replaces, excuse me. The person replaces the mind as the focus for the language.

The mind used a language which was based upon silent reading in order to establish its, I have to use a political term here. It's hegemony. If you go back to classical antiquity, if you go back to the Greco-Roman age and you went into any school you would hear a cacophony of students reading out loud. You were not allowed to read silently. There were admonitions in Quintilian and many other rhetorical writers of the late Roman period that students were punished for reading silently. You had to be able to read out loud. And it was the oral declamation that was the measurement of whether or not you were able to speak. Whether or not you were literate. How you declaimed yourself aloud was the mark of your education.

And this, of course, is not just a Roman prejudice, but has carried over from the Greek civilization. Some Greek writers, rhetorical masters, used to put little stones, little pebbles, in their mouth, so that they could practice the enunciation of diction even with impediments. Or they would go to the seashore, and they would learn that stentorian projection of voice against the crash of the waves. And so, diction and projection of voice were always the hallmark in antiquity of a sound language in somebody who mastered it. Whereas in the Medieval period, silent reading was the norm. You did not read out loud. Or if you read out loud it was a single voice, and you heard silently. In monasteries if someone was going to read out loud during meals, they read to the population. But there was no sound in the individual cells where people would read to themselves. So, the contemplation was focused in the mind. Language was founded in the mind. Chaucer changed English so that it came back out again and was an oral literature.

Almost all of the portrayals that we have of Chaucer show him with his writings collected together. The squires brought together into a book on a podium. And he reading to the Lords and Ladies, the people of court. In Italy and France wherever he went in his travels buying wine for the King. So that Middle English is meant to be personally exclaimed. Not to be declaimed in quite the same way as in antiquity.

The rediscovery of oral language being personally expressive is one of the elements of the early Renaissance. Of the Renaissance from the 1200's and the 1300's. The Renaissance of the age say from Francis of Assisi to Chaucer. That early Renaissance is an oral Renaissance. An oral

rediscovery. Whereas the Renaissance in Italy in the High Renaissance is a rediscovery that the oral presentation, the reinstatement of the mythic health of antiquity in an oral language that was personal, could be raised to an even higher level by taking the symbolic silent language of the Medieval period and giving it an utterance not to, not in the mind, but in a silent voice to the cosmos as a whole. And so, the later Renaissance is a renaissance of symbols which are cosmic and do not have to be enunciated in an oral language. So that the difference is a difference between someone like a Chaucer refashioning English in the 1370's, 1380's, 1390's, and as someone like a Botticelli who is painting the *Primavera* or painting Venus *The Birth of Venus*. And it's in the silent reshaping of the symbols in the painting that delivers the cosmic intelligence of the work. It's a different entity. So, there are two renaissances. There's one of Chaucer's time, and there's one of the High Renaissance in Italy.

But the High Renaissance in Italy suspected that was always somewhat incomplete if you could not put it into a personally spoken language. And so, you find a third transform of English by Shakespeare. And Shakespeare's monumental achievement is to put the symbolic ratios of the visual realm into an aural articulateness of personal character by putting the personal characters into a larger form. The form of the play. And in fact, even larger than the play into cycles. Shakespeare's plays are written in cycles. And when one understands that the plays are meant to be seen in cycles, and that these cycles are a high Renaissance symbolic ratioing that brings the cycle of the mystery plays of the Medieval period, the oral transform of Middle English of Chaucer, the High Renaissance transform of symbol ratio, going altogether into one grand opera. And the ultimate Shakespeare play for this, the play after which Faulkner himself said Shakespeare broke the pencil and let it go, was *The Tempest*. Which is all about the choreography of a magic language to the point to where love is fertile and real and happens. And after that, the magician should take off his cape and make magic no longer but to let life be.

More next week.

END OF RECORDING